Improving Clean and Healthy Living Behavior in the Poor Communities in Coastal Area, Serdang Bedagai

Sri Fajar Ayu[1], Destanul Aulia[2], Meutia Nauly[3]

[1]Department of Agribusiness, University of Sumatera Utara, Indonesia
srifajar.ayu@gmail.com

[2]Department of Health Policy and Administration, University of Sumatera Utara, Indonesia
destanul.aulia@usu.ac.id

[3]Departement of Social Psychology, University of Sumatera Utara, Indonesia
tianauly@gmail.com

Abstract— One of the consequences of climate change is the increasing number of infectious diseases. Infectious diseases can actually be inhibited with a clean and healthy living behavior. This is proven by there is no indication of increaseing infectious diseases in developed countries where the implementation of clean and healthy living behavior is consistent. This study aimed to analyze the behavior of clean and healthy living of infectious diseases patients in poor coastal region's Serdang Bedagai. Design of this study is a survey with a mixed method of quantitative and qualitative. Participants in this study were 20 people who had a history of tuberculosis, four men who have a history of malaria, 17 people who had a history of dengue infection and 30 people who have a history of diarrhea disease. The study used quantitative and qualitative descriptive analysis. The result of the study shows that the score of Clean and Healthy Living Behavior (Perilaku Hidup Bersih dan Sehat) for knowledge and action is low, although the score was quite positive for attitude. Qualitative analysis showed that the parties that play an important role in shaping the behavior of clean and healthy living is the housewife. Therefore the knowledge necessary to improve the system is by giving priority to the education and empowerment of mother of the household. Based on the findings from this study, the positive attitude is the basis to improve clean and healthy behavior.

Keywords— Clean and healthy living behavior, poor communities in coastal area, infectious diseases.

I. INTRODUCTION

Health is very important for individuals, in order to live decently. Therefore, people are always trying to stay well. Individual efforts to remain well should be assisted by the state because the state is obliged to help citizens to live healthy lives. Efforts to stay healthy often face the challenge, the challenge from within themselves as well as from outside. Challenges from within themselves, for example, eating good foods, not all people like eating a healthy diet, adequate rest or regular exercise. From outside, the challenge includes environmental health or climate change. Climate change that is now happening made the spread of infectious diseases faster than before.

Climate change according to Watts et al. (2015) provides direct and indirect effects [12].The direct effects of climate change include increased heat stress, floods, drought, and increased frequency of intense storms, while the indirect effect, including threatening population health through adverse changes in water pollution, the spread of disease vectors, food insecurity and under-nutrition. According to Epstein (1999) changes in food supply could lead to permanent or semi-permanent displacement of populations in developing countries, consequent overcrowding and associated diseases, such as tuberculosis [1]. Tuberculosis also very vulnerable to climate change [11]. Furthermore, Xiaoxu *et al.* (2016) states that alternations in one or more climate variables including temperature, precipitation, wind, and sunshine may impact the survival, reproduction, or distribution of disease pathogens and hosts, playing an ever-increasing role in driving the global emergence, resurgence and redistribution of infectious diseases [16]. Today, Indonesia is the country with the second largest number of TB patients around the world [15].

According to Githeko *et al.* (2000) temperatures risen by 1.0–3.5ºC will increase the likelihood of many vector-borne diseases such as Malaria and Dengue fever in the tropics area [5]. Rainfall, shifts in precipitation affects the dissemination of water-borne pathogens. Rainy season is related to the increase of fecal pathogens as heavy rain may stir up sediments inwater, leading to the accumulation of fecalmicroorganisms [6]. Many infectious diseases

are transmitted by ingestion of, inhalation of, or contact with contaminated water [9]. These infections can also lead to a wide range of clinical illness such as diarrheal disease which is the second leading cause of death among children under the age of five worldwide [8].

Thus climate change has become a major threat for anyone to stay healthy. This threat is not only for individual, but also a challenge for those involved in the health field, scientists and the government within a country. Frumkin et al. (2008) as a public health expert from the United States declared that the right answers to address this threat are preventive actions to keep the spread of infectious disease is not so quickly and endanger the health of all people [3].

