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Nutrition Literacy and the Elderly with Hypertension

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Abstract

Hypertension is a highly prevalent condition with numerous health risks, and the incidence of hypertension is greatest among the elderly. There are a number of collateral effects, including risks for dementia, physical disability, cardiovascular, and diabetes. The multi-dimensional risks of hypertension among the elderly have been found to be associated with smoking, obesity, sedentary lifestyle and lack of physical activity. However, one of the determining factors of hypertension is food consumption. Consumption knowledge could help the elderly especially in a community setting. Being exposed to various types of health information influence elderly's decision making, behavior changing and creating appropriate lifestyles; but knowledge alone cannot develop the skills for making the right consuming decision. Thus, why nutrition literacy intervention seek to be composed of both providing health information and types of empowering activities to ensure that the elderly can make their decision appropriately. Furthermore, those activities help them to develop critical thinking skills and lead to appropriate consumption decision when they share their successful experiences in their group.This article integrates the process of nutrition literacy by Nutbeam with the Sorensen model and relates them into practice management for the elderly with hypertension, no matter the elderly's different level of knowledge or skills. At the end of this presentation, example of nutrition literacy intervention is provided to show that health education alone may be not enough to change the elderly mindset on consumption practice. In conclusion, nurses and health professionals should consider various types of activities for the elderly to sustain their behavioral changes.

Introduction

In 2030 or the next ten years, Thailand will be heading toward the full-fledged aging society, with 26.3 percent of the population will be over 60 years old (Ministry of Social Development and Human Security, 2014) and tend to be full-fledged aging society by 2040 (Foundation for Older Persons' Development, 2018). The increasing number of elderly has an impact on the health system. As a result, it will cause the prevalence of chronic diseases as the body deterioration is a major causal factor. Consequently, there are several movements of social and health services in all dimensions with a focus on the elderly as an important target group.

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When people enter to elderly age, there are various changes in both their physical and mental conditions. Physical changes will reduce self-care ability and they need for more assistance from family members in term of economics, social activities, and daily living. So, the elderly is divided in three groups. The first, normal group, is the elderly who are healthy, are able to care for themselves and can participate in social activities. They probably have chronic disease but the severity is undercontrol by their healthy behaviors or medication. The second, risky group, is the elderly who are at risk of chronic disease complications or increased severity. The third, sick group is the elderly with complex illness and need special care from multidisciplinary team and may be bed ridden. They need total or almost total help in their daily activities and need countinuall health check ups (Jitramontree, 2011).Normal and risky group can participate in outdoor activities in the community because they have no physical limitation. Thus, health care and self-management activities related to health conditions, health promotion, surveillance of risks to violence or complications of diseases are emphasized on these two groups in order to enhance good quality of life in accordance with their health conditions.

Results from the 5th health survey of Thai people by physical examination (NHES V) found that the elderly had significant health problems as follows:hypertension (53.2%), diabetes (18.1%), depression (34%),and osteoarthritis (22.5%). These diseases are determined by consumption behavior (Aekplakorn, 2014). In addition, consumption behavior also affects health conditions even in those who are not sick. It will cause a change in the biological indicator (biomarker) showing that a person is possibly at risk of the mentioned diseases by indicating values such as blood sugar level, blood lipid level, blood pressure, and so on.

Comsumption has an affect to health condition of the elderly in daily life and also chronic diseases. In the same way, if there is an action to adjust consumption behavior, it is a good way to manage self-care of the elderly. According to the 4th survey of food consumption among Thai people by Health Systems Research Institute (Health Systems Research Institute, 2011), that found food which the elderly regularly consumed were white rice, sticky rice, brown rice, coarse rice, bread, sweet fruits, various types of fish, fermented fish, Budu sauce, and chili paste. Certain foods, such as sodium, were consumed higher than daily recommended. On the other hand, potassium, vegetables and fruits is consumed at a lower amount than recommended, according to the nutrition flag and recommendations of the World Health Organization.Those nutrients have an affect on the health condition of the normal, the risky and increased chances of complication in elderly with chronic diseases. The report also mentioned that physical activity of the elderly is insufficient. At last; it also found that prevalence of smoking related to age, especially in females. The comsumtion and physical activities were the important factors of chronic diseases in elderly (Leethongin, 2007). WHO confirmed that the adequacy, regularity, and consistency of physical activity affected health condition, and reduced the incidence of morbidity in chronic diseases such as cardiovascular disease, diabetes, obesity, and cancer (World Health Organization, 2018).

