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ORIGINAL ARTICLE

The development of changing health behavior program in at-risk people for diabetes mellitus in the area of the office of disease prevention and control region 10th Ubon Ratchathani.

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Abstract

The development on changing health behavior program (CHBP) of Diabetes Mellitus (DM) risk group. The behavioral change program was reviewed research publication from 1988 to 2018. The synthesis of CHBP is appropriate for the area of the office of Disease Prevention and Control Region 10th Ubon Ratchathani ODPC 10th Ubon Ratchathani area researchs review and lessons learned from the DM prevention and control best practice in ODPC 10th. The program was developed by 43 participants from 5 provinces (Ubon Ratchathani, Mukdahan, Srisaket, Yasothon, and Amnat Charoen) who responsible for DM disease from provincial level, district level, and the 5 sub-districts Health Promoting Hospitals.

The development process were; (1) A systematic review of 5,875 researches from PUBMED: 4,211, SCOPUS: 960, Google Scholar: 306, and TCI: 398. Nine researches were selected and synthesis. It was found three components of Behavioral Change Program (BCH) has a duration period of ≥ 12 months; intensive phase for 3 months, practice for 6 months, and evaluation for 3 months. Program users were health personnel and health volunteers who have been trained skills of BCH activities. (2) Key success factors of BCH lessons learned were health personnel performance, strengthening networking and system management to support DM risk group access to health care service. (3) The CHBP: 7 steps of Muk-Sri-Sothon-Charoen-Ratchathani cooperation, learning and fighting DM risk factors to DM prevention. Two phrase of CHBP were: 1st the intensive phase (4 steps); 1) prepare for screening DM risk group, 2) Risk group has to understand the risk of the situation to themselves, 3) provide knowledge to concern risky status, and 4) goal setting for behavioral change. 2nd evaluation phrase every 3 months (3 steps). 5) Determination of change behavior, 6) confidence to goal attainment and 7) prevention DM success. (4) Program training for 5 pilot sub-district health promotion hospitals; how to run activities and follow 7 steps of CHBP and primary evaluation after 3 months of CHBP implementation.

Keyword: Program, Behavioral Change, DM Risk Group, Diabetes Mellitus (DM)

INTRODUCTION

Non-Communicable Disease (NCD) caused the death of global population at 36% in 2008[1]. The estimated cost of global NCD during the year of 2011 to 2030 was 1,404 trillion baht, as compared to Thailand with 1,500 bath per person in a year. In Thailand, NCD was the cause of death at 73% which resulted to the economic loss of 198,512 million baht. The percentage of the total death caused by NCD rose from 60% (1999) to 73% (2009). This means that the average death caused by NCD rose by 8,054 person/year. Concerning the situation in Thailand, the researchers did not find any village without DM and Hypertension (HT) [2].

NCD situation in the health region 10th Ubon Ratchathani (HR 10th) from Health Data Center (HDC), Ministry of Public Health (MOPH) on 10 July, 2017 found cumulative patients with 195,629 cases and increased gradually from the year 2013 to 2017 which was caused by the gradual increase of DM new cases [3]. The DM sick rate was 5,515.61: 10 thousand population, which was higher than the year 2016 (5,363.36: 10 thousand population) and all provinces in the HR 10th have to deal with DM patient and new cases of DM. The top five highest DM sick rates per 10 thousand populations were Yasothorn, Amnat Charoen, Ubon Ratchathani, Mukdahan, and Srisaket that were 7,149.47, 5230.37, 5,949.73; 4,848.83 and 4317.58, respectively.

The Diagnosis of DM new cases in the year 2017 were 560.45: 10 thousand population, and DM new cases sick rate were 942.24 in Amnat Charoen, 636.32 in Yasothon, 519.60 in Ubon Ratchathani, 514.75 in Srisaket and 433.83 in Mukdahan, respectively. The DM new cases was 2.87%, which was higher than the national goal (≤ 2.40%) which was found in Mukdahan (4.52%), Amnat Charoen (3.75%), Ubon Ratchathani (3.23%), Yasothon (2.37%, and Srisaket (2.36%) respectively. Whereas, death rate trend decreased. In aspect of health risk behavior, the survey in the year 2015, found out that high cholesterol (24.78%), no physical activity (35.58%), BMI higher than standard score (31.07%), drinking alcohol (31.07%) and smoking (23.86%) were health risk behavior [4].

