EVALUATION PATTERN FOR THE HEALTH OF DIABETES PATIENTS WITH TRADITIONAL HERBS BY THE ENVIRONMENTAL EDUCATION

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Abstract

This research aimed to evaluate the use of the pattern for the health of diabetes patients with traditional herbs by the environmental education (PTEE). PTEE for the patients to participate in learning practice with 5 step activities, (1) problem recognition (2) learning activities (3) awareness building (4) skill building and (5) participation with family members in the pattern for six months. We evaluated the use of PTEE, compared the knowledge, awareness, and behavior before and after using this pattern, evaluated the participant's satisfaction toward PTEE, compared the amount of blood sugar before and after participating in the activities set according to PTEE. 60 diabetes patients who were service recipients at Diabetes Clinic, Kabinburi Hospital were selected by purposive sampling method and divided to two sets of the research instrument; (1) test format of knowledge, awareness, and behavior (2) evaluation form on satisfaction toward PTEE and the family members who were their caretakers. The result of using PTEE show that diabetes patients received overall more knowledge, awareness, and behavior in using traditional herbs than before using PTEE (p=.05) and satisfied with PTEE at high level. The factor that received the highest satisfaction was skill building by practicing, learning to use appropriate herbs by lecturing, respectively. Patient's relatives were satisfied with PTEE at high level, learning to use appropriate herbs by lecturing show the highest satisfaction and participation by encouraging family members in self-care planning and exchanging learning experiences, respectively. Blood sugar after six months of samples were lower at P= 0.05

Keywords**:** Diabetes patients Process of environmental education Traditional herbs

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Introduction

Diabetes was one of the chronic diseases which was the major problem in the 21st century (Nutcharee Arbsuwan, 2016), especially for the elderly group, since it has caused the increase of the incidence, seriousness and its impact of the disease. According to the survey conducted by the International Diabetes Federation, in 2014, the number of the diabetes patients was 387 million people or 8.3% of the world population. It has been estimated that in 2035 the number would be increased to 592 million people. The prevalence number of the disease would be 9%. In 2012, the number of the world population who died of diabetes was about 1.5 million people (International Diabetes Federation; IDF, 2014). In terms of the Thai population Health Survey, the fourth Thai national health examination (2005-2009), the prevalence of diabetes in the elderly group was at high level or at 15.9% (Vichai Ekphalakorn et al, 2009). The ratio of diabetes patients per 100,000 population tended to be increased from 148.71 in 1997 to 650.43 in 2007, and to 1,081.20 in 2013 (Strategy and Planning Group, Bureau of Non-Communicable Disease, 2014), and the number of the mortality rate of diabetes per 100,000 population had been increasing from 11.06% in 2009 to 17.53% in 2014 (Bureau of the Strategy and Planning, Office of the Permanent Secretary, Ministry of Public Health, 2015). The goal of diabetes care was to decrease and slow down the occurrence of the complicated condition by controlling blood sugar to be within the normal range (Walla Tannayothai, and Adisai Songdee, 2009), by doing exercises and taking medicines (Sigal Kenny, Wassweman and Castanede Sceppa, 2004). Using traditional herbs to enhance the health of diabetes patients was another alternative medical care for these patients which enabled them to control blood sugar (Bureau of Thai Traditional Medicine, 2013).

1. Using of environmental education process

The environmental education process could help the patients to gain knowledge, awareness, and behavior change. This was because the goal of environmental education process was to establish awareness and concern about the environmental problems, by changing their eating habits, exercises, and stress condition appropriated to their quality of life. The environmental education process was emphasized on knowledge process and activities. The participants needed to adjust or change their eating behavior, decrease the use of resources, doing exercises and control their stress and enhance the culture and value of living with the environmental friendly in accordance with the current environmental condition (Vinai Veeravatnanon, 2014). The environmental process was the management of learning step by step. In terms of the pattern and the activity management, they could be classified as follows: Learning in Environment – the learning activities were arranged from the real experiences in the environment. Learning about Environment – the content of diversified learning activities was about the environment. Learning for Environment – the learning activities were aimed at practicing and participating in the environmental protection and development (Suwaree

Sripoona, 2013). The five main elements of the environmental education process were: 1) Problem perception – was the process that helped analyze the problems and their effects on all sides vertically and horizontally. 2) Knowledge – was the process that enabled learning and understanding the foundation of nature and environment, the relationship between human and environment, environmental problems and solutions. 3) Attitude –was the process that helped create values, concern, intention, and perseverance to participate in preserving and conserving the environment. 4) Skill –was the process that helped create the necessary skills in indicating, monitoring, and solving problems. 5) Participation – was the process that helped create experiences in bringing knowledge and skills derived to implementing in environmental problem- solving (Foundation for Environmental Education for Sustainable Development (Thailand), 2014).

