Health Program for NCD Patient Self-Care in Urban Community Bangkok, THAILAND

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ABSTRACT

Health behavior may predict health and disease in non-communicable (NCD) patients. The objective of this study was to explore the effects of Health (H) Program among NCD patients in urban community of Bangkok, Thailand. In this experimental study, NCD patients from one of the urban communities were randomly assigned to the intervention group (n = 22) and the control group (n = 23). The intervention group received H program which consisted of giving education for healthy eating, tailored exercise and recreation guide for 8 weeks. Using descriptive statistics, the personal data were analyzed, and t- test was applied. The findings showed the general characteristics of 45 participants. The majority of them were women, the mean ages of the participants in the intervention group were 65.1 years and 65.2 years in the control group. An 8-week H program employing the frequencies of exercise for 3-4 days, recreation for 5-7 days a week in the intervention group for health promotion was statistically higher than the control group. Thus, the H program may be one of the effective methods of health promoting adherence to home visit of NCD patient self-care for healthy eating, exercise, and recreation.

KEYWORDS: Health program (H program), Healthy eating, Physical activity, Recreation, Urban community.

Introduction

Global treatment of chronic illness and lifestyle modification such as having a healthful diet, being physically active, quitting smoking, and limiting alcohol consumption could reduce the risk of developing complications (Carrington & Zimmet, 2017; Chobanian et al., 2003). Various studies have suggested the efficacy of lifestyle modification which can improve the physical health (Paorohit, 2014; Saensak, Vutyavanich, Somboonporn, & Srisurapanont, 2013). Based on Bandura's

theory, self-care refers to a process of maintaining positive health practice, and managing illness and disease, motivates individual participation in physical activity, which suggests potential use of these measures in other contexts (Perkins, Multhaup, Perkins, & Barton, 2008). Evidence-based chronic diseases self-care recommendations have shown significant change in clinical when self-care guidelines were followed (Chobanian et al., 2003b). Similarly, there are many health promoting programs related to lifestyle modification in Thailand for chronic patients such as self-help group program for the management of T2DM patients in a rural Thai community, and the program of an integrated laughter, mild physical activity and dietary self-control with the randomized trial was conducted at the suburb community, under Bueng Kham Phroi health promoting hospital of Patum Thani, to evaluate the program support to hypertensive patients who received health education about dietary self-control weekly, they also received laughter along with exercise for 12 weeks. And the intervention group showed the significant improvement of blood pressure control after received the program (Chotisiri, Trongsakul, Yamarat, & Taneepanichskul, 2016; Park et al., 2011; Prabsangob, Somrongthong, Kumar, & Anwar, 2019).

However, there is limited evidence about how to promote H program for NCD patient self-care in the inner city. This study, therefore, used the discovery of the previous studies and modified to Health program (H program) which consisted of a set of approaches including healthy eating, physical activity adherence, and recreation to explore the effects of H program for NCD patients who live in urban community of the Bangkok, Thailand.

The Purpose of the Study

The purpose of the study was to compare NCD patient self-care between the intervention group who attended the H program and the control group.

Hypothesis

It is hypothesized that the H program at home would result in significant improvement as a part of healthy eating, physical activity, and recreation for NCD patients.

Methodology

Research design

An experimental two groups design, an intervention group and a control group, that provided a personalized H program for NCD patients (intervention group) after receiving the physician's appointment in outpatient unit of PHC 25, as a part of home visit health promotion in the community. Before and after the experiment, measures were undertaken - H program in the intervention group.

Selected community

This study was conducted at "Ladprao 80 Community" located along the Ladprao canal, the one of urban communities under the Public Health Center 25 (PHC 25) services of Huai Khwang district of Bangkok. This community was purposively selected from a total of 38 communities constituted Huai Khwang district under Bangkok Metropolitan Administration (BMA).

Sample size

The sample size was calculated based on a previous experimental study (Park et al., 2011). The sample size required in each group in the current study was 17 cases per group with 80% power at the 5% significant level. This is

to compensate for an estimated 20 % dropout rate due to their having the physician's appointments, working at countryside, and each individual reasons.