In Indonesia, according to the Ministry of Health (2013) efforts in tackling the disease as a result of climate change is to conduct surveillance against five diseases (diarrhea, pneumonia, influenza-like illness, dengue fever and malaria) [8], [14]. Another effort is the health ministry conducted a study and mapping of susceptibility models of infectious diseases due to climate change with a focus on dengue fever and malaria. These efforts are a form of the early-warning system for climate-based disease to undertake preventive measures and practical promotion, such as community empowerment in mosquito eradication, environmental sanitation maintenance and others.

As a form of anticipation of diseases caused by the changes of weather, Health Ministry made health promotion efforts to the public through "Clean and Healthy Lifestyle (PHBS) program," increase early awareness of disease with active and passive surveillance. In addition, ministry of health also improves the supervision of environmental risk factors (water sanitation and environmental hygiene, breeding places, etc.). Next effort is to provide logistical material water purifier (PAC/ water cleaning fast) in regions that are difficult to get clean water, preparing medicines and medical equipment was sufficient, set up facilities, adequate health care, in coordination with the Provincial Health Office, Health Office/City, Technical Implementation Unit (UPT) of the Ministry of Health and across sectors. Efforts should be made by public according to Ministry of Health in the face of the threat of disease due to climate change, is applying behavior of Clean and Healthy Lifestyle (PHBS). Handwashing with soap, the use of hygienic water and healthy latrines, eradication of wiggler (at home, school, work, and environment), dispose of waste in place, do not spit, use personal protective equipment when necessary, such as wearing boots during floods to avoid infection of leptospira, use nets or mosquito repellent in the area vulnerable endemic dengue. Thus, an effort to implement Clean and Healthy Behavior is very important to be applied by the public in order to remain healthy in conditions of climate-change challenges. Clean and Healthy Lifestyle Behavior (CHLB) is a government health promotion program aimed to increase self-reliance in maintaining and improving health. CHLB is developed through five orders, the household, educational institutions, the workplace, public and healthcare facilities. There are 10 indicators of CHLB in households, births assisted by skilled health personnel, giving breast-fed babies, weighing under five every month, consume clean water, hand washing with soap, using the healthy latrines, eradicate mosquito larvae, eating fruits and vegetables every day, activity physical every day and do not smoke inside the house [7]. Individuals in their vulnerable period may be exposed to infectious and non-infectious diseases, therefore, to prevent household members from various kinds of diseases, they need to be empowered to implement CHLB. In other words CHLB may prevent individuals, groups and communities from infectious and non-infectious diseases.

Serdang Bedagai (Sergei) is one of the districts in the East Coast Region North Sumatra, Indonesia. The district has the advantage in the field of marine and agriculture. This area (the coastal area) is also thought to be the most impacted by climate change [13]. In this are, where society life dependent on agriculture and fishery's sectors and sensitive to climate change. Unfortunately, these people generally are the poorest people in Indonesia, which has limited resources in the face of climate change. Based on the Health Profile of North Sumatra in 2012 (Department of Health North Sumatra, 2013), it is notes that an outbreak of infectious diseases is still high in Serdang Bedagai district, such as Tuberculosis (772 cases), Malaria (90 cases), Dengue Fever (49 cases), and the symptoms of diarrhea (25, 550 cases).

Serdang Bedagai has 17 sub-districts. One of the district is Tanjung Beringin with a population of 37,497 peoples [10]. Community of Tanjung Beringin mostly works as fishermen because this district is located along the coast. Infectious diseases cases in the district of Tanjung Beringin is also fairly high. According to Statistics of Serdang Bedagai Regency (2015) Tanjung Beringin Sub-district has the case of Tuberculosis (20 cases), Malaria (4 cases), Dengue Fever (17 cases), and the symptoms of Diarrhea (632 cases) [10]. As it has been suggested by the Ministry of Health that efforts need to be made public to address the adverse environmental effects due to environmental changes through the Clean and Healthy Lifestyle Behavior (CHLB). With the outbreak of infectious diseases in Tanjung Beringin then this study would like to see the implementation of CHLB that is done in this area and see what efforts might be done to improve the implementation of clean and healthy living behavior in this area.