2. Health behavior problems of the diabetes patients

The study of the health behavior problems of the diabetes patients who were unable to control their blood sugar revealed that their overall health problems were at moderate level. When considering about the problems in order, the diabetes patients of Kabinburi Hospital, Prachinburi Province had health behavior problem at high level in exercising, and four other health behavior problems were at moderate level, these were: eating, stress, use of medicine, and continuity of medical care. Besides, the diabetes patients at Banglamung Hospital, Chonburi Province had overall health behavior problems at moderate level. In contrast, the diabetes patients at Aranyapratet Hospital, Sa Kaew Province had health behavior problems at moderate level in three behaviors; these were eating, exercising, and stress. Two behaviors were found at low level. In addition, the researcher had conducted a research to analyze the use of traditional herbs and the needs to increase the use of traditional herbs in enhancing the health of the diabetes patients. The results were that 66 diabetes (44.30%) patients had already used the traditional herbs to enhance their health.

3. Traditional herbs for medical care and nourishment

Thirty-five traditional herbs for medical care and nourishment were found and could be categorized into three groups, as follows: (1) Use of leaf and stem herbs, these were: Asiatic pennijavort (*Centella asiatica urban*); (*Piper sarmentosum*); Siamese Senna (*Senna siamea* (Lam) H.S. Irwin and Bameby; *Laurel clockvine*, Blue trumphet vine (*Thumbergia laurifolia* Lindl.); Ivy Gourd (*Cocconia grandis* (L.) Voigt.); Thai Bitter Cucumber (*Momordica charantia* Linn.); Bamboo Grass (*Tiliacora triandra* (Diels); Pandanus Palm (*Pandanus sp.*); Lemon Grass (*Cymbopogon citratus* Stapf); Indian Mulberry (*Molinda critifolia* Linn.); Aloe (*Aloe vera* (L.) Burm F.); (*Cissus quadrangulalis* L.); (*Tinospora crispa* L. Miers ex Hook .f.& Thomson); (*Andrographis paniculata* Wall. ex Ness); Mulberry (*Morus alba* Linn.); (*Cassia alata* (L.) Roxb.); (*Solanum indicum* L.); (*Barleria lipulina* Lindl.) (2) Use of edible flower and fruit herbs, these were: (*Momordica charantia* Linn.); Lady's finger (*Abelmochus esculentus* Moench); Dragon Fruit

(*Hylocereus Undatus* (Haw) Britt. Rose); Apple (*Malus domestica* Borkh.); Butterfly Pea (*Clitore ternatea* Linn.); Drumstick (*Moringa oleifera* Lam.); Red Cabbage (*Brassica oleracea* L. war. Capitata L.); Carrot (*Daucus Carota* L.); Chebulic Mylobalans (*Terminalia Chebula* Retz); Embric Myrablan (*Phyllanthus emblica* L.); Indian Mulberry (*Molinda critifolia* Linn.); (*Solanum indicum* L.) Bengal Currants (*Carissa carandas* L.) (3) Use of root, rootstock, and vine herbs, these were: Ivy Gourd (*Cocconia grandis* (L) Voigt); (*Thumbergia laurifolia* Lindl.); Greater Galanga (*Alpinia galangal*); Turmeric (*Curcuma longa* L.); East Indian Screw Tree (*Helicteres isora* L.); Aloe (*Aloe vera* (L.) Burm F.); (*Tinospora crispa* (L.) Miers ex Hook. f and Thomson); Jiaogulan (*Gynostemma pentaphyllum* makino). In addition, the respondents mentioned their needs to increase their capabilities in using the traditional herbs to enhance their health of diabetes patients as follows: a) knowledge and data assessment – they needed to have more knowledge on traditional herbs and their usage through printing and media channels such as brochure, books on herbs, messages on phone, radio and television programs, etc., b) herbal products – they required non-toxic herbs that could be planted in their houses, or by community sharing. Besides, the herbal products should be on sale in the community stores at reasonable price, c) the support from the concerning government offices in doing herbal gardening, and the uses of herbs for the patients, these offices were such as the public health offices, agricultural offices, and community development offices in organizing training for community people in herbal gardening, group participation in herbal plant growing in the community, choosing the types of herbs, distribution of herbs and managing herbal stores in the community as their supplement income (Prapasri Tanakool, 2016)