Figure 1 illustrated the step of participant recruitment. Of the 119 patients who were eligible for screening, 46 patients selected as participants were randomly allocated either to the control group (n = 23) and the intervention group (n = 23). However, there was one dropout in the intervention group because of personal reasons. Then, intervention group comprised 22 participants. Therefore, the total number of participants in two groups was 45. The recruitment process was finalized at the end of September 2018. Then the intervention was implemented and completed in November 2018.

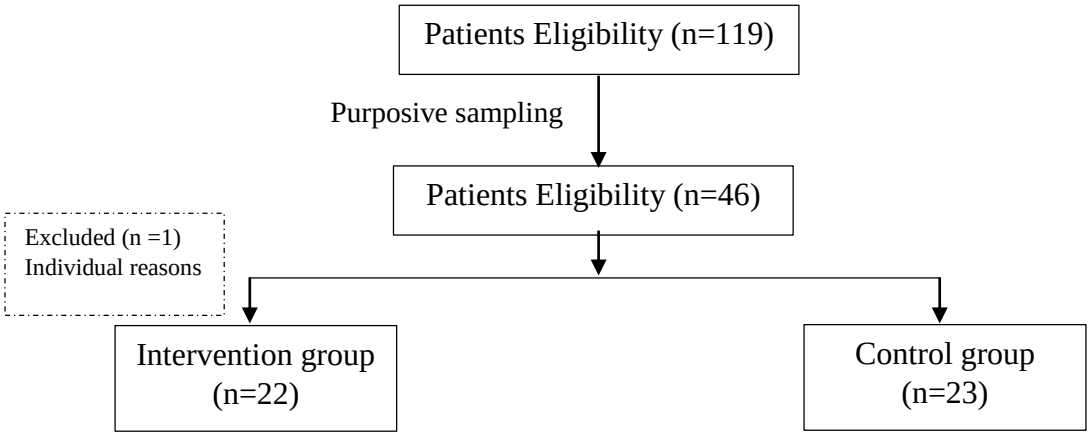

Figure 1. Flow diagram

About the participants

The participants of this study were outpatients under the services of PHC 25, live in Ladprao 80 community, satisfy the following criteria: living in Ladprao 80 community, Huai Khwang district of Bangkok, men or women with aged 50 years and elderly, diagnosed with at least one chronic condition, such as hypertension, T2DM, kidney disease, overweight, obesity, or other non-communicable diseases, being on medication and physician's appointment at the OPD clinic of PHC 25 and/or other hospitals' appointment as NCD outpatient unit. The patients were excluded if they suffered from other complications, such as hearing impairment, eyesight problem/retinopathy, or disability/limited movements, etc. Those who could not speak or read Thais or had communicable diseases such as TB and HIV were excluded as well.

Research instrument

The questionnaire used for collecting data for H Program consisted of 3 parts: 1) general characteristics, such as gender, age, marital status, occupation, education, etc., 2) self-care checklist, and 3) open-end question.

Self-care checklist of H program was categorized into 3 subgroups with 5 items checklist as follows: 1) Healthy eating; healthy choice cooking and eating less sweet, 2) Physical activity; taking time for exercise and

breathing exercise, and 3) Recreation; leisure time and relaxing activity. First item, healthy choice cooking and eating less sweet were defined as frequent daily cooking for consumption of vegetables and high fiber food, less consumption of sweet, drinking a lot of water at least one litre per day, and limiting sodium and salt intake by themselves. Second, taking time for exercise a day at least three times a week. Next, breathing exercise training was done in 5-10 minutes per day. And the last item was relaxing activities, involving emotional status, and usual leisure activities such as watching TV, taking care of children, napping, travel to other places, etc.

If the participants engaged in the activities for 5-7 days in a week, the score given to them was 3 points; if they engaged for 3-4 days in a week, the score of 2 points would be given; if the activities were done 1 to 2 days in a week, the score of 1 point would be given; and if they did not do any of the activities at all, they would get the score of 0 point. The higher scores showed the higher compliance level of self-care.

Health program intervention

The participants in the intervention group practiced the H program at home by themselves, and making an appointment for the next round of the activities weekly. The H program used the information and practice based on the concept of Thailand healthy lifestyle in 2012 which was recommended for all Thais who were advised to consume healthy food, be physically active, quit smoking, and reduce alcohol consumption (Chobanian et al., 2003b; Khaw et al., 2008).

