

Effect of Personal Health Record Booklet (PHRB) to Knowledge, Self-Efficacy and Healthy Behaviors among Thai Population at Risk of Cardiovascular Disease (CVD)

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Objective: To investigate an effect of a personal health record booklet (PHRB) to knowledge, self-efficacy and healthy behaviors among Thai population at risk of CVD.

Material and Method: The present study was a quasi-experimental study conducted in a primary care unit during November 2008 and January 2009. A random sample of 204 CVD risk population were recruited as a comparison group (n = 102), who received a regular follow-up and recorded routine blood pressure using booklet and an experimental group (n = 102), who received the regular follow-up and the intervention consisting of health education for CVD information and self-monitoring practice. Data were collected by using self-administered questionnaires at the baseline, the 4th week and the 8th week. These data were analyzed by descriptive statistics, Chi-square test and GLM repeated measures.

Results: Knowledge score was significantly decreased although self-efficacy was increased over a time in the experimental group. However, except the figure of sweet/cookies consumption, the mean score of healthy behaviors were not improved in the experimental group when compared to the comparison group.

Conclusion: CVD information, activity illustrations with caption, health record section and daily self-monitoring tables in desired behaviors should be considered for inclusion in the booklet.

Keywords: Personal health record booklet, Self-efficacy, Thai population, Cardiovascular disease

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Personal health record booklet (PHRB) has been used as a potential cost of effective intervention in promoting healthy behaviors. It had been integrated with clinical management, among ill people and a population at risk for many years^(1,2). Some booklets were used for medical record⁽³⁻⁵⁾ and some booklets provide space to record people's behaviors⁽⁶⁾. It was recommended that the effective booklet should contain disease information, its prevention, desired behaviors, screening information and self monitoring⁽⁷⁻¹¹⁾. This was consistent to a number of studies, in which it was reported that people who received booklets with more detailed information, significantly improved their knowledge^(1-4,6,7,11) and tended to change their

behavior^(1,2,4-6,12,13).

In Thailand, the booklets for population at risk of cardiovascular disease (CVD) have usually been used in a form of health record for health professionals to monitor patients' blood pressure and blood tests. Brief health knowledge and recommended behaviors regarding dietary consumption and physical activities were distributed on separate fliers if it was needed. There was no report of using a personal health record booklet, which included disease information, medical or health record and its effects within Thai population.

Self-efficacy is a potential factor, which related to taking an action. People with a tenacious belief in their capabilities will confide to initiate and persist in their actions despite innumerable difficulties⁽¹⁴⁾. Several studies on chronic diseases, which promoted people's efficacy in performing desired behaviors by providing written health educational materials, reported that the individual behavior was changed⁽¹⁵⁻¹⁸⁾. The impact of a structured booklet on people's self-efficacy

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in performing healthy behaviors among Thai population is still unknown.

The purpose of the present study was to determine the effect of the PHRB to knowledge, self-efficacy and healthy behaviors within Thai population at risk of CVD. The healthy behaviors of the present study included no smoking, no drinking, taking daily vegetable diet and fruit consumption, the consumption sweets or cookie that was less than or equal to three times per day and practicing regular physical activities.

Material and Method

Study design

A quasi-experimental research design was used to investigate the effect of the PHRB conducted between November 2008 and January 2009. The recruitment of subjects was done by health professionals, who worked at a primary care unit in Suphanburi province, the central region of Thailand. Mahidol University's Ethical Committee approved the present study with the approval number MUPH2008-166. Participants were fully explained before participating in the present study. Participation in the present study was voluntary. The informed consent was obtained and anonymity was guaranteed. The present study was conducted under the concept of Declaration of Helsinki.

Subjects

In the present study, participation was voluntary. The inclusion criteria were people aged 40 years and older and had had at least one risk factor of CVD including (1) a family history of diabetes mellitus, CVD, or hypertension, (2) smoking, (3) drinking, (3) blood sugar ≥ 100 mg/dl, (4) low HDL, (5) BMI > 23 kg/m², (6) waist circumference 90 centimeters in male and 80 centimeters in female and (7) a primary diagnosis of diabetes mellitus, high blood pressure or high cholesterol⁽¹⁹⁻²¹⁾.