The Department of Disease Control (DDC), MOPH[3] launched the prevention and control of DM measure by integrated various working groups to solve the problem of risky behavior to DM by screening people who are older than 35 years old, then classify them into 3 groups; normal, risk, and sick. The activity about the changing health behavior campaigns on physical activity, law enforcement on alcohol and tobacco, launch the policy of NCD clinic plus integration of DPAC Psychosocial, quit smoking and alcohol service and occupational health. The evaluation of the quality assurance of 13 networks on the decrease of risky health behavior of chronic NCD in HR 10th in 2017 was found that lacking of the effective guidelines, course, and the knowledge to solve the chronic NCD including the model of changing behavior for NCD risky group and patients [6]. This situation was relevant to the government health inspection assessment in the year 2017 who found DM risky group at 74.11% of the population. (137,909 persons). Additionally, health behavior activities prevented and controlled the DM new cases, even though the program model was ambiguous but by the monitoring method, it reduced new cases of DM effectively. The situations evidence based data supported to conduct the program development behavioral change for at-risk people for DM and also implement at the HR 10th.

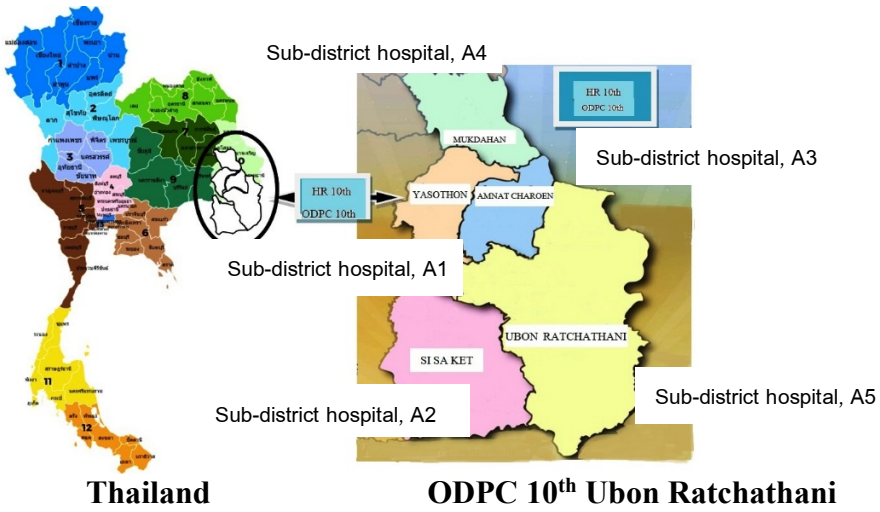
OBJECTIVE

To develop the Changing Health Behavior Program (CHBP) in at-risk people for DM specifically in context of Thai people in the area of the ODPC 10th Ubon Ratchathani compose of 5 provinces: Ubon Ratchathani, Mukdahan, Srisaket, Yasothon, and Amnat Charoen.

METHODOLOGY

This study focused on the development of the changing health behavior program for at-risk people for DM at the community level. The model synthesis was from systematic review and lessons learned from the best practice of preventing and controlling DM from the national and regional level, then synthesize and develop the program of the changing health behavior of at-risk people for DM through the participation of stake holder from the ODPC10th and HR 10th areas.

The study area was located in the ODPC 10th responsibility area and it consisted of 5 provinces; Ubon Ratchathani, Srisaket, Amnat Charoen, Mukdahan, and Yasothon. (Picture 1)



Picture1: The study area in ODPC 10th Ubon Ratchathani and 5 priority sub-district hospitals from 5 Provinces.