The major components of the H program included information of 1) healthy eating, 2) physical activity, and 3) recreation, such as watching TV, napping, and taking care of children, and any leisure time (Chotisiri et al., 2016). After the participants signed the informed consent form to indicate their willingness to participate in the study, the H program was introduced to patients in the intervention group. The H program was repeated at patients' home once a week for two consecutive months. The participants were encouraged to tailor the activities when home visits were conducted by the researcher team and healthcare staff of PHC 25. The 1st week of home visit was conducted.

The participants in the intervention group demonstrated all components of the activities. Exercises in the H program were continued in the 2nd week and 3rd week. The 4th week of home visit appointment was to remind them as the 1st week in order to ensure that the participants had followed all activities included in the program intervention through the end of 8th week, as
follows (Table 1).

Table 1. An 8-week Health program (H program) intervention

Week	H program	Home visit - consideration
1	Introduce to the Health program (H program), Giving health education 1.1 Healthy diet for healthy eating 1.2 Physical activity & exercise for health 1.3 Recreation & relaxing activity	The activities of program aimed to be as individually tailored-giving health education from healthcare team directly
2	Exercise guide: How to play ROM: Range of Motion exercise Recreation: Leisure time fit for you	Participants was trained an individual ROM exercise. Sharing & enjoying for leisure time
3	Exercise guide: Slow breathing exercise Recreation: Fun ways to relax & relaxing activity	Participants was trained an individual slow breathing exercise Sharing & enjoying for leisure time
4	To remind participants to adhere the H program as the 1st week 4.1 Healthy diet for healthy eating 4.2 Physical activity & exercise for health 4.3 Recreation & relaxing activity	Ensure that patient is able to follow program continually
5	Menu to know: Healthy Choice cooking Recreation: Fun ways to relax relaxing activity	Menu was shared by participant Sharing & enjoying for leisure time
6	Exercise: ROM exercise &slow breathing	To repeat and the exercise prescription was adjusted if required
7	H program observation	To ensure participants attend the H program by home visit
8	Wrap up 8.1 Healthy diet for healthy eating 8.2 Physical activity & exercise for health 8.3 Recreation & relaxing activity	H program completed

After the H program was approved by the nutritionist, physical technician and psychologist, the researchers included self-care items checklist based on JNC VII guideline and the previous research (Chobanian et al., 2003; Riegel, Carlson, & Glaser, 2000; Visanuyothin, Plianbangchang, & Somrongthong, 2018). The H program was tested by 5 items covering self-care among hypertensive patients. All items in the checklist yielded a reliability coefficient of 0.60 (Chotisiri & Techapongvorachai, 2018).

Procedures: Baseline screening

Baseline screening was conducted before the H program intervention began. All participants underwent physical screening to measure their body weight, body mass index, blood pressure and blood sugar. All clinical measurements were done by researcher team and a team of multidisciplinary team members of PHC 25, a government healthcare service provider under the Bangkok Metropolitan Administration (BMA).Eligible participants who signed informed consent were interviewed and completed the questionnaire.

For the control group, participants engaged in the routine care which consisted of 1) physician's appointment, 2) routine treatment, 3) individual counseling from the physician, 4) collecting medicines from the pharmacist, and 5) arranging for the next appointment. All medical procedures were done in both groups of participants who all received similar routine care under the services of PHC 25. The participants did not know if they were in the intervention or the control group, as the single-blinded technique was used to separate as home visit.

Data analysis

The results obtained were statistically analyzed using the statistical package. The independent t-test and the Chi-square test were also used to evaluate statistical differences between the control and the intervention groups. Furthermore, dependent t-test was employed to analyze the differences between the baseline data and the data collected each week. All analyses used a 95% confident interval (CI) and the level of significance for all the statistical tests was set at p-value less than 0.05.

Ethics

This study was reviewed by the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Suan Sunandha Rajabhat University (COA.1-020/2018). Approval from the Director of the Public Health Center 25 Huai Khwang was obtained for the use of medical records. Prior to participation, the purpose and procedures of the study were fully explained to the prospective participants and all participants signed the informed consent form to indicate their willingness to participate in the study.