Power analysis was conducted estimating the sample size needed for the present study. To achieve 80% power with a medium effect and an alpha of 0.05, a minimum of 130 participants (65 participants per group accounting for attrition) was projected⁽²²⁾. In the present study, however, all CVD risk population in the setting, which was approximately 240 people, was included in the present study. After excluding people with too ill (n = 10), inconvenience to participate in the present study (n = 10), missing age (n = 16) and thus, there were 204 participants (102 participants per group) were invited to participate in the present study.

Procedure

When the participants were enrolled, they were simple randomly assigned into the comparison and experimental groups. For the comparison group, participants were usually asked to visit the hospital once a month (Monday and Wednesday) and receive follow-up and the leaflet regularly over the eight-week period of the present study. Information in the booklet was developed by health professionals, who were working at the primary care unit, included only blood pressure record and visiting schedule. For the experimental group, participants were also asked to visit the hospital once a month (Tuesday and Thursday) until the finishing time of the present study. Initially, they received a usual healthcare follow-up, which was supplemented by the PHRB. PHRB was developed by the researcher. Then, health education regarding CVD information and healthy behaviors are as indicated in the booklet and brief explanation of how to use the booklet and how to record such behaviors were also provided to participants directly from health professional, who was trained by the researcher. Participants in the experimental group were encouraged to practice items as indicated in the PHRB and asked to check their activities in the PHRB every day and then submitted the PHRB to the health professional at 4th and the 8th week.

Intervention

Health education

CVD information, a brief explanation of PHRB, and the instruction of how to use PHRB were provided.

Personal health record booklet

The information in the booklet consisted of three sections, namely, the health education section, the health record section and self-monitoring section. The health education section encompassed the health information of CVD, recommended behaviors, food menus and their calories. Illustrations of exercise procedures with captions were also provided. The health record section included the information on participant body weight, height, blood pressure, blood sugar, total cholesterol, LDL, HDL, waist circumference, medication if needed and professional advice. For self-monitoring section, tables were provided for recording self-monitored behaviors such as smoking, drinking, dietary intake and physical activities. The dietary intake record of booklet focused on consumption of red meat, fruits, vegetable and sweets or cookie, which is equal or less than 3 times per day, whereas physical activities

were defined as aerobic exercise or brisk walking⁽²³⁾.

Development of booklet

The PHRB was developed by the researcher in the light of the literature reviews on developing patient booklets^(3,6,9,24,25). The size, the amount of included information, the ease of understanding, illustrations and captions were assessed by 3 experts including a physician, a nurse and a nutritionist prior to the beginning of the present study. The feasibility and readability of the present study booklet were tested with five people, who were at risk of CVD. The pilot test showed that the information were clear, although the font size was small. Therefore, the font size was increased for better readability. The booklet came in portrait format and was produced on a half of A4 size white paper. All information in the booklet was written at a grade of 10-12 level.

Questionnaire

Participants were asked to complete questionnaires at the time of enrollment, at the 4th and the 8th week. The questionnaires included the following:

The health knowledge questionnaire consisted of 12 items with assessed knowledge regarding CVD information. It included risk factors, dietary and physical activities. An overall score was calculated by counting the responses taken to get correct, with a total possible score ranging from 0-12. The higher the scores, the greater they have knowledge of CVD information and disease prevention.

Self-efficacy measured the present study population's belief in their abilities to perform healthy lifestyle behaviors such as physical activities and recommended dietary intake. The 5-point Likert scale consisted of 9 items ranging from "1 = absolutely not confident" to "5 = absolutely confident" and the total possible score ranging from 9 to 45. The higher the scores, there was the greater confidence of individual performed healthy lifestyle. Reliability, which was measured by Cronbach's alpha, was 0.7.

Healthy behaviors questionnaire measured six behaviors. It included no smoking, no drinking, number of vegetable serving, number sweets or cookies serving, fruit serving less than or equal to 3 times per day and physical activities more or equal to 30 minutes per day. All items had then provided a total score. All the answers were given on a 5-point Likert scale (everyday, 5-6 days, 3-4 days, 1-2 days and not at all), for which the score ranged from 1-5. The higher the score, the better the healthy behaviors were performed.

Statistical analyses

Data were analyzed by using the computerized statistical analysis software. Intention-to-treat analyses were used. Differences between the experimental and comparison group were examined by using Chi-square test for categorical and independence t-test for continuous variables. GLM repeated measures was performed to compare between groups so as to determine, whether there were significant changes in the health knowledge, self-efficacy and healthy lifestyle behaviors scores across time based on effect of the intervention. A p-value < 0.05 was considered as the criterion of statistical significance.

