Journal of Positive School Psychology http://journalppw.com
2022, Vol. 6, No. 3, 9687 - 9692

Influence of urban areas on the illnesses of NCDs in the community

[1]Nikorn Mahawan, [2]Wanpen Charoentrakulpeeti*
[3]Winit Pharcharuen, [4] Porntip Chanrat

[1][4]Faculty of Architecture and Environmental Design, Meajo University, Chiang Mai, Thailand.
[2]Faculty of Social Sciences, Chiang Mai University, Chiang Mai, Thailand.
[3]School of Administrative Studies, Maejo University, Chiang Mai, Thailand.
[1]nikorn512@yahoo.com, [2]wanpen.c@cmu.ac.th, [3]winit phacharuen@gmail.com,[4]porntip_j@mju.ac.th
*Corresponding Author e-mail: wanpen.c@cmu.ac.th

Abstract

The influence of urban areas on the illnesses of the population of NCDs was lacking a clear indication, especially the distance from urban areas, thus affecting the public health promotion planning. If the illnesses of NCDs did not vary by distances, public health promotion planning needed to be implemented in all areas, posing a growing challenge. This study aimed to (1) study food consumption behavior of suburban and rural communities and (2) study the influence of distance from the city on the illnesses of NCDs in the community. The study areas were suburban communities (San Pa Pao Sub-district, San Sai District) and rural communities (Thep Sadet Sub-district, Doi Saket District), Chiang Mai Province. Qualitative research methods were used in conjunction with the quantitative research by using a questionnaire about 125 samples of data on consumer behavior. Then, the results were analyzed by preliminary statistics. The results of the study showed that the situation of illness with NCDs of people in both suburban and rural communities tended to increase significantly. While the consumption behavior of both districts relied on pre-packaged foods or raw materials for cooking from the market, it was found that in suburban communities accounted for 88 percent and rural communities accounted for 70 percent. Consumption behavior was influenced by NCDs that were not affected by distance. The findings provided information that would give those involved in healthcare and promotion the need for a knowledge-promotion planning and health care guidelines to prevent NCDs, which covered areas in rural and remote cities.

Keywords— NCDs, urban influence on NCDs, consumption behavior

I. INTRODUCTION

The World Health Organization reports the number of deaths from non-communicable diseases (NCDs) in 2008, was at 63 per cent of the world population [1], if divided by deaths from cardiovascular disease, cancer, chronic respiratory disease, diabetes and other non- communicable diseases accounted for 48, 21, 12, 4, and 15 per cent respectively. In 2012 mortality rate from these diseases increased to 68% and it is estimated that before 2030 the mortality rate from all four diseases will increase to 75% [2]. Therefore, the death of such non-communicable diseases is a challenge that the society requires appropriate management practices and need to understand the root cause of the problem.

On the other hand, the factors that causes non-communicable diseases can be summarized from 2 main factors, such as; daily life behavior and the environment. Both factors are influenced by urbanization, urban areas are rapidly expanding and most of the world's population lived in urban areas [3]. The shift from rural to urban living environments has changed population behavior, regarding the food system of the community from the past, where people used to prepare or provide food by themselves in their respective household, to the current era where people are dependent on food from outside their household. Along with the transformation of food from the past, where people eat fresh food, to the current era where people eat frozen and processed food kept and preserved for long periods [4]. Furthermore, the urban environment has been a polluted environment with an increasing air pollution trend. According to [5], it was found that a standardised mortality ratio for cardiovascular disease was very significant and had a positive correlation with urbanization at a confidence level of 0.01, with 2.2% of Thai cardiovascular disease mortality associated with an increase in the population of 100 people per square kilometre.

The current situation of death from non-communicable diseases is higher than death from other causes combined. It is a warning sign of non-communicable diseases occurring all over the world. In Europe and the western Pacific region, the high death rate of men from NCDs accounted for 13 and 8 times more if compared to death caused by other diseases. Changes in food behavior affecting community health due to urban lifestyles therefore, it is challenging and requires basic research to create an understanding that can explain the causes and appropriate management approaches [6] to optimize, promote and maintain good health in the community most effectively.

II. Research Objectives

This study investigated the extent of the city's influence on NCDs disease in communities far from urban areas and therefore has the following objectives.

(1) Study food consumption behavior of urban and rural communities; and

(2) Study the influence of distance from the city on the condition of non-communicable diseases of the community.