4. Development pattern for potential

The development pattern for potential increase in using traditional herbs to enhance the health of the diabetes patients by environmental education process used the principle of learning by doing, based on the concept of building knowledge, awareness, and behavior of the diabetes patients. As a result, these patients were able to control their blood sugar, decreased the complicating conditions that could occurred. The process consisted of six stages as follows: Stage 1 – building relationship by organizing group dynamic activities. Stage 2 – problem perception – using analysis by group process. Stage 3 – learning management by lecturing. Stage 4 – awareness building – by demonstration. Stage 5 – skill enhancement – learning by doing. The participants learned to cook meals by themselves using traditional herbs. Stage 6 – participation – they participated in self-realization of their problems. The supporting factors were experts who gave advice, the patients' relatives and family members who helped support and took care of them; they also had media and facilities, handbooks and brochures. The result of the evaluation by the experts revealed that the pattern was appropriate at good level (Prapasri Tanakool, 2016)

Later, the development pattern was adjusted according to the suggestions of the experts. The pattern principle was a participatory action research using Appreciation-Influence-Control (AIC) technique. The researcher adjusted the process into five steps as follows: Step 1 problem recognition using AIC technique in building relationship. Stage 2 – learning activity – using lecturing, discussion, and learning through handbook of herbs. Stage 3 – awareness building – using person as model. Step 4 – skill building by way of demonstration and practice of using herbs and food. Step 5 – participation – with the family member in self-care planning and exchanging learning experiences in reproducing and transforming the herbal products for use. The supporting factors were tradition sets of meal and herbs, which was one of the patterns to enhance the blood sugar control in diabetes. The researcher had conducted a research using traditional herbs that could treat diabetes. Sixty diabetes patients of Kabinburi Hospital, Prachinburi Province were selected as samples for the study. These samples used traditional herbs that could treat diabetes, these herbs were: (*Momordica charantia* Linn.); Ivy Gourd (*Cocconia grandis* (L.) Voigt.); Lady's Finger (*Abelmochus esculantus* Moench); Cinnamon (*Cinnamomum* spp.); and Pandamus Palm (*Pandamus*). These samples participated in activities managed according to the pattern. The activities were conducted two hours daily for two days per week for the total of six weeks. By organizing activities in accordance with the pattern, the researcher was interested in investigating 1) whether the development pattern for potential increase in using traditional herbs to enhance health of the diabetic patients by the environmental education would enable the participants to increase their knowledge, awareness and behavior or not, 2) what were the results of evaluation for the satisfaction toward the pattern of the participants who were diabetic patients and their family members who took care of the patients, and 3) whether the result of blood sugar testing of the participants who were diabetic patients were decreased or not.

Objective

This research aimed to evaluate the use of the development pattern to enhance health of diabetes patients with traditional herbs by the environmental education process.

1. Comparing the knowledge, awareness and behavior of the diabetes patients before and after the use of development pattern to enhance their health.

2. Evaluating the satisfaction of the diabetes patients and their family members who took care of these patients before and after the use of the development pattern.

3. Comparing the blood sugar control of the participants who were the diabetes patients before and after participating in the activities organizing according to the development pattern and comparing between the experimental group and the control group three months and six months after participating in the activities.

Materials and methods

This research was an evaluation research. The methodology was as follows:

1. Population and Sample Group

1.1 Population was 2,829 diabetes patients who were blood sugar uncontrolled diabetes patients and received medical service at Diabetes Clinic, Kabinburi Hospital (Kabin Buri Hospital 2016).