Results

Socio-demographic characteristics

A baseline comparison of two groups on age, marital status and educational level showed no statistically significant differences (p = 0.26, 0.28 and 0.65 respectively). Most of the participants in both groups were elderly, married women and finished at primary school level. However, participants in the comparison group had higher income and were still working compared to those in the experimental group (p < 0.001). No statistically significant baseline differences in BMI (p = 0.13) and clinical diagnosis including hypertension, diabetes mellitus and hypercholesterolemia was observed (p = 0.13, 0.78 and 0.07 respectively) (Table 1). Mean scores of knowledge, vegetable serving and physical activities in the experimental group were higher than those in the comparison group at the baseline (p = 0.03, 0.02 and <0.001 respectively) (Table 2).

After adjusting for occupation and family income, the results from GLM showed statistically significant effects of time and the intervention to knowledge (F = 3.19, p = 0.01) and self-efficacy (F = 3.56, p = 0.01), as shown by the within-subjects tests (Table 3). When performing independent t-test analysis to compare the mean differences of knowledge, self-efficacy and healthy behaviors between groups, a significant difference in mean score of health knowledge between baselines to 8th week (p < 0.001) and between 4th week to 8th week of the present study (p < 0.001) and a significant difference in mean score of sweet or cookies consumption between baseline and the 4th week (p = 0.03) were observed. In addition, the mean score of self-efficacy was more likely to increase between baseline to 8th week (p = 0.05), but not significant (Table 4).

On average, the experimental group had greater self-efficacy in performing healthy behaviors,

Table 1. Sociodemographic characteristics of participants at the baseline

	The comparison group (n = 102) n (%)	The experimental group (n = 102) n (%)	p-value*
Sex			
Male	33 (55.0)	27 (45.0)	0.36
Female	69 (47.9)	75 (52.1)	
Age (years)			
40-49	18 (51.4)	17 (48.6)	0.26
50-59	40 (57.1)	30 (42.9)	
60 years and older	44 (44.4)	55 (55.6)	
Min-Max = 40-94; Mean (SD)	60.1 ± 11.9	62.6 ± 12.3	
Marital status			
Single	29 (56.9)	22 (43.1)	0.28
Married	73 (48.0)	79 (52.0)	
Education			
No education	19 (52.8)	17 (47.2)	0.65
Primary school	79 (48.8)	83 (51.2)	
Secondary school and higher	4 (66.7)	2 (33.3)	
Occupation			
Employed	72 (55.8)	57 (44.2)	0.03*
Unemployed	30 (40.0)	45 (60.0)	
Family income (Baht)			
Less than 10,000	34 (44.7)	42 (55.3)	< 0.001**
10,000-49,999	34 (72.3)	13 (27.7)	
50,000 and up	1 (20.0)	4 (80.0)	
Min-Max = 1,500-80,000;			
Median	10,000	6,000	
BMI (kg/m ²)			
Less than 23	44 (57.9)	32 (42.1)	0.13
23-27.49	33 (41.8)	46 (58.2)	
27.5 and up	16 (51.6)	15 (48.4)	
Diseases			
Hypertension	75 (47.2)	84 (52.8)	0.13
Diabetes	45 (48.9)	47 (51.1)	0.78
Hypercholesterolemia	25 (40.3)	37 (59.7)	0.07

* p < 0.05, Chi-square test, ** p < 0.001

better sweet/cookies consumption and less knowledge in CVD compared to the comparison group. It was interesting to note that health knowledge was declined over time in both groups.

Discussion

The PHRB can improve self-efficacy in CVD at risk people over the time. Possibly, it might be that the booklet consisted of not only disease information, but also brief descriptions of the recommended behaviors and illustrations with captions on performing such behaviors. This might have led participants to feel more confident in steps to perform activities, which is consistent with the findings that sweet or

cookies consumption was reduced in the experimental group. According to Bandura⁽¹⁴⁾, individuals who confide in their capabilities are more likely to initiate and persist in their actions despite innumerable difficulties. Other behaviors-dietary consumption and exercise-could perhaps require more practice before they become new, healthier habits.