III. Research Methods

This study was qualitative research, together with quantitative research. The community consumption behavior data were collected from 125 households and divided into 62 samples in San Pa Pao sub-district and 63 households in Thep Sadet sub-district and discuss the results with preliminary statistics. The major areas of study are as follows:

A. Definition

The definition of "non-communicable disease", means cardiovascular disease cancer, chronic respiratory diseases and diabetes. which are aimed at reducing premature deaths due to these four NCDs During the UN General Conference 2011 [7]. The details of diseases related to NCDs under this definition are as follows [8]; 1) All types of cancer were considered in the study. 2) Cardiovascular disease refers to the following groups of cardiovascular disabilities: hypertension (high blood pressure), sudden myocardial ischemia, heart attack, stroke, peripheral vascular disease, heart failure, rheumatic heart disease, congenital heart disease, and cardiomyopathies, all these groups of diseases are the main contributors to other non-communicable diseases. 3) chronic respiratory disease refers to asthma and chronic obstructive pulmonary disease because both diseases are a big problem in developing countries. and 4) diabetes, defined as type II diabetes, associated with hyperglycemia. due to insulin deficiency. Moreover, most diabetics patients worldwide are type 2, diabetes patients.

B. Consumer Behavior Data Collection

Factors that make humans sick with non-communicable diseases, especially heart disease, diabetes, cancer and chronic respiratory disease has complex components, which [9] and [10] concluded that there are generally two groups of risk factors: modifiable risk factors and non-modifiable risk factors. In the first group, such as human behavior and the influence of the urban city, working and living environment, social and cultural factors. The latter group is uncontrollable factors such as age, sex, genetics, etc. The general risk factors are both modifiable and fixed. It indicates the level of a person's likelihood of contracting an NCD through a condition known as an intermediate risk factor. These are biological factors of the body, such as having higher blood pressure than normal, rise in blood sugar than normal, abnormal blood lipids and overweight/ obesity. A high atypical condition is an indicator of a high likelihood that if left unattended, it will lead to chronic illness, such as heart disease, cancer, chronic respiratory disease. and diabetes, etc. Such non-communicable diseases can be prevented in the case of risk factors that can be adjusted. That is related to the traditional lifestyle of eating unhealthy food. lack of exercise, smoking and drinking alcohol by adjusting food consumption behavior, and also adjust the working and living environment to be more conducive to exercise, etc. In this study, we focus on dietary behavior issues. Therefore, the community consumption behavior data were recorded to record the general risk factors of NCDs that cannot be adjusted or Modifiable. That is the pattern of food that the community consumes based on nutritional or non-nutritive nature, leading to community illnesses with NCDs.

C. Data collection methods and study area

This study included secondary data on death and NCDs morbidity. As for the data collection of the consumption behavior of the sample was done by keeping a record of the consumption of every meal for a period of 7 days (Sunday - Saturday), including the source of food consumed each day as the purchase of ready-made food or cooked food, e.g. boiled, steaming, grilling, etc. If it is cooking, where do they get the raw materials, purchased from the market or self–produced, and how many food ingredients do they use each time? Data were recorded in the study area from 2 sub-districts (Fig. 1), consisting of San Pa Pao Sub-district, San Sai District, Chiang Mai Province. Which is located far to the east of Chiang Mai. On Chiang Mai - Chiang Rai Road in about 10 kilometres and Tambon Thep Sadet Doi Saket District Chiang Mai Province located in the same direction that is about 30 kilometres from Chiang Mai city.

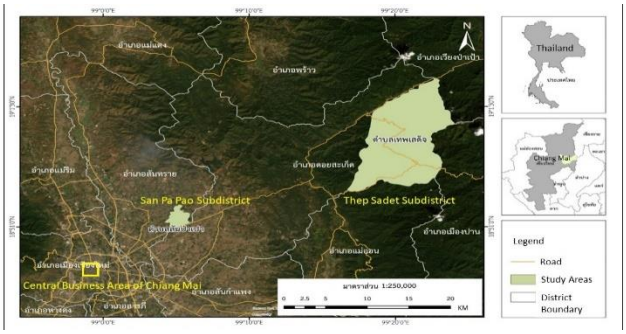

Fig. 1 Study area

IV. Research Results

Describing the influence of cities on NCD disease in communities far from urban areas by community consumption behavior factors. The mortality and morbidity situation of the communities. We must first understand the basic information in the area, and then proceed to consider the data on consumer behavior and the analysis of the influence of distance from the urban area to the community, which will further affect the consumption behavior of the community.