1.2 Sample Group

1.2.1 The sample group was the blood sugar uncontrolled diabetes patients. They were selected by purposive random sampling method who were volunteers to participated in all five stages of enhancing health activities with the criteria set by the researcher as followed: age between 40 -70 years old, got diabetes not more than 5 years, received treatment by taking medicines as prescribed, the 3-month retroactive blood sugar was HbA1C > 7% with no serious complicating condition, well-communicable, and received medical services at Diabetes Clinic Outpatient Division between June and December 2015 at Kabinburi Hospital, Prachinburi Province. The researcher selected 60 patients as experimental group and another 60 patients who had the same qualifications but did not participate in the activities enhancing health as control group.

1.2.2 Sixty members of the families of the diabetes patients who were responsible for taking care of the patients. These sixty members were selected from the 60 families, one for each family for the total of sixty persons.

2. Research Instruments

2.1 A check-list test form with three choice answer.

2.2 A five rating scale evaluation form for awareness and behavior of the patients.

2.3 A five rating scale evaluation form for satisfaction toward the development pattern

2.4 Blood Sugar Meter by ACCU-CHECK to handle blood sugar testing of the samples individually.

2.5 A record form for recording the result of blood sugar test of the samples.

3. Data Collection – the data were collected in order as follows:

3.1 The data collected from the test form of knowledge, the evaluation form of awareness and behavior from sixty patients in the trial group, before and after participating in the activities.

3.2 The data collected from the evaluation form for satisfaction of sixty patients in the experimental group and from sixty family members to evaluate satisfaction of the participants after participation in the activities.

3.3 The results of blood sugar test of sixty samples individually before and after the participation in the activities. The test was conducted twice, that is three months and six

months after participation in the activities. Besides, the researcher conducted the blood sugar test of sixty patients in the control group individually. The blood sugar test was conducted the same period as for the experimental group.

4. Data Analysis

4.1 The data received from the test and the evaluation forms were analyzed by percentage, mean, standard deviation, and t-test.

4.2 The data received from the evaluation form for the satisfaction toward the developing pattern were analyzed by mean, and standard deviation.

4.3 The results of the individual blood sugar testing were analyzed by mg/dl.

The Results of the Research

The research to evaluate the use of the developing pattern to enhance the health of the diabetes patients using traditional herbs by environmental education process resulted in the developing pattern of learning by participating activities. The pattern principles were to establish knowledge, awareness, and behavior of the diabetes patients and enabled them to understand and use traditional herbs in their daily lives. These patients could control their blood sugar and slow down the chance of complicating condition. The process and method were put into five steps as follows;

Step 1 Problem recognition using group process and relationship building

Step 2 Learning activities through lecturing, discussion and handbook of herbs

Step 3 Awareness building using demonstration and person as model

Step 4 Skill building by practice of using herbs for cooking

Step 5 Participation with family member in self-care planning, and exchanging of learning experiences in reproducing and transforming the herbal products for use

The main supporting factors for health enhancing were the sets of meals with appropriate traditional herbs, such as Thai bitter cucumber (*Momordica Charantia Linn.*); Ivy Gourd (*Cocconia grandis (L.) Voight*); Lady's Finger (*Abelmochus esculentus Moench*); Cinnamon (*Cinnamomum spp.*), and Pandan Leaf (*Pandamu*). This was to examine whether the developing pattern could be able to be used in enhancing health of the diabetes patients or not. Therefore, the researcher conducted the study to evaluate the use of the development pattern. The results were as follows:

1. After using the development pattern, the overall participants' knowledge, awareness and behavior in using traditional herbs were higher than before using at statistical significance of 0.05.

2. In terms of the satisfaction of the participants who were the diabetes patients, the majority of them were overall satisfied at high level ($\bar{x}$= 4.16, S.D. = 0.95). Considering at each factor, it was found that the skill building by doing was at the highest level ($\bar{x}$= 4.12, S.D. = 0.98).

Next was learning activities to use appropriate herbs by lecturing ($\bar{x}$= 4.08, S.D. = 0.88), respectively. As for the participants who were the family members who took care of the diabetes patients were overall satisfied with the development pattern at high level ($\bar{x}$= 4.21, S.D. = 0.88). When considering at each factor, the factor of learning activities to use appropriate herbs by lecturing was at the highest level ($\bar{x}$= 4.32, S.D. = 0.88). Next was the factor of planning and exchanging learning experiences in self- care planning and exchanging of learning experiences ($\bar{x}$ = 4.24, S.D. = 0.85), respectively.