Effect of the PHRB was also noted in knowledge, but in the negative response, which is inconsistent with previous studies^(1,2,26). This statistical significant finding, in which occupation and family income were controlled for, may suggest an influence of employment status and household income on the degree of people's knowledge. In general, poor people

Table 2. Comparison of mean scores in knowledge, self-efficacy, and healthy behaviors between groups at the baseline

	The comparison group (n = 102) Mean (SD)	The experimental group (n = 102) Mean (SD)	p-value*
Knowledge	6.6 (2.7)	7.4 (2.3)	0.03*
Self-efficacy	35.1 (3.8)	35.4 (2.8)	0.52
Healthy behaviors			
Non-smoking	4.8 (0.9)	4.8 (0.9)	1.00
Non-drinking	4.7 (0.7)	4.8 (0.6)	0.29
Vegetable servings	3.7 (1.1)	4.1 (1.1)	0.02*
Sweet/cookies \leq 3 times/day	3.5 (0.9)	3.5 (0.9)	0.88
Fruit servings	2.9 (0.9)	3.1 (1.0)	0.24
Physical activities	1.3 (0.7)	1.7 (1.0)	< 0.001**

* p < 0.05; Independent t-test, ** p < 0.001

Table 3. Overall change of knowledge, self-efficacy and healthy behavior scores at the baseline, the 4th week and the 8th week of two groups after adjusted by family income and occupation by using General Linear Model (GLM)

Measurement	df	ss	MS	F	p-value*
Change of knowledge score	4	62.42	15.61	3.19	0.01*
Change of self-efficacy score	4	82.41	20.60	3.56	0.01*
Change of non-smoking score	4	0.26	0.07	0.74	0.57
Change of non-drinking score	4	0.44	0.11	0.91	0.46
Change of vegetable consumption score	4	0.10	0.03	0.44	0.78
Change of sweet/cookies consumption score	4	0.42	0.11	1.92	0.11
Change of fruit consumption score	4	0.31	0.08	0.91	0.46
Change of physical activity score	4	0.55	0.14	0.94	0.44

*p < 0.05

often dropped out from school and worked, resulting a low level of education in this group. This was supported by the studies of Butow et al⁽⁷⁾ and DeWalt et al⁽²⁷⁾, which demonstrated that people with a low literacy level had less health-related knowledge and Lowry et al⁽²⁸⁾ study that education was associated to people's knowledge of healthy behavioral patterns.

Except the consumption of sweet or cookies, healthy behaviors were not improved by the PHRB. Possibly, it might have an influence of socio-demographic characteristics of the participants. A number of studies reported an influence of sex, income, educational level and occupation on people's environment and their socialization experience. For example, Adler et al⁽²⁹⁾ reported that lack of physical activities was found more in women compared to that of men. Lantz et al⁽³⁰⁾ and Lowry et al studies⁽²⁸⁾ found that a low income was associated to unhealthy behaviors such as heavy drinking and physical

inactivity. In addition to this, Pappas⁽³¹⁾ reported that the poor and low educational level can mediate people's abilities to afford healthy environments and at the knowledge of healthy behavior patterns.

The present study had strengths and limitations. The strength was the large sample size for testing an effectiveness of the booklet. Moreover, the structure of the PHRB was developed according to the recommendation from literature reviews. However, the study findings should be considered in the light of several limitations. Firstly, the majority of participants were elderly, which was less likely to have less health-related knowledge and change behaviors^(7,30). Next, participants were recruited from people who were followed-up at one primary care unit that might have some contamination in the present study intervention. Finally, the duration of intervention might be short to investigate the effect of the intervention to see significantly different changes in people's cognition

to comprehend health information, self-efficacy and healthy behaviors.

Conclusion

People's CVD knowledge and healthy behaviors was not improved by the PHRB, whereas their self-efficacy was more likely to increase overtime after receiving the study intervention. There was no significant difference in healthy behaviors, except sweet/cookies consumption, between participants who received the PHRB and those who did not.

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Potential conflicts of interest

None.

