

Health implications for rural and ethnic populations: A review of community survey findings in relation to CVD risk factors and health literacy among Karen ethnic, Tak, Thailand

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Abstract

Drawing on findings from three research articles (published elsewhere) investigating health and health literacy among Karen ethnic in Thailand, this paper attempts to point out potential consequences of low health literacy among this ethnic group. We conducted this research project in Thasongyang, the westernmost district of Tak, of which its population is predominantly Karen with very low literacy rate. The findings are summarised in order to prioritise the problems and needs regarding prevention of cardiovascular diseases. We have observed very low rates of health literacy across topics under investigation. We conclude that low health literacy among this ethnic population is quite alarming and can lead to unfavourable health consequences. Language barrier is believed to contribute to health illiteracy among this ethnic population. However, we do recognise geographical difficulties and the lack of effective health communication and education program as contributing factors for such a low literacy.

Keywords: Health literacy, Karen ethnic, Rural and Remote

Introduction

Diabetes, Hypertension and cardiovascular diseases (CVD) are growing epidemic diseases in both urban and rural communities worldwide.(1) WHO estimated that 17.3 million people die of CVDs each year and 80% of these deaths take place in low and middle income countries such as Thailand.(1-3). Thailand is facing growing burden of diabetes, hypertension and CVD.(4, 5) The CVD risk factors are differently prevalent among regions of Thailand. (6) Thus, risk factors prevalent ethnic minority could be also different from the pattern in Thai community. Rural and minority populations are increasingly exposed to life style-related risk factors of urbanization. Meanwhile, disadvantaged populations are more exposed to

cardiovascular risk due to lack of power and knowledge.(1) Studies addressing those issues were still a gap in southeast Asia including Thailand which is home to a number of ethnic minorities with flourish cultures and languages. The pattern of CVD risk factors and awareness of those risk factors among the Karen ethnic community in far north-west of Thailand was not reported yet. Thus, we implemented a research project to discover those unreported information of the hard-to reach population. This survey targeted rural and minority Karen community at far north-west of Thailand. We aimed to assess cardio-metabolic risk factors, lifestyle related health risk behaviors and awareness of diabetes and hypertension among a rural residents. The objectives of the study were (1) to survey the prevalence of CVD risk factors such as hyperglycemia, hypertension, overweight and obesity, smoking, alcohol use and physical inactivity in the rural Karen ethnic community (2) to the identify the predictors of pre diabetes (3) to assess the awareness of diabetes and hypertension related health literacy. The survey findings have been published as three original articles elsewhere in the international journals.(7-9) This proceeding aimed to present a combined summary of the project by reviewing the three published articles.

Material and method

This proceeding was based on the reviewing three published articles of a single research project and combining the findings to highlight and summarize the findings in order to prioritize the problems and needs regarding prevention of cardiovascular disease (CVD) among the Karen ethnic minority at Thai-Myanmar border area.

Ethical approval

This project was approved by the ethical board of Boromarajonani College of Nursing Nakhon Lampang (BCNLP), Lampang, Thailand. Verbal informed consent was obtained before interviewing the participants. It was conducted between June 1, 2011 and September 30, 2011. The finding of this survey has been published elsewhere as three original research articles before this proceeding.

Study setting

It was a community-based cross-sectional survey conducted at Thasongyang district, Tak province, Thailand. Thasongyang is the most north-western district in Thailand and borders Myanmar at the narrow Moei River. It is a heavily forested, mountainous area. The Karen is one of the hill tribes in Thailand and one of the major races of Myanmar. They live along the Thai-Myanmar border.(10) The participants Karen were residents in the hamlets situated on the hilltops. A convenience sample of 299 adults was recruited with the inclusion criteria of (1) Karen ethic adult (2) being Thai citizen and (3) resident in Thasongyang.

Measurement

Blood pressure, fasting blood glucose and body mass index (BMI) and waist circumference measurement were provided to the participants. Blood pressure was measured after a rest for 15 minutes and, twice 15 minutes apart. Information such as smoking, alcohol, physical activity and the demographic of the participants were interviewed. Awareness of the diabetes, hypertension were assessed by a set of questionnaires.

Fasting blood glucose test was carried out at Thasongyang hospital laboratory. Body weight, height and blood pressure were measured by the public health nurses.

Questionnaires instrument for assessing awareness of diabetes and hypertension were developed by the researchers from BCNLP. Content validity and face validity was ensured by expert committee. Native health care workers and researchers confirmed comprehensibility of questionnaires by Karen natives before conducting the survey. Since there was no previous study and this study itself was a pilot, further validations of questionnaires were limited. The questionnaires were developed in Thai language. Karen participants were interviewed in native Karen language by the native researcher who could speak both languages and the interviewer administered pre-structured the questionnaires.