Table 1 Statistic of PTEE satisfaction

Activity	Satisfaction of the Diabetes Patients toward the Development Pattern			Satisfaction of the Family Members toward the Development pattern		
	$\bar{x}$	S.D.	Meaning	$\bar{x}$	S. D.	Meaning
Problem recognition using A.I.C. technique	4.02	0.92	high	4.08	0.90	high
Learning activity to use appropriate herbs by lecturing	4.08	0.88	high	4.32	0.88	high
Awareness building by demonstration and using a person as model	3.84	0.90	high	3.90	0.84	high
Skill building by practice using herbs	4.12	0.98	high	4.12	0.92	high
Participation by encouraging family member in self-care planning and exchanging of learning experiences	3.78	0.82	high	4.24	0.85	high
Total	**4.16**	**0.95**	**high**	**4.21**	**0.88**	**high**

3. After the use of the development pattern to enhance the health of the diabetes patients, the patients in the experimental group had lower blood sugar test six months after the test than before the test at statistical significance (t_{59} = 2.053, p < .05) as show in Table 2

Table 2 Blood sugar levels of diabetic control group and the experimental group.

Group	N	$\bar{x}$	S.D.	F	df	*p*-valve
Control Group	60	8.26	0.63			
After participating in the activities				0.50	2	0.612
3 months	60	8.25	0.52			
6 months	60	8.45	0.58			
Experimental Group	60	8.28	0.61			
After participating in the activities				0.33	2	0.05
3 months	60	7.62	0.77			
6 months	60	7.00	0.89			

The results of blood sugar tests of the experimental group after participating in the activities six months were lower than after participating in the activities three months at statistical significance of 0.05, and lower than those of the control group.

Discussions

The result of the study on the evaluation of the development pattern in enhancing health of the diabetes patients using traditional herbs by environmental education process could be discussed as follows:

1. After participating in the activities organized according to the development pattern, the participants had more knowledge, awareness, and behavior change than before participation. This result was in accordance with the research conducted by Chonlakarn Songsri (2007) who developed the pattern for self-care promotion of diabetes mellitus type 2 patients and found that after using the pattern, the patients gained overall more knowledge about self-care at fair level. They gained more knowledge than before the participation. The results of the opinion of the personnel who used the development pattern to provide knowledge and the opinion of the patients revealed that those two groups mentioned that the overall development pattern in providing knowledge was appropriate at the highest level. In terms of the self-care, for overall the participants practiced their self-care correctly at high level. This was in line with the research conducted by Nawaphat Wutthitham (2011) who conducted a research on developing strategy for health behavior change of diabetes mellitus patients with the technique of “love, listening. self-efficacy, and learning (LLSL)” by the Diabetes Clinic of Banlad Hospital Network in Petchaburi Province, and found that the patients had behavior change about the knowledge of diabetes, their perception of their own capabilities, the

expectation of the advantages in food consuming control, exercising and relaxing, medicine usage, and satisfaction of caring with "love, listening' toward the behavior change which were different from the control group. The result was in line with the research of Kanthika Thaweerod and Trithip Anongthong (2007) who analyzed the knowledge and practice of the diabetes patients who received medical care at Diabetes Clinic of the Community Health Center, the result found that the majority of the patients had diabetes for 1-4 years. They had knowledge and self-care at good level. This was in accordance to the research done by Rangsima Rattanasila, et al. (2016) who analyzed the effect of case management program for older adults with uncontrolled diabetes mellitus; the result was that the patients received higher average score on self-care behavior than before attending the program. This was in line with the research of Sumontha Sitthipongsakun, et al. (2015) who investigated the effectiveness of the program providing knowledge to change food consumption behavior reducing in sugary, fatty, and salty foods, sustainable for the household cooks in U-Thong District, Suphanburi Province. The result revealed that the mean of obtaining knowledge on exercising, doing exercise and food consumption after participating in the program was higher than before. This was in accordance with the research of Nannaphat Piraphrutthiphong, et al. (2012) who studied the effect of the self- management program on knowledge, self-care activities and HbA1C in persons with diabetes mellitus type 2. The result was that the score of self-care knowledge and activities of the patients after participating in the program was higher than before the participation.