Analysis results

1. Baseline characteristics

The baseline characteristics of 45 participants were shown in Table 1. Twenty-two participants in the intervention group had the mean age of 65.1 ± 6.2 years, most of the participants were women, and 63.6% were married. Regarding education, 68.2% of the participants completed elementary education. As for occupation, it was found that most of the participants, or 86.4%, were unemployed, housewives, or retired. In addition, 68.2 % were non-smokers and the same percentage, or 68.2%, were non-alcohol drinkers. Likewise, the general characteristics of 23 participants in the control group were similar to those of the participants in the intervention group. Their mean age was 65.1± 6.9 years, 60.9 % were women, 73.9 % were married, 87.0 % completed elementary education, 60.9 % were unemployed, housewives, or retired, 65.2 % were non-smokers, and 69.6 % were non-alcohol drinkers. There were no statistically significant differences in general demographic characteristics and NCD diseases-related characteristics (Table 2).

Table 2. Baseline characteristics of participants (n = 45)

Variables	Intervention group (n = 22)		Control group (n = 23)		p value
	n	(%)	n	(%)	
Sex: women	16	(72.7)	14	(60.9)	0.39
Marital status: married	14	(63.6)	17	(73.9)	0.48
Education: elementary school	15	(68.2)	20	(87.0)	0.26
Occupation: Housewife/unemployed/retired	19	(86.4)	14	(60.9)	0.13
Non-smoker	15	(68.2)	15	(65.2)	0.36
Non-alcohol drinker	15	(86.2)	16	(69.6)	0.40
NCD diseases (HT, DM, overweight, and arthritis)	16	(72.7)	11	(47.8)	0.26
Symptom from chronic disease (High blood pressure, high blood sugar, GI disturbance, Myalgia)	15	(72.7)	15	(65.2)	0.36
	Mean	(S.D)	Mean	(S.D)	
Age (years)	65.1	(6.2)	65.2	(6.7)	0.65
Duration of NCD disease (years)	9.5	(3.17)	7.78	(2.9)	0.96

*Significant at P value <0.05

Self-care of NCD patients at baseline survey

It was found that there were no statistically significant differences in self-care among NCD patients between the intervention and the control groups at baseline survey (Table 3).

Table 3. NCD patient self-care at baseline survey (n = 45)

Items	Day(s)	Intervention group (n = 22)		Control group (n = 23)		P value
		n	(%)	n	(%)	
1. Healthy eating						
1.1 Healthy choice cooking	3-4	14	(63.6)	11	(47.8)	0.17
1.2 Eating less sweet	3-4	11	(50.0)	10	(43.5)	0.60
2. Physical activity						
2.1 Taking time for exercise	3-4	8	(36.4)	8	(34.8)	0.35
2.2 Breathing exercise	1-2	11	(50.0)	10	(43.8)	0.79
3. Recreation & Relaxing activity	5-7	16	(72.7)	11	(47.8)	0.75

*Significant at P value <0.05

3.3 Comparison of changes in NCD patient self-care at baseline and after an 8-week H program intervention (n = 45)

There were statistically significant differences of self-care as a part of physical activity; taking time for exercise and relaxing activity between groups, respectively ($p < 0.05$). However, there were no statistically significant differences in healthy eating; healthy choice cooking, eating less sweet, and physical activity; breathing exercise to be healthy for NCD patients ($p > 0.05$) (Table 4).

Table 4. Comparison of changes in NCD patient self-care between the intervention and the control groups (n = 45)

Lists	Intervention Group (n = 22)		Control group (n = 23)		Mean differen t	95%CI		P values
						Lower	Upper	
1) Healthy diet								
1.1 Healthy choice cooking (3-4 days)	15	(68.2)	13	(56.5)	0.58	0.25	0.91	0.31
1.2 Eating less sweet (3-4 days)	10	(45.5)	10	(43.5)	0.39	-0.42	0.83	0.83
2) Physical activity								
2.1 Taking time for exercise (3-4 days)	12	(54.5)	8	(34.8)	0.47	-0.02	0.96	0.02
2.2 Breathing Exercise (1-2 days)	15	(68.2)	11	(47.8)	0.41	-0.07	0.88	0.75
3) Recreation: watching TV, travel (5-7 days)	21	(95.5)	15	(65.2)	0.30	0.08	0.53	0.00