1. Mortality and Sickness Situation of NCDs in the study area.

From the differences in the location of the study area at San Pa Pao Sub-district, San Sai District, it is a flat area on the outskirts of Chiang Mai, it's a mixed society between urban and rural areas. While Thep Sadet Sub-district Doi

Saket District is a high place away from Chiang Mai city of about 30 kilometres. It has a rural society style. When considering the NCDs disease data, it was found that San Pa Pao sub-district had a higher number of deaths from non-communicable diseases (Fig. 2) than Tambon Thep Sadet (Fig. 3), but when considering the trend of illness due to non-communicable diseases, it was found that both districts showed a similar trend (Fig. 4 and 5), and cardiovascular disease was mostly found in both areas. While there was a slight increase in diabetes, respiratory disease and cancer in Thep Sadet Sub-district. But the proportion of the increase is quite high in San Pa Pao sub-district.

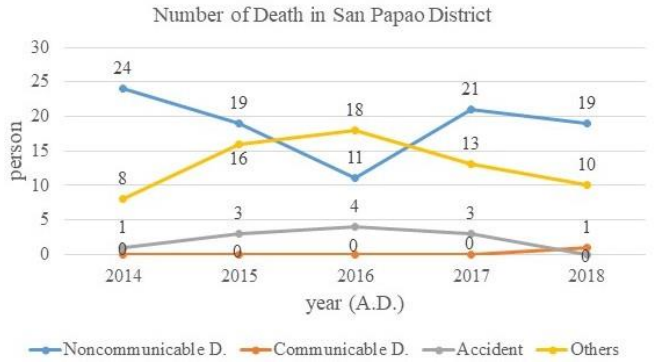

Fig. 2 Trends in the cause of death at San Pa Pao Sub-district, 2014-2018

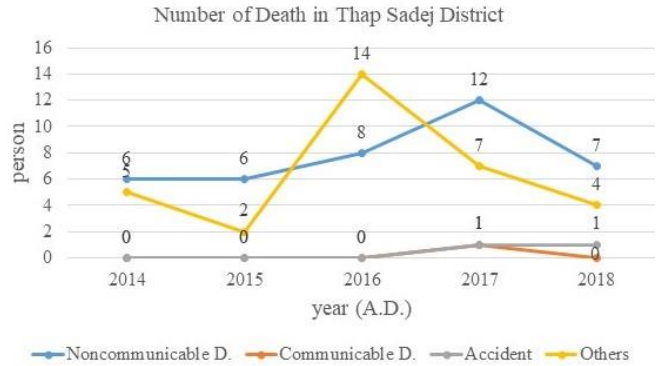

Fig. 3 The trend of causes of death, in Thep sadet Sub-district, 2014-2018

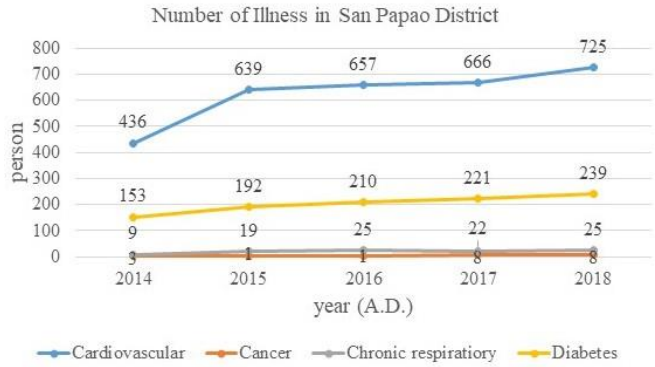

Fig. 4 Trend of illness with non- communicable diseases Classified by disease group in San Pa Pao Sub-district