II.   METHODOLOGY

This research was conducted in the district of Tanjung Beringin Bedagai Serdang. Research location determined purposively. The study area is coastal areas and a large part of population working as a fisherman. The study was done in September 2016. The scope is ten components of CHLB observed as a family of fishermen.

The study population is a whole family of fishermen were one person represents one family residing within the district of Tanjung Beringin. Based on data from BPS Serdang Bedagai (2015) note that in the district of Tanjung Beringin there were 20 cases of Tuberculosis, Malaria 4 cases, 17 cases of Dengue Fever, and 632 cases of diarrhea. Based on this information, this study took a sample of 20 peoples who has a history of tuberculosis, four peoples who has a history of malaria and 17 peoples that had a history of dengue fever [10]. Respondents representing the diarrhea disease have as many as 30 peoples because of the general magnitude 30 is considered adequate for testing correlation [4].

Overall, this study taken 71 samples from Tanjung Beringin Subdistrict. The sampling process was done purposively based on data from Puskesmas Tanjung Beringin.

The data were analyzed quantitatively and qualitatively. Evaluation of fishermen household CHLB score was analyzed with quantitative descriptive. Answers of respondents regarding the CHLB questions are divided into three major portion, knowledge, attitudes and actions and calculated based on the number of scores. Score consists of grades 1 to 4 in accordance to the number of questions. The alphabetical a to d choice or Likert scale of 1 to 4 for the statement. Based on the sum of scores for each portion is determined whether the score CHLB obtained categorized as good, moderate or less (worse). If the score is in the range 71-94 then said to be good. If the range of scores between 52-70 said scores is medium, and if the score between 0-51 is less (bad). Qualitative analysis aims to find parties who play a role in determining the behavior of clean and healthy living in the household. With this finding, it is expected to be suggested to improve the implementation of clean and healthy living behavior in every household in the study area.

III.   RESULT AND DISCUSSION

District of Tanjung Beringin is one of 17 districts in Serdang Bedagai. This area was the region with the highest number of fishermen. As coastal areas, in Tanjung Beringin Subdistrict, there is no housing that meets the requirements of a healthy home. The dirty surroundings and humidity facilitate the fastest growing infectious diseases in the region. The population socio-economic characteristics are presented in Table 1.

TABLE I
RESPONDENTS SOCIO-ECONOMIC CHARACTERISTICS

Characteristics	Category	Number	Percentage
Age	Teenage (17-25 years)	10	14,1
	Early Mature (26-35 tahun)	35	49,3
	Mature (36-45 tahun)	18	25,4
	Elderly (46-55 tahun)	8	11,3
Gender	Men	36	50,7
	Woman	35	49,3
Reeligion	Islam	70	98,6
	Christian Protestant	1	1,4
Ethnic	Malay	48	67,6
	Java	11	15,5
	Mandailing	5	7,0

Characteristics	Category	Number	Percentage
Ethnic	Batak	2	2,8
	Karo	1	1,4
	Aceh	4	5,6
Education	No school experince	10	14,1
	Primary	34	47,9
	Junior high	24	33,8
	Senior high	3	4,2
Income	> Minimum Basic Salary of Suamtera Utara Rp 1.811.875,-	5	7,0
	< Minimum Basic Salary	66	93,0
House ownership	Rent	2	2,8
	Own	69	97,2
House construction	Non permanent	16	22,5
	Semi Permanent	45	63,4
	Permanent	10	14,1

Based on the respondent's age, it was discovered that most (almost halves) of the respondents are in the productive age. Furthermore, the number of male and female respondents are balanced, with only one difference found for male population. Almost all respondents are Moslem, only one Christian. Most of the peoples in Tanjung Beringin is ethnic Malays. This leads to the language used within this area, which is mostly Malay.