Definitions

Abdominal waist circumference measured at umbilicus level, > 80 cm in female and > 90 cm in male were defined as abnormal waist circumference.(11, 12) $BMI > 23 \text{ kg/m}^2$ was considered as over-weight and $> 25 \text{ kg/m}^2$ as pre-obesity and $> 27 \text{ kg/m}^2$ was obesity following Asian cut-off values.(13, 14) Current smokers were defined as being regular smokers at the time of survey. Ex-smokers were previous smokers who stopped smoking for at least 6 months before the survey. Nonsmokers are those who never smoked. Current alcohol drinkers were those who were drinking alcohol in any type, regularly or irregularly during the previous year. Ex-drinkers were those who stopped drinking for a year prior to the survey. Teetotalers were those who never consumed alcohol. Farming and agricultural works were classified as physically active and other jobs which need working seated for most working hours or being housebound with little physical movement was classified as sedentary life style.

Analysis

Statistical analysis applied descriptive and inferential approaches. Continuous variables were summarized by mean and standard deviation or median and interquartile range (iqr) and categorical data were summarized by percentage. Analytical part of the survey applied t- test, Wilcoxon signed-rank test, chi square test, simple and multiple logistic regression analysis. Stata version 11 (Stata Corporation, College Station, TX) was used for data management and analysis. Statistical significance was defined as *P* value less than 0.05 with a 95% confidence interval (CI).

Result

The finding of the research project would be summarized as descriptive finding and analytical finding. Descriptive finding would be combined as a whole and analytical finding would be presented as summary of the main findings in each publication, in order of publication sequence.

1Descriptive finding:

1.1 Demographic

The sample of 299 Karen people comprised 58.8% female participants. Median age was 45 years, (iqr 23-82). Lack of formal school education was reported by 90.72% of participants. Most of the participants were farmers (91.32%) and Buddhists (93.75%).

1.2 Cardio-metabolic risk factors

Blood glucose screening identified 3.68% in diabetes range (> 125 mg %) and 13.04% in pre diabetes range (>100 -125 mg%) , given that all participants did not have any previously known diagnosis of diabetes before the survey. Blood pressure screening identified 27 % with high blood pressure: 12 % in pre hypertensive phase and 15% with hypertension. According to Asian cut-off point (above 23 kg/m^2) one third of the participants had abnormally high BMI. BMI above 25 kg/m^2 was observed in 17.73%. There, (2.44) % of male and (17.61%) of female were having abnormal waist circumference.

1.3 Behavioral risk factors

Smoking, drinking alcohol and physical activity were assessed. Smoking rate was very high at 70% of participants being current smokers, 6.9% ex-smokers and 23.1 non-smokers. More than half 51.21% were current drinkers, 13.15 % ex-drinkers and 35.74 % were teetotaler. More than 70% of the respondents reported that they have physical activity in 5 days a week. There were only 4 % of people reporting sedentary lifestyle.

1.4 Knowledge and awareness

Knowledge assessment found less than half of Karen minority had proper knowledge of diabetes and hypertension. Less than half of participants reported that they have heard of diabetes, and hypertension. However most of them are lacking disease related knowledge such as the need for screening and importance of family history. Those who were at risk did not know themselves as being at risk. Awareness of diabetes and hypertension among Karen minority was very low.

2. Analytical finding in three published articles

The finding reported in three published articles is summarized as followed.

2.1 First article

Lorga et al. reported that waist circumference and history of having a diabetic relative were independent predictor of pre-diabetes state. The adjusted odd ratios in association with pre-diabetes were 3.5, CI 1.29–9.56 for abnormal waist circumference and 4.6, CI 1.81–11.71 I for having a blood relative with diabetes.(7)

2.2 Second article

Aung et al reported that people's smoking status was influenced by the awareness of hypertension, odd ratio 0.53, CI 0.29–0.97. This awareness of hypertension was in turn influenced by the education status, odd ratio 6.5, CI 1.9–22.2. (8) Moreover, most of the participants did not know that they were at risk of hypertension by means of life-style related risk behaviors.(8)

2.3 Third article

In the third paper, Lorga et al has pointed out the diabetes knowledge distribution of Karen ethnic minority in Thasongyang.(9) The histogram for sum of the knowledge score was skewed to the left and peaked at lower end of the scores indicating poor level of knowledge in most of the people. Moreover, female patients had significantly lower level of knowledge than the male patients.