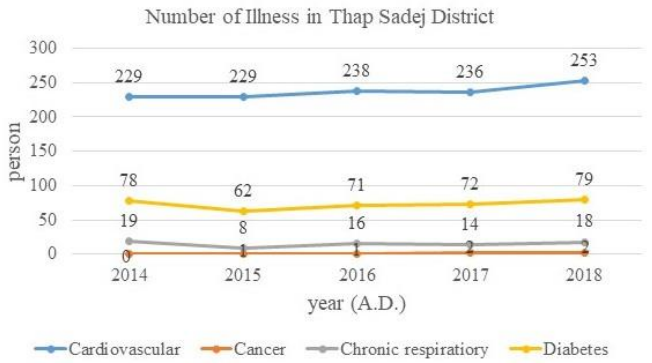

Fig. 5 Trend of illness with non- communicable diseases Classified by disease group in Thep Sadet Sub-district

2. Consumption Behavior

From the food consumption record of the samples in the study area. We can present information on the consumption behavior of the community in the form of food sources in 2 ways. buying or cooking food by themselves. How do those who cook themselves do it? considering the number of seasonings that are consumed in daily life. This will lead to the risk of contracting NCDs in the future.

Source of Food Consumed

The acquisition of food clearly shows the way of consumption. Mostly, urban dwellers have more meals from buying ready-to-eat food rather than cooking their food. Therefore, the purchase of ready-to-eat food by consumers will hinder them from getting to know or be aware of the quality of raw material used, and production cleanliness, including cooking methods. Thus, causing a risk of non-communicable diseases. Thus, this study divided the food acquisition system into two ways: 1) buying ready-to-eat food and 2) cooking self-made food. The results of the studying the food items consumed by the sample group found that the samples in San Pa Pao sub-district had the same amount of ready-to-eat food and cooked food, at a percentage of 50% of the total number of food items. While the food acquisition of the samples in Thep Sadet Sub-district found that 32% of ready-to-eat food are bought and 68% was accounted to be self-made food.

The samples in both areas had the majority of their food cooked by themselves. The sample group in Thep Sadet sub-district had a higher proportion than the sample in San Pa Pao sub-district, which was 68% and 50 per cent (Fig. 6-7), respectively, indicating that the samples in San Pa Pao sub-district had better cooking behavior. which is a higher urban style than the sample in Thep Sadet Sub-district. Due to the consumption pattern that is highly dependent on ready-to-eat food

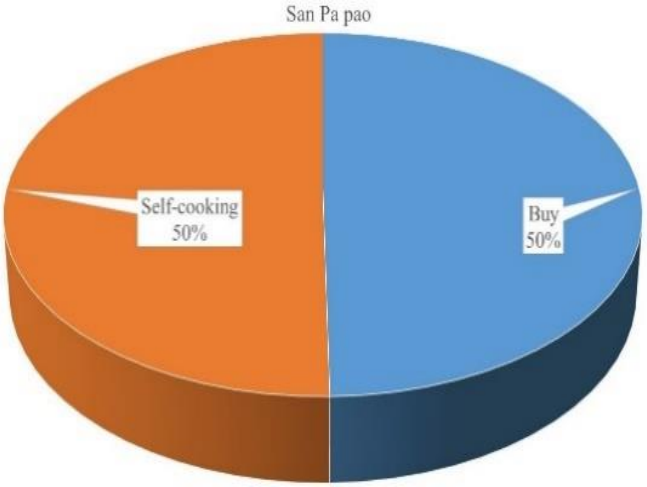

Fig. 6 Proportion of food sources consumed by San Pa Pao sub-district community

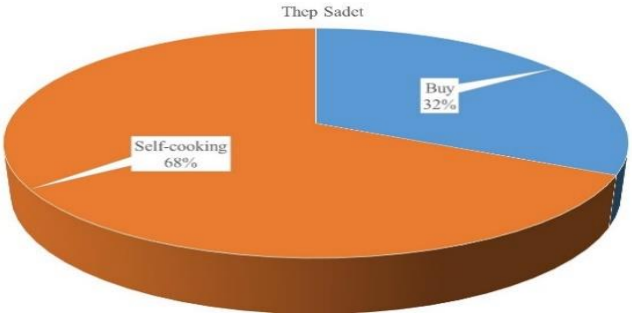

Fig. 7 Proportion of food sources consumed by Thep Sadet Sub-district community

Cooking Methods

Cooking affects the risk of NCDs. If most dishes are cooked by frying or stir-frying, makes the food greasy, and put the consumer at risk of atherosclerosis and obesity. Therefore, the methods of cooking that reduce the risk of getting sick from non-communicable diseases are boiling, steaming, spicy salads, etc.