The educational program established by the government to complete a high school education, is not succeeded in the study area. It can be seen from the highest level education is only primary education. Income per month less than the regional minimum wage of North Sumatra. Only 5 or 7 percent of the respondents who have higher incomes than the regional minimum wage. Thus it can be said most respondents categorized as poor. Most respondents also have a non-permanent or semi-permanent house owned solely by the community (not rented). However, sightings in general, people's houses are not clean and unsanitary. It can be said to have poor sanitation and hygene.

An interesting point to be discussed on the respondents' overall assessment is that the respondents are the people who suffer from infectious diseases such as tuberculosis, malaria, dengue and diarrhea. Almost all respondents worked as a fisherman and also are in the productive age. What will happen if they get sick? This will cause the cessation of revenues and lead to even deeper levels of poverty that already exist.

A.   Quantitative Study Results: Scores of Clean and Healthy Living Behavior (CHLB)

CHLB is a set of behaviors practiced assuming consciousness as a result of learning, which makes a person, family; group or community can help themselves (self-contained) in the field of health and play an active role in creating public health [7]. While CHLB at the household level is an effort to empower members within the household to be conscious, willing and able to do CHLB to maintain and improve their health, prevent the risk of disease and protect themselves from the threat of disease and actively participate in the public health movement. After conducting questionnaire based interviews to calculate the score CHLB community in the district of Tanjung Beringin, it is found the score as shown in Table 2.

TABLE II
CHLB SCORE

	Good	%	Medium	%	Bad	%	Total
Knowledge	7	9,9%	48	67.6%	16	22.5%	71
Attitude	4	5.6%	67	94.4%	0	0%	71
Behavior	14	19.7%	19	26.8%	38	53.5%	71
Total	**25**		**134**		**54**		

Table 2 shows that the score is measured based on three categories: knowledge, attitude and behavior. Knowledge about CHLB is knowledge of Behavior of Clean and Healthy Living specified by 10 elements, namely: births assisted by skilled health personnel, to give exclusive breastfeeding, weigh under five every month, use clean water, wash hands with water and soap, using latrines healthy, eradicate larvae at home once a week, eat fruits and vegetables every day, doing physical activity every day, and do not smoke in the house. Knowledge in CHLB measured based on the category of good, average and less. There are 7 respondents of the total 71 respondents, or only 9.9% had a score of knowledge was considered good. Most of the respondents have a moderate score, 67.6%. The remaining 22.5% of respondents have less knowledge scores or bad. Thus 90.1% of respondents have moderate to poor knowledge.

CHLB attitude is a readiness or willingness to ac in accordance with the Clean and Healthy Living B ehavior (CHLB) as measured by the 10 elements C HLB. Table 2 shows that the most score of CHLB a ttitude is moderate. The number of respondents who have the medium score are 67 peoples or 94.4%. O nly 4 respondents obtained good scores and no resp ondents who have scored categorized as less or bad.

The latter CHLB score is the action (behavior) score. Good knowledge and the right attitude to be shown with the correct actions. CHLB is deliberate motion activities with aim to implement healthy behavior.Table 2 shows that a low score of knowledge and moderate attitude scores, will result in the lack or poor category in the action (behavior) scores. It is very unfortunate, and this is a call for more effort of the religious leaders, the government and the whole society in order to fix this problem.

B. Qualitative Study Results: Party that Shape the CHLB in Household

Based on interviews with five husbands of the household it is found that the wife is more involved and dominant in making a decision about health. Household behavior in maintaining hygiene and health is determined by the wife. This is evident in the results of interviews with five husbands. First respondent named Suwardi (not her real name) states that: "Health ... I do not understand ... usually my wife who cares ..."

A similar opinion came from Mr. Ahmad (not his real name): "When it comes to cleaning up in the house, it was my wife who knows more than me ... .".

The third respondents named Mr. Irwan (not his real name) said: "To discuss things like that, you'd better ask my wife ... ."

Mr. Abdi (not his real name) immediately responded by stating: "My wife knows more about health matters. I do not want to interfere ..."