Process of changing health behavior program (CHBP) development consisted of 4 steps as follows:

First step: Synthesized the CHBP to at-risk people for DM with systematic review from various academic journals found in; (1) Electronic searches of medical and public health article published during 1 January, 1988 – 31 December, 2018 from PUBMED, The Cochrane Library and Web of science databases. (2) Hand searching about the CHBP from the journal associated with medical and primary of public health from Thai-journal citation index (TCI) center.

Second step: Application of the lessons learned from the best practices of DM prevention and control activities in the ODPC 10th area which were considered best practices at the national level: Koklarm

sub-district hospital and regional level: Khueng Nai district and Dong Honghea sub-district hospital. The lessons learned from the meeting and sharing was applied as a method to extract the changing health behavior of at-risk people for DM.

Third step: Development of the CHBP which was appropriate for Thai people through the participation of stake holders. For instance, the representative of NCD section of the provincial health office, district and sub-district hospitals as well as the best practices from ODPC 10th area, external expert, and research team. The program was established by integrating the systematic review program with the lessons learned from best practices. Two days meeting was held to develop and criticize CHBP for at-risk people for DM which are appropriate to Thai people in ODPC 10th area.

Fourth step: The CHBP was implemented in 5 sub-district hospitals from 5 provinces in ODPC 10th area. The activity was a 2-day training course of the CHBP to the personnel of sub-district hospitals and health volunteers and there was a primary evaluation after 3 months implementation of the CHBP.

Two target groups who participant from step 2 to step 4 were; (1) 25 representatives from the 5 sub-district hospitals and provincial health office in 5 provinces at ODPC 10th area where it is addressed as the priority area to implement the CHBP. The role of participants were to have discussion, share experiences, advise, and improve the appropriate program for Thai Isan people (north eastern part of Thailand). Importantly, the participants should understand the program process and activities and to have the ability to implement the CHBP in their community. (2) 18 people who were associated with the NCD section of the provincial health office, district hospital and provincial hospital from 5 provinces of ODPC 10th area and 3 external experts who were advisors to develop CHBP.

RESEARCH FINDING

A: The CHBP from systematic review

The systematic reviews found 5,875 articles from PUBMED (4,211), SCOPUS (960), Google Scholar (306), and TCI (398). Nine (9) research articles about CHBP were selected for analysis and synthesis. [7-15]

The CHBP was classified from 6 articles according to the lifestyle of the community and 2 articles about specific techniques of changing health behavior. The summary of the CHBP is as follows.

(1) Program timeline for 1 year (3-6-3) is divided into three phases: Intensive phase, 1-3 Months; Intervention phase 4-9 Months, and Monitoring and evaluation phase, 10-12 Months.

(2) Program timeline for 2-3 years (12-24-36) has three phases: Intensive phase, 1-3 Months, Intervention phase, 4-9 Months, Monitoring and evaluation Phase 10-12 Months and core booster phase Months 12-24-36.

(3) Program monitoring and users were public health personnel and health volunteers who were trained about nutrition, physical activity, and cognitive & behavior skill.

(4) Group monitoring the activities is facilitated by the Help Each Other Group (HEOG), 5-6 people who have the same goal during the Intensive phase. HEOG will meet once a week (one day or half day, >6-10 hrs.) to have activities such as providing knowledge and sharing experience within the group. The essential tools to support the progress report on this activity were self-care manual of self-care and assessment tools: Heart360 report through the website, IPAQ-LF questionnaire to assess physical activities, Self-monitoring Blood Glucose

(SMBG), and line application to communicate with the group members.

B: Lesson learned from the best practices in the ODPC 10th area

Lesson learned from the 3 best practice areas:

The lessons learned from Koklarm sub-district hospitals where national best practice regarding the prevention and continuous DM control from the hospital to the community and comprehensive three groups; regular, at-risk people for DM, and DM patient. This hospital has good performance of health volunteers in monitoring at-risk people for DM continuously and strengthen, trust to health personnel, and are enthusiastic to follow the health personnel advice. These factors led Koklarm sub-district hospital to have the best practice in the National level for preventing and controlling both DM patient and at-risk people for DM. This dub-district hospital has more trust from at-risk people for DM especially for health personnel and interested to self-care affected Koklarm sub-district hospital to prevent, control and self-care at-risk people for DM to become DM new case.