The sample from San Pa Pao sub-district sample group consumes non-greasy food, such as; curry, which accounted for 26.3 per cent, followed by boiling accounted for 20.3%, while steaming was the least common. The cooking methods of greasy food consist of the following? frying (15%), stir-frying (14.3%) (Fig. 8), while the sample in Thep Sadet sub-district found that curry was the second most common, 28%. down to boil accounted for 16.9 per cent, while frying and stir-frying accounted for 15.3% and 12.2% respectively (Fig. 9).

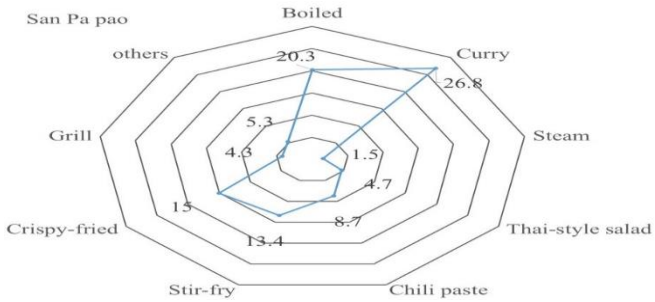

Fig. 8 Cooking methods of San Pa Pao Sub-District Community

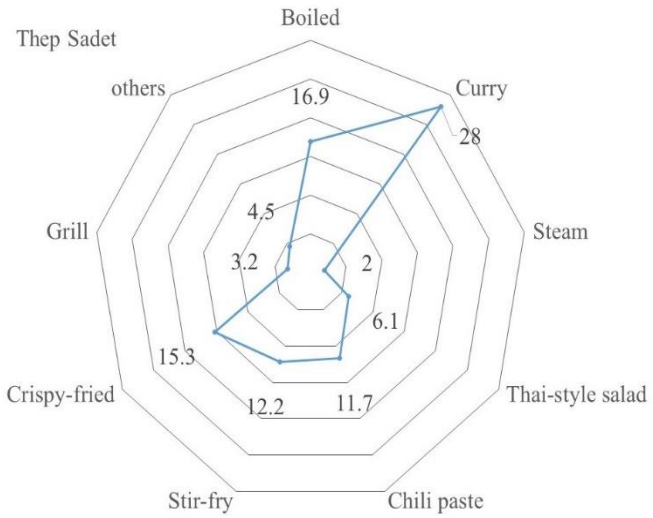

Fig. 9 Cooking methods of Thep Sadet Sub-district Community

From the cooking styles of both areas, it was found that the samples in San Pa Pao Sub-district and Thep Sadet Sub-district mostly boil and make curry, accounted for 46.6% in San Pa Pao sub-district and 44.9% in Thep Sadet sub-district. For frying and stir-frying cooking methods, the samples in San Pa Pao sub-district had their cooking done by frying and stir-frying, accounting for 29.3% and Thep Sadet Sub-district accounted for 27.5 per cent. Most of the foods are either boiled or curry making frying and stir-frying has a small proportion. This is a good sign for the politeness of the communities in both areas. However, Thep Sadet sub-district community is farther from the city than San Pa Pao community. There is a proportion of cooking methods in the way of grilling, frying and eating chilli paste more than San Pa Pao Sub-district. It can be said that the rural character of Thep Sadet sub-district had a greater effect on the traditional community food consumption behavior than the San Pa Pao community, which is located closer to the urban area.

Consumption of Food

Indicators of the World Health Organization's risk group for non-communicable diseases are eating too much salty, sweet, and oily food. They affect and cause non-communicable diseases from the results, it was found that the seasonings used by the samples in San Pa Pao sub-district are in the salty food category, which had an average sodium content of 4,854.1 mg/person per day (Table 1). The samples in San Pa Pao sub-district consumed an average of 0.8 teaspoons of sugar per person per day. Meanwhile, the average oil consumption the sample used for cooking was 0.3 teaspoons per person per day. In Thep Sadet sub-district, it was found that the samples consumed salty seasonings at an average sodium intake of 3,424 mg per person per day. The sweetened condiment is an average of 0.4 teaspoons of sugar per person per day and the average amount of oil the sample used for cooking was 0.7 teaspoon per person per day.