Finally, the conclusion that the wife has a bigger role in shaping clean and healthy behaviors within the household confirmed by the statement of Mr. Sadeli (not his real name): "Most of the men here are fishermen, we sail most of the time, rarely at home ... no time to take care of things like that"

The interview was also conducted on five housewives. Interviews showed that the decision regarding clean and healthy living behaviors associated with 10 of its components is determined by knowledge of the wives. Results of interviews with Mrs. Ana (not her real name) about childbirth, breastfeeding and to weigh the baby are as follows: "It was me, who tell my husband, with whom I want to give birth with midwife or not ... "

"After my son was born, my husband rarely at home, it's up to me, whether I want to breastfeed my son or not, I want to weigh my baby's body or not ... ."

Respondent's housewife named Fitri (not her real name) complained about the availability of clean water and the price of the soap that is expensive: "Clean water is difficult here ... they are expensive ... so I think water should be saved, I use the clean water only to drink .... I'm the one who always buys water for this family."

"Soap is also expensive, if you want to take a bath, yes ... use soap ... ".

Regarding latrines and mosquito larva housewife respondents named Nia stated: "This is the latrine for the poor look like ... we have to build it even we have not much money....I told my husband to create inexpensive toilets only."

"Mosquito larvas are a lot here, because we are surrounding with water and garbage, this is always happened when you have a house in the coastal area... ."

About eating fruits and doing exercise respondents named Fatimah smiled, saying: "It is already difficult for me to buy food for the daily meals. I do not have money to buy fruits ... "I always work continuously throughout the day. It was tiring. I don't think I need to do the exercise ..."

Finally, regarding smoking inside the house, housewife named Aisha said: "When my son was little, I forbid my husband to smoke inside the house. My husband follows my rule not to smoke inside my house ... now my son is always go to scholl, rarely home. I do not forbid him again ... "

It can be concluded from the results of a qualitative study shows that the decisions of a clean and healthy lifestyle in conjunction with 10 components are almost entirely dependent on the housewife (wife).

Quantitative study results showed that 90.1% of respondents have knowledge with a score of moderate to poor, 94.4% of respondents had a

moderate attitude, and 53.5% had a bad practice. In other words, in general, respondents do not have sufficient knowledge about CHLB (knowledge), but ready or willing to act in accordance with CHLB (attitude), resulting in incorrect behavior (action) because the knowledge is not enough. This finding is interesting, because the attitude of a high enough score. This is an excellent basis to help people in these areas to be more successful in a clean and healthy living behavior if given the right knowledge. The results of the qualitative study also showed the same thing which supports the results of the quantitative study. For example, the wife has knowledge about the danger of smoking inside the house for the children, not for adults. This results in an attitude not to smoke near children, but still smoke near the adults, this condition causing the wrong behavior for the husband.

Thus, the results from the study basically show the need for more health promotion efforts in this area. The main health promotions efforts suggest by this study are providing learning or empowerment to wives or housewives. The suitable method to help improve knowledge of housewives according to Ewles and Simnet (1999) is to perform a one-to-one teaching, provide written materials or create study groups [2]. Furthermore, in order to change the behavior or action, it would be better if the extension worker forms working groups, do the training, giving instruction one-on-one person or directly give advice.

Talking about giving knowledge to the wives, in poor areas like this, before becoming a wife, a girl should have enough education or educational efforts for girls is indispensable. With school, a girl will have only a few children, reduce child mortality and in turn improve public health. This is an even better effort than the efforts to raise GDP for the poor.

IV. CONCLUSION

1) Results of the evaluation of CHLB through quantitative studies show that society has the knowledge with moderate to bad score, score medium for the action, and score bad for behavior. In other words, in general, respondents do not have sufficient knowledge of CHLB (knowledge), but ready or willing to act in accordance to CHLB (attitude), resulting in incorrect behavior (actions) due to poor knowledge.

2) The results of the qualitative study showed that in the household, the wife is a health decision-makers and shaping CHLB in the household.

V. SUGGESTION

More health promotion efforts, especially to provide learning or empowerment, is needed to wives or housewives in this area. The suitable method to help improve knowledge of this housewife is to do one-to-one teaching, provide written materials or create study groups. Furthermore, to change the behavior or action, it is better to prepare working groups, training, instruction one on one person or directly give advice.

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