Overall, it could be summarized that life style related CVD risk factors are prevalent among Karen rural ethnic community. The patterns of risk factors are unique to its community. Smoking and alcohol use were top ranking prevalent risk factors in the study sample. The awareness of diabetes and hypertension among that population was very low. Underlying to the low level of awareness and health education, there was lack of school education in more than 90% of the study sample.

Discussion

CVD, diabetes and hypertension become serious burdens in low and middle income countries where infectious disease are still pressing burden. Unhealthy life style and risk behaviors are increasingly adopted by the people in developing countries.(15) However, the knowledge of CVD risk factors is not well known to those people. World health organization stated that minority and underprivileged population might be affected more seriously by CVD.(1)

CVD, diabetes and hypertension are preventable diseases.(2) To prevent such diseases, people have to know their being at risk by unhealthy behaviors and voluntarily change their risk behaviors before the diseases condition has become established. Such prevention needs risk stratification in the community based screening programs. Abnormal waist circumference and history of having a diabetic relative were easily applicable risk indicators in rural community. In the first publication of current survey, Lorga et al suggested to health promotion practice in rural communities to identify high-risk individuals and prevent the onset of diabetes among Karen people.(7) Further activity and public health advocacy may trigger the evidence-suggested diabetes prevention program for rural residents living long Thai-Myanmar border.

We approached Karen ethnic rural minority in the far north west of Thailand to explore prevalence of CVD risk factors. The findings suggested a unique pattern of life style related risk behaviors which were different to Thai community.(16) Rather than physical inactivity as in city life, Karen people are at CVD risk by smoking and consuming alcohol.

Smoking rate of 70% and alcohol consumption rate of >50% were very high and clearly indicated the need for public health intervention for tobacco control and alcohol control. In the second publication of the current survey, Aung et al pointed out the smaller proportion of smokers among people who had awareness of hypertension.(8) Moreover, such awareness was more common among those who had received some level of education in their life-time.(8) Promoting education may promote the health education and consequently prevent the CVD. Further studies are necessary to explore effective smoking cessation program in this particular setting.

In the third publication of the project, Lorga et al. discussed the lower diabetes knowledge among Karen community compared to that reported by previous study conducted elsewhere in Thai community.(9, 17) Diabetes health education was obviously poor among the Karen ethnic rural people and there was gender gap among male and female. This situation compelled culturally tailored, gender-sensitive and well-designed health education strategy.(18, 19)

Moreover, according to the demographic finding, education was a basic need for this community. In contrast, World Bank education data showed very good access to education in both Thailand and Myanmar.(20) So, this problem could be particular to ethnic minority living along the border. We saw people's educational status being associated with their awareness for health.(8) Nowadays education is considered as most powerful driver to improve health and, considered as social vaccine which could even prevent HIV.(20, 21) The same concept can be applied for prevention of CVD, diabetes and hypertension. Lacking education may form a barrier to health literacy. It will also cause resistance to health promotion and health education program.(19) Therefore, proper intervention, aids and long-term projects are necessary to promote education among Karen ethnic minority along the Thai-Myanmar border.

Limitations

Because of geographical limitation and nature of participant's occupation, probability sampling methods were not applied in this survey. Ethical consideration did not allow us to recruit the non-Thai citizen Karen migrants who shared the same living style and cultural tradition with Thai Karen. We directly approached to the targeted population. These might limit the generalizability of the findings. However, the findings we reported were the first of these kinds to our knowledge, particular to Karen ethnic rural minority and serve as a probe to NCD burden and risk factors prevalence among Karen ethnic minority along Thai-Myanmar border.

Conclusion

All the findings and recommendations in three published papers consistently pointed out the poor health education regarding CVD, diabetes and hypertension in Karen ethnic community which was rooted by lack of formal school education. Our studies also identified the risk indicators readily applicable in rural setting and major prevalent health risk behaviors of the Karen community. Those might help to specify the future public health actions. In conclusion, public health advocacy for further actions to launch the urgent interventions for education-based health promotion are necessary.

Acknowledgement

The director of Boromarajonani College of Nursing Nakhon Lampang (BCNLP), Lampang, Thailand was well acknowledged for general support. The staffs of Baan Rekati Health Station, Thasongyang and Thasongyang Hospital, Tak, Thailand are heartily acknowledged for their support. Payom Thinuan is acknowledged for discussions with the authors. Professor Dr. Eiji Marui and associate Professor Dr. Motoyuki Yuasa, Department of

Public Health, Juntendo University, Graduate School of Medicine, Tokyo, Japan were acknowledged for contributing the idea of health beyond the health to the lead author.

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