At present, both public and private sectors involved with issue concerning the elderly are aware of the situation in which chronic diseases have a higher prevalence. It can be seen from the practices of those sectors that organize activities for the elderly health. Meanwhile, some elderly may be interested in taking care of their own health in order to be safe from chronic diseases or complications caused by chronic diseases. This group of elderly people pay more attention to health care information than the others. Health care information is a factor that relates to health behaviors of the elderly, then sources of information play a key role on how the elderly make their health decisions.

The more advances in telecommunications technology, the more opportunities for elderly to access information. The overwhelming of information is easily obtained by several channels and at real time. In addition, in the era of Thailand 4.0, the online shopping via telephone and offers fast shipping such as complementary food, vitamins, and health programs. The many sources and overflow of health information, for the elderly, could cause them not to be able to judge on the accuracy of health care services especially if they do not have sufficient health knowledge. Such inappropriate decisions may lead to behaviors that do not promote good health. What will happen if the elderly has chronic disease? This can develop to severe complications. Particularly, what will happened if the elderly has high blood pressure? This will be discussed later in this article. It can be stated that if the elderly with chronic diseases have proper self-management with nutrition literacy under the floods of various sources of information and communication channels, it will enviably bring good quality of life no matter their health conditions.Hence,

development of health or nutrition literacy and self-management behaviors are related to each other consistently (Norris et al., 2002; Kim et al., 2004; Chodosh et al., 2005; Chao et al., 2013; Wongwiseskul & Chinnapan, 2014).

Nutbeam (2010) stated that providing knowledge and information help individual's ability to make decisions for self-practice or behavioral adjustment. In other words, it is called *health literacy*. When adopting the concept of Nutbeam (2010) with the situation of hypertension in the elderly, reflects that only recognizing nutrition information may not be enough to change or adjust their behaviors and lifestyles in concrete ways. Development of individuals, families and society with health literacy and wisdom will enhance sustainability to better health care management. Besides, it can create changes in the society. It can be said that establishing nutrition literacy is a way to delay or cut off the first chain of chronic diseases. According to Wongwiseskul & Chinnapan (2014), the elderly who had good knowledge on food consumption, consumed appropriate amount of sodium and had success in controlling their blood pressure. Moreover, from the health literacy intervention in that study, the elderly categorized their daily food by its taste in order to make the right decision to avoid consuming excessive salt. Their misunderstanding that low salty food contained no sodium was eradicated. It shows that acquiring knowledge and information is not yet detailed and deep enough to lead to appropriate decision for health.

What is nutrition literacy?

In the past ten years, scholars paid more attention in health literacy. There were many academic conferences and researches that mentioned about health literacy. Meanwhile, based on detailed analysis, it was found that nutrition literacy is only a narrow scope. If viewed in terms of health and nutrition literacy, they are quite similar. Only one point differs such as the use of nutrition-specific information for decision making.

Nutrition literacy means the degree to which individuals have the capacities to receive, process, understand nutrition information and necessary skills to make decisions on nutrition properly. (Silk et al.,2008; Carbone & Gibbs, 2013).

Zoellner et al. (2009) stated that level of nutrition literacy including ability to receive, to process, and to understand the basic nutrition information is very important for those in the fields of education, health systems and to those who work in the field.

Vidgen & Gallegos (2011) stated that nutrition literacy means to receive, to interpret and to understand the nutritional information and services depends on individual competence. And, this also refers to the ability to apply the information and services as a means of health promotion.

Guttersrud et al. (2013) mentioned that nutrition literacy is the ability to analyze critically the nutrition information along with raising the awareness on practices towards healthy dieting behavior.

Velardo (2015) proposed that the basic level of nutrition literacy should include the ability to receive the facts about food and to understand the factors that promote or hinder the ways for a healthier body.

Krause et al. (2016) summarized the definition of nutrition literacy as the ability of information receiving, the emphasis of basic literacy and numeracy skills, logical thinking ability and the ability to apply various concepts in the form of mathematics which is necessary for understanding and the application of nutrition information.

Monique (2018) defined the nutrition literacy as the essential ability to understand the importance of healthy nutrition on people's health-caring behaviors.

In summary, nutrition literacy means skills and level of the individual's ability for receiving, managing, understanding, accessing, and exchanging the basic nutrition information such as nutrition flags, food based dietary guideline for Thai, nutrition fact labels, etc. as well as necessary services including nutrition counseling, nutrition news into healthy practice. It is for decision making in order to promote health properly and the ability of a person to analyze information critically. Furthermore, it can be applied to adjust the consumption behavior. Additionally, it is an important part for empowerment of individuals, families and communities to reach a sustainable goal of health. Consequently, it makes change for better health condition. Aihara & Minai (2011) claimed that nutrition literacy is an integration between food consumption knowledge and healthy consumption behavior.

Development of nutrition literacy, is health education enough?