References

1. Mancini J, Noguez C, Adenis C, Berthet P, Bonadona V, Chompret A, et al. Impact of an information booklet on satisfaction and decision-making about BRCA genetic testing. *Eur J Cancer* 2006; 42: 871-81.
2. Conroy SP, Mayberry JF. Patient information booklets for Asian patients with ulcerative colitis. *Public Health* 2001; 115: 418-20.
3. Banet GA, Felchli MA. The potential utility of a shared medical record in a "first-time" stroke population. *J Vasc Nurs* 1997; 15: 29-33.
4. Liaw T, Lawrence M, Rendell J. The effect of a computer-generated patient-held medical record summary and/or a written personal health record on patients' attitudes, knowledge and behaviour concerning health promotion. *Fam Pract* 1996; 13: 289-93.
5. Udermann BE, Spratt KF, Donelson RG, Mayer J, Graves JE, Tillotson J. Can a patient educational book change behavior and reduce pain in chronic low back pain patients? *Spine J* 2004; 4: 425-35.
6. Dickey LL, Petitti D. A patient-held minirecord to promote adult preventive care. *J Fam Pract* 1992; 34: 457-63.
7. Butow P, Brindle E, McConnell D, Boakes R, Tattersall M. Information booklets about cancer: factors influencing patient satisfaction and utilization. *Patient Educ Couns* 1998; 33: 129-41.
8. Higgins L, Ambrose P. The effect of adjunct questions on older adults' recall of information from a patient education booklet. *Patient Educ Couns* 1995; 25: 67-74.
9. Newell SA, Sanson-Fisher RW, Girgis A, Davey HM. Can personal health record booklets improve cancer screening behaviors? *Am J Prev Med* 2002; 22: 15-22.
10. Santo N, Purden N, Tanguay N. Developing an information booklet for parents and caregivers of children recovering from spinal fusion surgery. *J Orthop Nurs* 2008; 12: 84-9.
11. Hoffmann T, McKenna K, Herd C, Wearing S. Written education materials for stroke patients and their carers: perspectives and practices of health professionals. *Top Stroke Rehabil* 2007; 14: 88-97.
12. Kruse AY, Kjaergard LL, Krogsgaard K, Gluud C, Mortensen EL, Gottschau A, et al. A randomized trial assessing the impact of written information on outpatients' knowledge about and attitude toward randomized clinical trials. The INFO trial group. *Control Clin Trials* 2000; 21: 223-40.
13. Ezedum S, Kerr DN. Collaborative care of hypertensives, using a shared record. *Br Med J* 1977; 2: 1402-3.
14. Bandura A. *Self-efficacy: the exercise of control*. New York: W.H. Freeman; 1997.
15. Sol BG, van der GY, van der Bijl JJ, Goessens BM, Visseren FL. The role of self-efficacy in vascular risk factor management: a randomized controlled trial. *Patient Educ Couns* 2008; 71: 191-7.
16. Rankins J, Sampson W, Brown B, Jenkins-Salley T. Dietary Approaches to Stop Hypertension (DASH) intervention reduces blood pressure among hypertensive African American patients in a neighborhood health care center. *J Nutr Educ Behav* 2005; 37: 259-64.
17. Sol BG, van der GY, van Petersen R, Visseren FL. The effect of self-efficacy on cardiovascular lifestyle. *Eur J Cardiovasc Nurs* 2011; 10: 180-6.
18. Kelly RB, Zyzanski SJ, Alemagno SA. Prediction of motivation and behavior change following