Table 1 Consumption of food ingredients

Seasoning Consumption	Quantity		Suggestion
	San Pa pao	Thep Sadet	below
Sodium**	4,854	3,424	2,000
Sugar*	0.8	0.4	6
Oil*	0.3	0.7	6

Remarks: ** Unit; Milligram /Person/ Day

* Unit; Teaspoon/Person/ Day

Thep Sadet community consumed less amount of sodium than the San Pa Pao community, which was consistent with the cooking behavior in the rural communities where frying and grilling were used in lesser proportions. However, considering the doctor's recommended amount of sodium intake should not exceed 2000 milligrams per person per day. Both communities continued to consume food ingredients that exceeded the level of safety for health.

3. Influence of Distance from City on Community's Risk of NCDs

Working in a city where most of the time is spent commuting to work outside the home, gave the vocational structure a distinct character, with the city's influential communities having greater proportions of trade and service occupations than those in agriculture. The data from a population study in the year 2016 found that the people in San Pa Pao sub-district, in terms of occupation are mostly general contractor (38.44%), followed by trading (9.15%), while the agricultural occupation was the least at 4.7%, compared to the people in Thep Sadet Sub-district. Most of them are engaged in agriculture, 85%, general contractor. accounted for 10%, and trading. 5 per cent. This indicated the influence of the city's economy on the behavior of communities in the study area. which resulted in the consumption behavior of the community. The occupations related to the city depended more on prepackaged food than the countryside. This corresponds to the proportion of food consumption in San Pa Pao sub-district, located near the city, which was higher than in Thep Sadet sub-district, which is located farther from the city area. However, if considered the behavior of the samples, that engage in self-made food, It was found that 56 per cent of the samples in the San Pa Pao sub-district purchased their raw materials/ ingredient from the market. However, the position of their makes them close to the city, allowing them easy access. On the other hand, 41% bought their raw material/ ingredient from local shops. In Thep Sadet sub-district, which is more than 30 kilometres from the city, 49 per cent relied on purchasing ingredients for cooking from local shops. While 38 per cent of the ingredients are reliant on hawkers and bought from the market, which accounted for 12 per cent, and this is done on occasional purchase, when they visit the city or have the opportunity to do some other things at the market at 12% (Table 2)

From the death and sickness situation, due to non-communicable diseases. Occupational structure and food source of the community, we can infer the influence of the city on the community's risk of illness with non-communicable diseases. Communities located near urban areas had higher rates of death and sickness from NCDs than those far from urban areas, related to the pattern of change in 3 characteristics:

(1) Change in the occupational structure, where people engage as a general contractor and traders at a high rate. The characteristic of such an occupation requires urgency to compete with time. Therefore, it is more convenient to buy ready-made food than to cook by themselves. Hence, ready-to-eat food in the market reduced healthy nutrition.

(2) Change in consumption behavior that changes from self-cooking to reliance on ready-made food in the market, where the nutritional value cannot be controlled as desired.

(3) Change in behavior of the production of food raw materials in the household. This is the purchasing or buying of raw materials from the market with a high risk of chemical residues from production. Which is a major cause of the risk of non-communicable diseases.

Table 2 Community food raw materials sources

Material Sources	Proportion (%)	
	San Pa pao	Thep Sadet
Markets	56	12
Community shops	41	49
Food carriages	1	38
Convenience stores	2	1
others	1	1
Total	100	100

V. DISCUSSIONS

Based on the proportion of consumption behavior by purchasing food as high as the proportion of self-cooking in communities near the city, this was consistent with [4] that said, urbanization has shifted population behavior towards community food systems from predominantly self-prepared or self-supplied food in the household to reliance on food from outside the household. Along with the desired food form, that has shifted from fresh food to processed food and can be stored for a long time. while the cooking method that the community near the city prefers to consume food, are in form of frying and grilling, this is higher than communities far from urban areas. In addition, the consumption of sodium is more than the appropriate value for the body, which is a concern that [2] calls for the establishment of behaviors that are far from non-communicable diseases by reducing the amount of salt and fat in the diet. Secretariat of the Convention on Biological Diversity proposed guidelines for maintaining the health of the world's population [11], to be the cities role. This is because cities are a factor that can increase the likelihood of exposure to common risk factors leading to NCDs, such as changes in the physical activity and food system of the community.