Nutrition literacy can be categorized as one part of health literacy according to the above-stated

definitions. According to Nutbeam (2015) on development of nutrition literacy, he stated that the enhancement of nutrition literacy can be evaluated from the evolution of knowledge and skills supporting the decision-making of people on their healthier behavior adjustment.Moreover, the aforesaid knowledge and skills were improved through receiving formal health information being consistent to health status, needs, and individual contexts and media forms—consisting of different degrees of information. And, among these differences, it can lead to the different results of health literacy development. In fact, the vital part that should be evaluated is the knowledge and skills (both before and after obtaining the health information) and the content on health issues should be one of the major influences on the self-managing on the overall body health as well as to raise the awareness of people's health behaviors. Eventually, the individuals should act as the health models and transfer the knowledge and skills to others. Thus, another important factor for the health literacy development is the effective communication since the deficiency of this skill can cause the wrong or mistaken messages between senders and receivers. It can be said that the implementation of policy should be achieve in tandem with the development of populations' education. Furthermore, the value added of the multidimensional development will be affecting the disease prevention and the proper self-care management of patients (Nutbeam, 2015).

Santo et al. (2005) conducted the meta-study on development of health literacy. They come up with the following conclusions: 1) the first priority to be promoted is health education followed by the practical sessions for both group and individual sessions so as to enhance the decision-making skills on healthy behaviors and the proper self-management. Additionally, the activities advocating the development of health literacy included: the periodic stimulation, the good relations between constructing and receiving messages, the promotion of self-learning (Lee et al., 2012). Moreover, it can be said that the development of health literacy is closely run with a wide range of factors. Bodur et al. (2017) and Aihara & Minai (2011) investigated these aforesaid factors and they come up with the conclusions as follows:

1. Individual factor such as the ability to understand health messages, health knowledge, culture and the belief on health and the individual experiences.

2. The public health service system including the communication on health issues in several sectors, knowledge and skills of the officers on conveying the health information and the information access services.

3. Communication factor refers to the senders' communication skills conveying the code and the recode, the communication methods such as reading, writing, cognitive skill, speaking and meaning transfer.

4. The access of nutrition information is achieved through the mainstream media such as television programs, books and publication. As for the era of Thailand 4.0, it seems that the online social media has a huge influence on the health information access among elderly (Sap-in & Khaoroptham, 2017).

Those mentioned factors should be scrutinized so as to design the activities or to develop the successful programs of health literacy or nutrition literacy promotion.

Nutritional literacy and the elderly with hypertension

It can be said that hypertension is globally seen as the important and challenging health problems since its high prevalence rate resulting in chronic diseases such as heart disease and kidney disease (Lawes et al., 2008). According to the report by the World Health Organization (WHO), it has revealed that the worldwide prevalence rate of hypertension of people aged from 25 years old is 47 percent and it is the cause of death and disability (World Health Organization, 2018). In Thailand, the 5th health survey of Thai people by physical examination (NHES V) reported that the prevalence rate of hypertension in the elderly was 53.2 percent (Aekplakorn, 2014). Therefore, the lifestyle adjustment seems to be the effective way for the elderly to treat and to control the level of hypertension. Acelajado (2010) stated that lifestyle adjustment by reducing sodium consumption, losing weight, doing more exercising and avoiding drinking were also the effective ways for tackling the serious problems from hypertension.

As stated by World Health Organization, regarding the relations between nutrition and hypertension, it can be said that reducing sodium, avoiding the food with high energy and reducing saturated fat as well as exercising can help prevent the risks of disease development and the level of high blood pressure. By doing this, it can decrease the levels of disease complication and death (World Health Organization, 2013).

The pathways for preventing hypertension in the elderly can be achieve through the effective nutrition consumption included the DASH* (Dietary Approaches

to Stop Hypertension) diet, the decrease of sodium level in food (e.g. less than 2300 mg per day) and the alcohol reduction (Thai Hypertension Society, 2018).In addition, the Thai Hypertension Society (2018), Acelajado (2010) and Mayo Clinic (2018) similarly pointed out that the DASH diet promoted the absorption of potassium, magnesium and calcium in the proper level helping the human body reduce or stabilize the normal high blood pressure levels. Moreover, this could be more effective than directly eating such minerals or supplementary food and this will be very important to the elderly, especially the ones with kidney disease.