- health promotion: role of health beliefs, social support, and self-efficacy. *Soc Sci Med* 1991; 32: 311-20.
19. Aekplakorn W, Bunnag P, Woodward M, Sritara P, Cheepudomwit S, Yamwong S, et al. A risk score for predicting incident diabetes in the Thai population. *Diabetes Care* 2006; 29: 1872-7.
 20. Lloyd-Jones DM, Leip EP, Larson MG, D'Agostino RB, Beiser A, Wilson PW, et al. Prediction of lifetime risk for cardiovascular disease by risk factor burden at 50 years of age. *Circulation* 2006; 113: 791-8.
 21. Qureshi AI, Suri MF, Guterman LR, Hopkins LN. Ineffective secondary prevention in survivors of cardiovascular events in the US population: report from the Third National Health and Nutrition Examination Survey. *Arch Intern Med* 2001; 161: 1621-8.
 22. Cohen J. *Statistical power analysis for the behavioral sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988.
 23. Wolf PA, Clagett GP, Easton JD, Goldstein LB, Gorelick PB, Kelly-Hayes M, et al. Preventing ischemic stroke in patients with prior stroke and transient ischemic attack : a statement for healthcare professionals from the Stroke Council of the American Heart Association. *Stroke* 1999; 30: 1991-4.
 24. Goodwin RA, Brule D, Junkins EA, Dubois S, Beer-Borst S. Development of a food and activity record and a portion-size model booklet for use by 6- to 17-year olds: a review of focus-group testing. *J Am Diet Assoc* 2001; 101: 926-8.
 25. Hoffmann T, McKenna K. Analysis of stroke patients' and carers' reading ability and the content and design of written materials: recommendations for improving written stroke information. *Patient Educ Couns* 2006; 60: 286-93.
 26. Davis AH, Carrieri-Kohlman V, Janson SL, Gold WM, Stulbarg MS. Effects of treatment on two types of self-efficacy in people with chronic obstructive pulmonary disease. *J Pain Symptom Manage* 2006; 32: 60-70.
 27. DeWalt DA, Boone RS, Pignone MP. Literacy and its relationship with self-efficacy, trust, and participation in medical decision making. *Am J Health Behav* 2007; 31 (Suppl 1): S27-35.
 28. Lowry R, Kann L, Collins JL, Kolbe LJ. The effect of socioeconomic status on chronic disease risk behaviors among US adolescents. *JAMA* 1996; 276: 792-7.
 29. Adler NE, Boyce T, Chesney MA, Cohen S, Folkman S, Kahn RL, et al. Socioeconomic status and health. The challenge of the gradient. *Am Psychol* 1994; 49: 15-24.
 30. Lantz PM, House JS, Lepkowski JM, Williams DR, Mero RP, Chen J. Socioeconomic factors, health behaviors, and mortality: results from a nationally representative prospective study of US adults. *JAMA* 1998; 279: 1703-8.
 31. Pappas G. Elucidating the relationships between race, socioeconomic status, and health. *Am J Public Health* 1994; 84: 892-3.

ผลของสมุดบันทึกสุขภาพส่วนบุคคลต่อความรู้ การรับรู้ความสามารถของตนเองและพฤติกรรมสุขภาพในประชากรไทยกลุ่มเสี่ยงโรคหัวใจและหลอดเลือด

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วัตถุประสงค์: เพื่อศึกษาประสิทธิผลของสมุดบันทึกสุขภาพส่วนบุคคลในการส่งเสริมความรู้ การรับรู้ความสามารถของตนเองและพฤติกรรมสุขภาพในประชากรไทยกลุ่มเสี่ยงโรคหัวใจและหลอดเลือด

วัสดุและวิธีการ: การศึกษานี้เป็นการศึกษากึ่งทดลองซึ่งทำในหน่วยบริการระดับปฐมภูมิมาระหว่างเดือนพฤศจิกายน พ.ศ. 2551 ถึงเดือนมกราคม พ.ศ. 2552 กลุ่มตัวอย่างเป็นประชากรกลุ่มเสี่ยงโรคหัวใจและหลอดเลือดจำนวน 204 คน ถูกสุ่มให้เข้ากลุ่มเปรียบเทียบจำนวน 102 คน ซึ่งได้รับการดูแลตามปกติและได้รับสมุดบันทึกความดันโลหิต และเข้ากลุ่มทดลองจำนวน 102 คน ซึ่งได้รับการดูแลตามปกติและได้รับกิจกรรมเรื่องสุขศึกษาเกี่ยวกับโรคหัวใจและหลอดเลือด และการฝึกบันทึกในสมุดบันทึกสุขภาพด้วยตนเอง และทำการเก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม ในระยะก่อนการทดลอง สัปดาห์ที่ 4 และสัปดาห์ที่ 8 สถิติที่ใช้ในการวิเคราะห์ได้แก่สถิติเชิงพรรณนาการทดสอบไคสแควร์และ GLM repeated measures

ผลการศึกษา: กลุ่มทดลองมีความรู้ลดลงในขณะที่การรับรู้ความสามารถของตนเองเพิ่มขึ้น อย่างไรก็ตามคะแนนเฉลี่ยพฤติกรรมสุขภาพของกลุ่มทดลองไม่แตกต่างจากกลุ่มเปรียบเทียบ

สรุป: สมุดบันทึกสุขภาพควรมีข้อมูลเรื่องโรคหัวใจและหลอดเลือด และกิจกรรมพร้อมรูปภาพที่มีคำบรรยายประกอบ และส่วนที่เป็นผลการตรวจสุขภาพและตารางการบันทึกประจำวันด้านพฤติกรรมสุขภาพ