Lesson learned from Khueng Nai district where regional best practices of health region 10th Ubon Ratchathani were found the advantage of lesson learned from Khueng Nai district were addressed to care DM patient continuously from the district hospital to all sub-district hospitals, comprehensive knowledge on the process of services, awareness, and health behavioral change to control DM. In addition, the proactive service process to search the core problem of DM patients, mechanism of comprehensive DM service, and the strength of district committee were factors that supported DM patient's convenience to access health care service.

Lessons learned from Dong Honghea sub-district hospital where regional best practice of health region 10th Ubon Ratchathani was found the advantage of lesson learned from Dong Honghea sub-district hospital were as follows; health personnel are concern about health care service to DM patients and trust of DM patients to health personnel, performance development to DM specialist health volunteer. The result found out that health volunteer carried on the changing health behavior activities themselves during DM clinic day in the sub-district hospital, besides health volunteers who were assigned to be responsible for caring and monitoring at-risk people for DM to continue home care.

C: Process of CHBP Development

The CHBP from systematic review and lessons learned from the 3 best practice areas were integrated to the CHBP by the participation of 25 people who were stake holders and 3 external experts in the 2 venues of the program development meeting. The process are as follows:

(1) The outline of CHBP and manual of the program which were analyzed and synthesized from lesson learned and systematic review, then proposed a discussion to be approved in the 1st of the meeting for 2 days. The results of this meeting was that, CHBP was approved and was appropriate to ODPC 10th area.

(2) The development of CHBP for at-risk people for DM to prevent DM new case. In this step, the approved CHBP was criticize by external expert, stake holders from provincial health office, general hospital and district hospital, and representative of the sub-district priority area to implement CHBP in 2nd meeting for 2 days. The results of this meeting was CHBP and the manual of 7 steps CHBP termed as "Muk Sri Sothon Charoen Ratchathani learning and sharing to fight risk factor for prevent DM new case" was

ready to be implemented in the sub-district priority area. (See diagram1)