* Significant between groups at $p < 0.05$

Discussion

The hypothesis of the study was that the H program would result in improvement on NCD patient self-care. The results reported no statistically significant differences in self-care between the two groups at baseline ($p > 0.05$). However, after the 8 week H program intervention was completed, subgroups of self-care regarding physical activity; taking time for exercises and recreation; relaxing activity between the two groups showed statistically significant difference ($P < 0.05$). Such findings was consistent with the findings of Jones et al. (2012) which pointed out that trust in one's physician may contribute to attempts to reduce salt and increase exercise (Jones, Carson, Bleich, & Cooper, 2012; Prabsangob, Somrongthong, 2017). Moreover, Y. S. Lee &

Laffrey (2006) found that motivation was directly associated with for people' regular engagement in physical activities (PA) (Lee & Laffrey, 2006).

Therefore, it could be concluded that the H program intervention which involved knowledge dissemination, motivation to increase exercises, and a recollection checklist, with additional weekly of home visits, could raise the awareness of the participants in the intervention group compared to the control group. On the other hand, the study findings showed unchanged self-care in terms of healthy eating; healthy choice cooking, eating less sweet, and physical activity; breathing exercise in the intervention group. Such findings yielded support to the study undertaken by Mai et al. (2007) which invesigated lifestyle changes after participation in a screening program for diabetes, as they concluded that no substantial changes in lifestyle could be detected one year after screening for diabetes in the setting of general practice (Mai, Sandbaek, Borch-Johnsen, & Lauritzen, 2007). Likewise, a similar findings were reported in a study carried out with Italian patients with hypertension after 12 months of implementation of a comprehensive motivational approach that promoted lifestyle modification (Scala et al., 2008).

However, the findings that the H program did not reveal statistical differences between the two groups of participants in this study may be explained that 1) the differences could not be detected that the implementation of the program was too short; 2) home visit that required the participants to engage in the activity assignment may have made some participants did not feel like willing to do; and 3) the participants in the intervention group might not have followed the H program sufficiently by themselves because of individual reasons and/or the social environment (Hu, Li, & Arao, 2015). For example, the experiment took place during rainy season in Thailand, and it was the end of Buddhist Lent day in October, followed by the annual Thai Loi-Kratong festival in November. It was an important time for the Thai people to engage in cultural-religious celebrations with their family and neigh-borhood, eating high energy food, drinking sugary beverage and alcohol. Those social, cultural, traditional events might have made it difficult for the participants to follow the program (Dickinson et al., 2006). Similarly, Flynn et al. (2013) have noted that family members identified their participation in patients' physician's visits and discussions with patients' physician outside of visits and such participation may help guide efforts to tailor behavioral interventions designed to improve self-management behaviors for diseases (Flynn et al., 2013). The literature also discussed the importance of the combination of the program with other lifestyle modifications such as weight control, healthy diet, smoking cessation, and moderation of alcohol consumption (Chobanian et al., 2003a, 2003b).

The present study showed significant changes in the part of physical activity; taking time for exercise and recreation; relaxing activity of the intervention group compared with those of the control group.

Conclusion and recommendation

The results of this study indicated that the H program could promote how to engage patients in self-care exercise, i.e. a subgroup of NCD patient self-care in the urban community. However, the design of this study did not allow for generalization of the study findings to other

conditions, patients who are under treatment in other healthcare facilities in Thailand. The duration of the experiment period overlapped with the national festive events during November may have affected participants' compliance with home care, hence, possible effects on the study findings.

Future studies should carefully consider the seasonal calendar when planning research implementation. During the intervention period, for weekly home visits after meetings at the clinic can directly provide individual support to patients enrolled in the program by offering individually tailored health education and counseling. Home visits would be useful in improving behavioral changes among hypertensive patients particularly those who are elderly patients.

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Authors contributions: Luckwirun Chotisiri, and Kunyaluk Tejapongvorachai designed the study, its development, developed materials. Kantapong Prabsangob and Khemika Yamarat contributed and evaluated research tools; Luckwirun Chotisiri had primary responsibility to perform the intervention; Luckwirun Chotisiri, Kantapong Prabsangob analyzed the data; all authors read and approved the paper.

Conflicts of Interest: The authors declared no conflict of interest.

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