2. The overall satisfaction of the participants who were the patients toward the development pattern was at the highest level. Besides, the overall satisfaction of the participants who were the patients was at high level. This was in accordance with the research of Atcha Waree, et al. (2012) who studied on the development of outpatients' service system for diabetes patients at Sarapee Hospital. Chiangmai Province, the results were that the diabetes outpatients were more satisfied after the system was developed than before. The satisfaction of the service system before the development was at moderate level (= 2.24, S.D. = 0.26), and the satisfaction of the service system after the development was at excellent level (= 2.84, S.D. = 0.11). The result was in line with the research of Udomphorn Phromduang (2015) who analyzed the development of a diabetes mellitus caring model at Bantakhun Hospital. The result was that the participants who used the caring model for a diabetes mellitus were satisfied with the overall aspects of the model at high level (77.5%). The result was in accordance with the research of Wongduean Rucha, et al. (2011) who studied on the development of the caring system for diabetes patients, Chaiyaphum Hospital. The result was that the respondents who were diabetes patients were satisfied with the development of the caring system at high level.

3. The result of blood sugar test after participating in the activities of the development pattern to enhance health of the diabetes patients with traditional herbs by environmental education process which was in accordance with the research of Nawaphat

Wutthitham (2011) who conducted a research on developing strategy for health behavior change of diabetes mellitus patients with the technique of "love, listening, self-efficacy, and learning (LLSL)" by the Diabetes Clinic of Banlad Hospital Network in Petchaburi Province, and found that the patients in the experimental group had lower cumulative blood sugar than those of the control group. This was in line with the research of Wimonrat Jongjaroen, et al (2007) who studied on the self-care promotion model for controlling blood sugar in type 2 diabetes patients and found that the self-care behavior enabled the patients to have better controlling blood sugar by better controlling correctly and continuously the type and amount of food consuming. Moreover, the patients did exercise regularly and able to confront with stress more efficiently. Their blood sugar test before having breakfast and HbA1C were lower. This was in line with the research of Rattanaporn Himmanongarn, et al. (2009) who analyzed the effectiveness of changing food consumption behavior in the diabetes patients; the result was that the experimental group had higher perception on diabetes and higher expectation of their self-capacity. Besides they could control their HbA1C which was lower than those of the control group. This, in turn, was in line with the study of Nannaphat Piraphrutthiphong, et al (2012) who studied the effect of the self- management program on knowledge, self-care activities and HbA1C in persons with diabetes mellitus type 2, and found that the glycated hemoglobin was lower after participating in the program and this was in line with the study of Rangsima Rattanasila, et al. (2016) who analyzed the effect of case management program for older adults with uncontrolled diabetes mellitus, and found that the cumulative blood sugar in red blood cells of the patients after participating the program were lower than before participating the program.

Conclusion

The results of the evaluation for the pattern implementation were in accordance with the research hypotheses. The participants received more knowledge, awareness and behavior change than before the participation in the activities. This meant that the development pattern could be able to enhance health of the diabetes patients and should be put into use. This pattern followed the concept and confirmed the theory of Pander's Health Promotion Model, Theory of Social Supporting Force, the Concept of Traditional herbs, Concepts on Diabetes, and Theory of Health Promotion which strengthened knowledge, awareness, and behavior according to the concept of environmental education.

Recommendations

1. Recommendations for the research application

1.1 Kabinburi Hospital should continuously promote and provide knowledge for the diabetes patients about the traditional herbs that could help treat diabetes. Besides, the

Hospital should launch campaign activities and provide traditional herbs for patients to use and to perceive the benefits of the traditional herbs earnestly.

1.2 Kabinburi Hospital should encourage patients to consume herbs and promote processed herbal products to be used in the households as the way to protect themselves and treat for other diseases.

1.3 The concerning government offices, such as office of public health, office of Agriculture, office of the community development, and Local Administrative organization should give support to the community in providing knowledge about herbs, promoting tradition herb planting in their households, and using them for disease prevention.

2. Recommendations for future research

2.1 A practical research for the development knowledge on medical property of the traditional herbs and the capability of the patients/family members to use herbs as medicine to enhance health and treat other diseases should be studied.

2.2 A practical research promoting tradition herb growing in the households for the convenience of use and to promote herbal processing for use should be conducted.

2.3 A research on the developing pattern of the healthcare behavior in disease prevention with the traditional herbs should be studied.

2.4 A research and development on the roles and cooperation of family, community, and concerning government offices using traditional herbs and adjusting for sustainable health behavior should be studied.

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