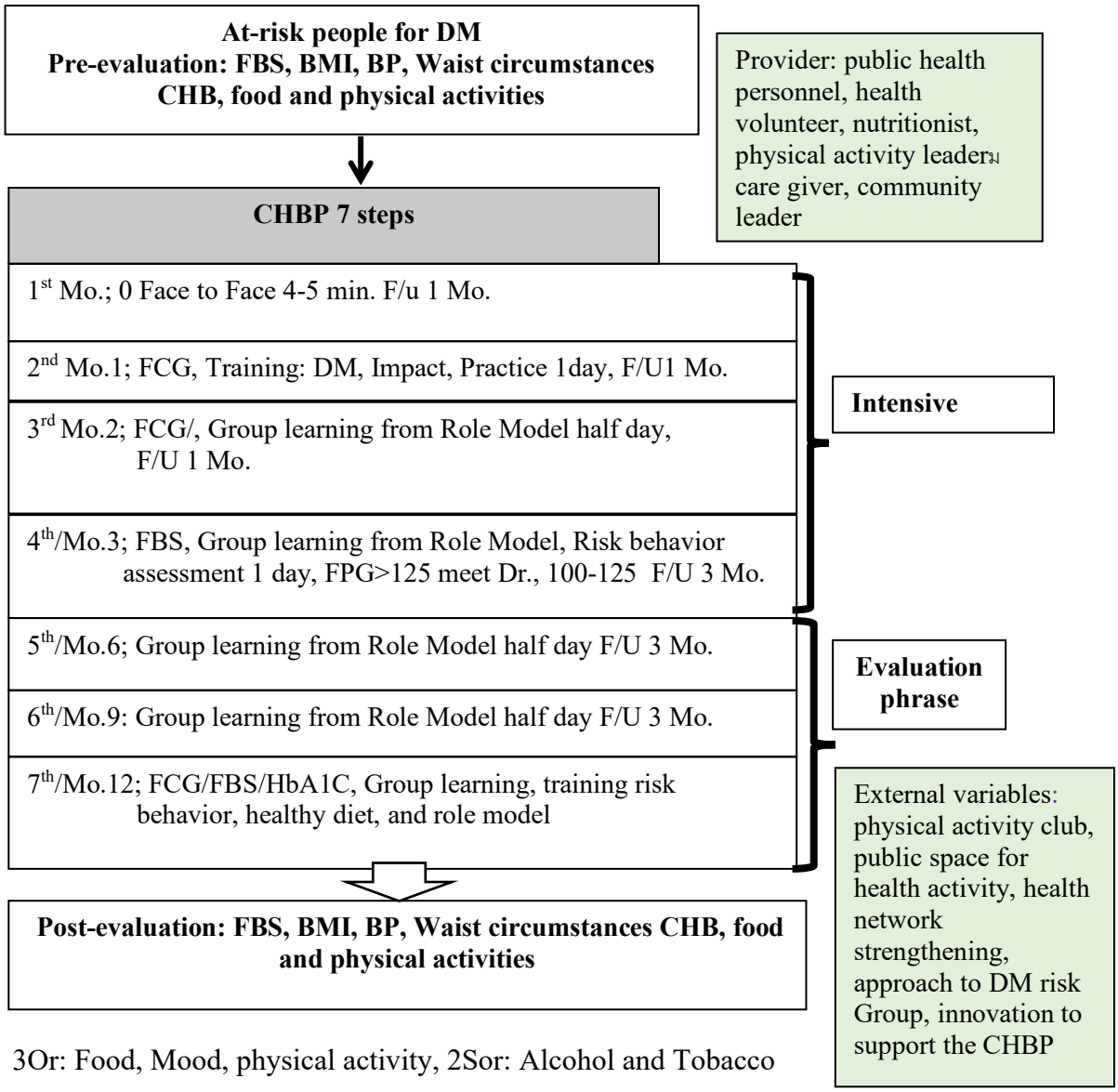


Diagram1 CHBP of ODPC 10th Ubon Ratchathani province

D: The 7 steps CBHP termed as "Muk Sri Sothon Charoen Ratchathani learning and sharing to fight risk factor for prevent DM new case"

The result of the 7steps CHBP was divide in 2 phrase; intensive phrase and evaluation phrase, the detail as followed;

Intensive phrase were 4 steps; at-risk people for DM understand health risk and take part to CHBP as well as the goal setting for charging their health behavior

Steps1, 1st Mo.: searching the at-risk people for DM: FBS/FCG 100-125 mg/dl, willing to join the program, and 1st evaluation the risk behavior of 3Or2Sor,

and prepare at-risk people for DM for CHBP.

Steps2, 2nd Mo.: know the DM risk status: training 1 day about 3Or2Sor[16], lesson learned from role model and get to know health volunteer who will support at-risk people for DM during in the CHBP[17-21].

Steps3, 3rd Mo.: concerning to changing health behavior (CHB): 2nd evaluation the risk behavior of 3Or2Sor, learning group to CHB, and/or using motivational interviewing (MI) technique[22].

Steps4, 4th Mo.: Setting goal and means for CHB success: 3rd evaluation the risk behavior of 3 Or2Sor, group learning and appropriately innovation to CHB, and/or using motivational interviewing technique.

Evaluation phrase were 3 steps; at-risk people for DM changing behavior and success to prevent DM

Steps5, 7th Mo.: Intense to CHB and continuously self-empowerment: group learning and appropriately innovation to CHB, and/or using motivational interviewing technique.

Steps6, 10th Mo.: Confidence to CHB success: 4th evaluation the risk behavior of 3Or2Sor, group learning and/or add more intervention in non-progress CHB case.

Steps7, 12th Mo.: at-risk people for DM don't turn to DM patient:

The CHBP was proceed by the Health Volunteer Specialist (HVS) in DM disease during the intensive phrase, the crucial role was to approach at-risk people for DM at home every week. In the evaluation phrase, the HVS was visit and evaluation on health behavior evaluator from the 5th to 7th steps. The public health personnel of sub-district hospital was take part as program management in the community.

