EFFECTIVENESS OF SELF-HELP GROUP PROGRAM FOR IMPROVING HEALTH LITERACY AMONG TYPE 2 DIABETIC PATIENTS RECEIVING SERVICES AT SUB-DISTRICT HEALTH PROMOTION HOSPITALS IN BANGKONTHEE DISTRICT, SAMUT SONGKRAM PROVINCE, THAILAND

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ABSTRACT

Diabetes Mellitus (DM) is one major problem in Thailand. Diabetic patients with limited health literacy tend to have worse outcome.

This quasi-experimental research was to evaluate the effectiveness of the Self-Help Group program for improving health literacy among Type 2 diabetic patients receiving services at sub-district health promotion hospitals in Bangkonthee district, Samut Songkram province, Thailand.

Method: The sample of this study was 70 participants, aged 50 – 80 years, were purposively assigned to the intervention groups (n = 35 patients receiving services from Jormploug sub-district health promotion hospital) and the control group (n = 35 patients receiving services from Bang Prom and Bang Yeerong sub-district health promotion hospitals). A questionnaire for socio-demographic characteristics and the 3-level Health Literacy Scale developed by Ishikawa was used to assess health literacy level and used for data collecting. Descriptive statistic, Independent and Paired t-test: Baseline and 3 months were used for data analysis.

Results: The results of the study revealed that the intervention group showed higher health literacy than before the intervention and higher than comparison group (p < 0.05). The finding showed the significant improvement in health literacy. It was concluded that the self-help group program could enable diabetic patients to enhance their health literacy for their self-care.

Keywords: Diabetes, Health Literacy, Self-help group.

INTRODUCTION

Diabetes mellitus or diabetes is one of chronic diseases and causes death to numbers of patients around the world. In 2013, an approximately 382 million people are estimated to have diabetes and 316 million people are living with impaired glucose tolerance [1]. The number of people with diabetes is increasing in every country. For Thailand, according to Ministry of Public Health (Thailand), Chronic Disease Surveillance Report of 2010, there were 888,580 diabetic patients in Thailand. The ratio of diabetic illness from the report was 1,395 patients per 100,000 populations. This made it ranked as the second top of non-communicable diseases, of which the first top belonged to high blood pressure. Diabetes is due to abnormal insulin production or the effect of insulin that has an impact on high blood sugar or glucose level. According to pathology, diabetes can be classified into four types; type I, type II, gestational diabetes (found during pregnancy),and other types [2].Type II diabetes mellitus is caused by the combination of abnormal insulin secretion of beta cells and the effect of insulin resistance .A person with diabetes may have either result from those mentioned causes greater than one another .Despite diabetes is a chronic disease, it is treatable through dietary control, physical exercises, and oral medicine .The patients who have long term diabetes, their beta cells may gradually be destructed and fail to control the blood sugar or glucose level . Insulin medication, such as insulin injection, is needed to help control the glucose level instead of the cells' production itself .Type II diabetes is mostly found in people aged over 40 years .Risk factors of this type are older age, overweight, lack of physical exercises, and genetics. The patients with long term diabetes and poor blood sugar control will easily develop complications that cause illness and death .Complications in diabetic patients may be found when the persons are first diagnosed of diabetes .Those people may have diabetes without any symptoms. The goal of treatment in diabetes is to control blood sugar to normal or close to

normal level as much as possible .So fasting blood glucose level after 8-12 hours must be 90-130 mg/dl, or the level of hemoglobin A1c (HbA$_{1c}$) is less than 7 %[2].