The guidelines for avoiding non-communicable diseases according to the recommendations of the public health agency are to control health care by eating good, nutritious, non-toxic food, coupled with adequate exercise and take care of self- mood not to be stressed. An important UN recommendation for promoting good quality, nutritious and organic food is to promote access to food by communities and have enough purchasing power to meet the needs of the family, along with the use of economic measures to create barriers to access to poor quality food [12], but promoting community access to adequate food can be effectively and efficiently achieved through community awareness itself. Therefore, self-reliance and management of food self-care is a very necessary approach in the process of promoting community health to be far away from non-communicable diseases.

CONCLUSION

From the information found in this study, the influence of the city on the condition of illness due to non-communicable diseases can be summarized as Lifestyle in urban areas affects lifestyle changes in surrounding communities, even if both are located near and far from urban areas on different levels; The influence of the city had a greater effect on the risk factors of communicable diseases in communities located closer to the urban area than in those farther away in two ways: (1) The occupational structure of the nearby urban communities has changed, along with (2) the consumption behavior that relies more on pre-packaged food than to cook their food. This is a risk factor for inappropriate nutrient intake, which leads to illness from non- communicable diseases. In addition, when considering the source of raw materials used for cooking in the self-cooking behavior group, it was found that both communities depended on food ingredients from the market rather than the products by themselves. which is a risk factor for chemical residues in food raw materials leading to illnesses from non-communicable diseases. Therefore, self-sufficiency and food self-management is an essential approach in the process of promoting community health away from non-communicable diseases both in communities located near and far from the city.

ACKNOWLEDGEMENT

As this paper is a part of the research project of "The study of guidelines for the spatial arrangement to resilience community from non-communicable diseases: the comparative case of Sanpapao sub- district municipality, Sansai district, and Thepsadej sub-district, Doi Saket, Chiang Mai.", the authors would like to acknowledgement to Thailand Science Research and Innovation (TSRI) who is a supporter.

REFERENCES

[1] World Health Organization, "Draft action plan for the prevention and control of noncommunicable diseases 2013-2020", Sixty-Sixth world health assembly Provisioinal agenda item 13.2, A66/9, 6 May 2013.

[2] World Health Organization, "Attaining the nine noncomunicable diseases target; a shared responsibility", *GLOBAL STATUS REPORT on noncommunicable diseases*. pp. 97, 2014.

[3] T. Elmqvist, C. L. Redman, S. Barthel, and R. Costanza, "History of Urbanization and the Missing Ecology", *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities*: A Global Assessment, Springer, 2013.

[4] A. A. Djurfeldt, "Urbanization and linkages to smallholder farming in sub-Saharan Africa: Implications for food security", Global Food Security, 4, pp.1-7, 2015.

[5] C. Angkurawaranon, N. Wattanatchariya, P. Doyle, and D. Nitsch, "Urbanization and Non-communicable disease mortality in Thailand: an ecological correlation study", Tropical Medicine and International Health, 18 (2), 130-140. 2013.

[6] A. Terzic, and S. Waldman, "Chronic diseases: the emerging pandemic", Clinical and translational science, 4(3), pp. 225–226, 2011.

[7] V. Kontis, C. D. Mathers, J. Rehm, G. A. Stevens, K. D. Shield, R. Bonita, L. M. Riley, V. Poznyak, R. Beaglehole, and M. Ezzati, "Contribution of six risk factors to achieving the 25 x 25 non-communicable disease mortality reduction target: a modelling study", The lancet, 384(9941), pp. 427-37, 2014. doi: 10.1016/S0140-6736(14)60616-4.

[8] A. Boutayeb, and S. Boutayeb, "The burden of non-communicable diseases in developing countries". International Journal for Equity in Health. 4(2), 2005.

[9] S. Yarahmadi, K. Etemad, AR. M. Hazaveh, and N. Azhang, "Urbanization and Non-Communicable Risk Factors in the Capital City of 6 Big Provinces of Iran ", Iranian Journal of Public Health, 42 (Supple 1), pp.113-118, 2013.

[10] M. Rayner, K. Wickramasinghe, J. Williams, K. McCool, and S. Mendis, "An Introduction to Population-Level Prevention of Non-Communicable Diseases", U.K.: Oxford University Press, 2017.

[11] Secretariat of the Convention on Biological Diversity, "Cities and Biodiversity Outlook", Montreal, 2012.

[12] United Nation, "World Urbanization Prospects: The 2018 Revision", 2018. Retrieved from https://population.un.org/wup/Publications/Files/WUP201-8KeyFacts.pdf.