According to the situation of the Thai people's literacy, it showed that most of them are well-educated, possess abilities to read, to write and have computational skills. However, regarding the health literacy, it has revealed that only half of the Thais people understand the health information about exercise, food, emotion, smoking or drinking (Health Education Division, 2017). Health literacy is related to self-management on health status and non-chronic communicable diseases of the elderly. Also, since nutrition is a fundamental factor in preventing and controlling various diseases, having low nutrition literacy may contribute to the prevalence of chronic diseases (Geboer et al., 2016). The empirical evidence about knowledge on Thais' consumption behaviors and the use of nutrition labels has revealed that majority of people hardly access the information such as reading nutrition labels. Moreover, purchase decision is not made from the awareness of nutrition values but other reasons including: affordable prices, convenient buying, taste, individual preference and limitation of time. Based on the aforementioned data, it can be concluded that Thais still have insufficient nutrition and health literacy which is a key factor that causes different dietary habits among people (Silk et al., 2008).

Nutbeam (2000) divided the level of health literacy into three main levels and the concept of Sorensen et al (2012) concerning the steps of developing health literacy started from 1) Access, 2) Understand), 3) Appraise and 4) Apply.Thus, nutrition literacy and hypertension management of the elderly should be built from the integration between both concepts and practicing which will bring the following results:

Level 1: Functional Nutrition Literacy included basic skills (e.g. reading, listening, speaking and writing) which are essential to access and to understand health information in order to adjust such behaviors as 1) reading nutrition labels, 2) understanding the knowledge of salt consumption in relation to hypertension, 3) understanding the amount of salt that should be consumed and 4) the DASH diet.*

Level 2: Interactive Nutrition Literacy consisted of basic and cognitive skills as well as social skills. This level promotes the evaluative skills and the knowledge implementation of people on behavior adjustment such as the use of nutrition labels in purchase decision making, the use of nutrition flags as an exchange food, Thai food requirements for the proper amount of salt consumption or the information from the Hypertension Association of Thailand as well as the ability to select DASH diet.

Level 3: Critical Nutrition Literacy included developing intellectual and social skills which can promote the ability to apply, to interpret data and to implement the proper information regarding high blood pressure control as well as to prevent disease complications. These can be considered as the practical models, knowledge transfer and guidelines for people and community. Furthermore, the examples of the above-stated knowledge and practices can be presented as follows: 1) the interpretation of nutrition label and the proper amount of nutrients. 2) the ability to analyze and to compare the information for purchase decision making, 3) the ability to assess the nutritional values and benefits of DASH food as being applied to Thai food and 4) the ability to interpret the meaning of nutrition flags as the exchanged food in disease control.

As an example of building health and nutrition literacy, the program of health literacy development by integrating health education program and informational group activities to arouse self-efficacy and positive motivation from a buddy and group in order to reduce excessive salt consumption of the elderly with hypertension was launched in community (Wongwiseskul & Chinnapun, 2014). There were 30 elderly participating in eight activities in the program. The activities included providing health and nutrition information and enhancement of self-efficacy and self- motivation through

* DASH diet focuses on 5 potions of vegetable foods consuming per day (1 portion of vegetables equals 2 ladles of raw vegetables or 1 ladle [1/2 cup] of cooked vegetable) 4 portions of fruits per day (1 portion has the same amount of fruit slices, about 6-8 pieces or 1 medium size fruit or 2-4 small size fruits or the amount of fruit fitly placed on one coffee plate) low-fat milk and low fat dairy products 2-3 portions per day (1 box / 1 portion or 1 cup yoghurt / 1 portion) 7 portions of cereal per day (consuming brown rice instead of 1 portion of white rice or 1 Ladle). For the meat, only fish is recommended (Working group on food-based dietary guidelines for Thai people, 2001)

group processes and peer activities. The program took a total of 12 weeks. Pre and post assessments of the program were measured on level of knowledge, level of self-efficacy and level of change in excessive salt consumption. The questionnaires employed in the study also regarded the perception of benefits and obstacles from reducing salt consumption. At the end of the program, it revealed that average scores of the elderly, regarding the literacy, benefits perception and obstacles from reducing salt consumption in food, the ability of self-control and excessive salt consumption behaviors were significantly different compared to their scores before joining the program.The findings reflected that in order to develop health and nutrition literacy, activities enhancing decision making skills leading to appropriate decision-making skills should be integrated.

Conclusion

Management of hypertension in the elderly seems to be a vital part of society, especially in the community since the living space has a huge influence on elderly's life styles. It can go without saying that the elderly with good nutrition literacy make the proper decision on their nutrition consumption as well as the behavior adjustment, being consistent to their health status leading to a better and healthier life. Besides, factors affecting the nutrition literacy of the elderly are: educational levels, cognitive skills, memorization and these factors should be focused on, especially for nurses and public health officers as the pathway for heath literacy activity development. Moreover, this development should be further broadened to disease prevention and health promotions among networking elderly care sectors and health care services in the community.

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