E: Implementation and Primary Evaluation of the CHBP

Training about the CHBP was given to concerned individuals before its implementation to the priority sub-district hospitals in five provinces. After 3 months of the CHBP implementation, all areas were; screening at-risk people for DM, at-risk people for DM were selected to do the 7 steps of CHBP "Muk Sri Sothon Charoen Ratchathani learning and sharing to fight risk factor for preventing DM new case". Prepare the readiness of each area in the following aspects: the data of DM situation, at-risk people for DM, specialist health volunteer, and proportion of health volunteer and at-risk people for DM to care and monitor the CHBP.

The data situation of the 5 priority sub-districts were as follows: Most DM patients were found in A1 sub-district hospital in Yasothon province (399 cases) and lesser was found in A2 sub-district hospital in Srisaket province (108 cases),

On the other hand, most at-risk people for DM was found in A3 sub-district hospital in Srisaket province (121 cases) and were willing to join the CBHP 32 cases. Most at-risk people for DM was found in A1 sub-district hospital in Yasothon province (399 cases) and lesser was found in A2 sub-district hospital in Srisaket province (108 cases), A3 sub-district hospital in Amnat Charoen province (121 cases) and were willing to join CHBP 32 cases. The least at-risk people for DM was found in Srisaket province (32 cases) and willing to join CHBP 32 cases. The proportion SHV and at-risk people for DM found in A3 sub-district hospital in Amnat Charoen province (1:2) and A4 sub-district hospital in Mukdahan (1:5) respectively (See Table 1).

Table1 The amount of DM patient, at-risk people for DM, Health Volunteer Specialist and proportion of Health Volunteer Specialist to Volunteer in the CHBP

Sub-district hospital	DM patient	DM risk Group	V. CHBP*	HVS**	HVS: V. CHBP
A1 in Yasothon	339	60	60	40	2:3
A2 in Srisaket	108	32	32	21	1:1.5
A3 Amnat Charoen	274	121	32	22	1:2
A4 in Mukdahan	128	53	35	7	1:5
A5 in Ubon Ratchathani	309	51	30	20	1:3

** V.CHBP: Volunteer in Changing Health Behavior Program*
*** HVS: Health Volunteer Specialist*

F: Discussion

CHPB was crucial intervention to prevention and control DM in risky group in ODPC 10th Ubon Ratchathani. Two importance guides for development of the CHBP were the development process and the various concepts were applied to CHBP. The 1st, the process of CHBP development was began with the CHBP which was synthesis base on research base and best practice, and then using the participation of the stakeholders to develop the CHB. From the process of CHBP was confirmed that the program was appropriately to Thai people in the area of the ODPC 10th Ubon Ratchathani due to the participation of the stakeholders and part of the program was synthesis from the best practice in ODPC 10th areas. The 2nd, the various concepts were applied for this program. During the intensive phrase and evaluation phrase of CHBP, its was applied the concepts of participation, community base learning, changing health behavior, role model for changing health behavior(CHB), motivational interviewing(MI), as well as the manual of CHB in the quality of NCD clinic plus of DDC, Thailand(23). The pro of the CHBP is appropriately to Thai people in north eastern part of Thailand as well as the ODPC 10th area. As the primary result of evaluation the 5 priority sub-district hospitals were found the health personnel and health volunteer were all understand how to proceed the CHBP and how to approach the at-risk people for DM to changing health behavior.

RECOMMENDATIONS

(1) The 7 steps of CHBP should be distributed to implement in the ODPC 10th and
Health Region 10th to prevent and control DM new case.

(2) The implementation of the 7 steps of the CHBP should be flexible both timeline and method, such as proceeding with the activity at non-official time and group sharing should be applied to small group during non-official time.

(3) The SHV of DM should enhance performance in the aspect of CHBP management and defend budget support from the sub-district health insurance fund of the community. The role of health personnel of the sub-district hospitals were to support and give consultation during the SHV activities of the CHBP implementation.

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