Diabetes is a chronic disease .The patients must see their doctors regularly for health check up, picking up some medicine, and taking doctors' advice .While examining, the patients must inform symptoms and health problems related to their diabetic illness .The doctor will provide recommendation of how to take better care of themselves, and how to control blood sugar to normal level; prescribe medicine; and explain how to take medicine correctly .In order to make patients understand and follow doctors' advice correctly, communication between patients and doctors must be effective. The important components to improve mutual and better understanding are language usage in communication and point of views on the topic discussing .Both patients and doctors must understand what the other try to communicate and what the other perceive on the subject they are discussing .When the patients do not understand health information or have low health literacy, they will not follow doctors' direction .Low health literacy and abandoning doctors' advice or direction are obstacles prevent them from good health . In addition, prior study found that health literacy had association with self-care behavior among Type 2 diabetic patient.[3]

Health Literacy or skills in health was first recognized in the United States of America where people from different ethnicities with different languages and cultures live together. Some patients have problem with using English as a second language to communicate with health providers. They seldom understand health information or how to take better health care. According to the study in the patients with diabetes, the patients with low health literacy were likely to have careless in their health. They had high blood sugar level, were often admitted in a hospital, and had more complications in diabetes [4], [5], [6], [7]. It was costly to diabetic treatment. Health literacy; therefore, drew more interesting in the United States. In 1998, World Health Organization defined health literacy as "cognitive and social skills that determine an individual's motivation and ability to access, understand, and use the health information to promote and always maintain good health for oneself (Health Systems Research Institute., 1998 cited in Kwanmuang Kaewdumnern and Narumol Threepetsri-urai, 1998: 11)." Later on Health organizations and researchers defined health literacy as can be summarized as the ability of a person to obtain health information from different media channels, and to understand and recognize the obtained health information until utilizing the information as to promote and always maintain one's good health.

Nutbeam ([8], [9]) has classified health literacy into 3 categories: (1) functional health literacy is the ability to understand basic health information; (2) interactive or communicative health literacy is the ability to understand basic health information and to communicate for information exchange with others; (3) critical health literacy refers to the ability to analyze the obtained health information for decision making in health care. According to previous studies, the patients with diabetes who had low functional health literacy are likely to fail to control blood glucose level [6]. This may result from lack of understanding in health information recommended by health care providers. Increasing high health literacy level in the patients may help them understand what doctors recommend, and be able to control their blood sugar level better.

Nutbeam's idea influenced Professor Ishikawa [10] who pays much interest in communication between doctors and patients and health information obtained from various sources of patients, to develop a new instrument to measure the level of health literacy. That is Communicative Health Literacy. It is designed into questionnaire that complies of 14 questions. Those questions are categorized into 3 areas which can determine the level of understanding in the content of health information; the capacity of utilizing in communicative channels to obtain information; and the utilization of obtained information for decision making. Patients will score 1-4 throughout 14 questions. This questionnaire was used to find the relationships between communicative health literacy and HbA$_{1c}$ level in the patients with diabetes. In addition, Chananya Kumkrong et al. [11] applied that questionnaire to the research on the people living with HIV in northern and northeastern Thailand with about 400 sample population. From examining this wide use in patients, it is possible to apply that instrument or questionnaire to diabetic patients in Thailand. It can also be as a guideline to conduct the intervention to rise higher health literacy of Thai diabetic patients. As the result, this can help the patients keep blood sugar level as close to normal (HbA$_{1c}$< 7%).

Passche-Orlow and Wolf [12] proposed the model that explained a relationship between limited health literacy and health outcome. The study unveiled a potential factor of limited health literacy included

socioeconomics and social supports, culture, language, race/ethnicity, education, age, individual capacity and physical condition. Limited health literacy was found related with lower health condition. This was due to the reason that persons with limited health literacy could not understand the details or the information given by hospital staff. Difficulties in communication and interaction with doctor also occur. They do not know how to take care of themselves correctly at home. These cause worse health condition.

Schillinger et al. [6] found that inadequate health literacy in type-2 diabetic patients correlated with failure in controlling blood glucose level. This was due to the fact that diabetic patients with lower health literacy often faced with a difficulty in reading drug labels, or in understanding blood glucose test result, doctor's prescriptions or other details received from hospitals. Even though how much effect of low health literacy is on diabetic treatment cannot be precise, several research papers have at a certain length proved that low health literacy has an effect on controlling blood glucose level. Patients with low health literacy do often not know or remember the name of drugs and how to use [13] and do not know their health condition and how to deal with it ([7]; [14]). Furthermore, there are several studies found that patients with low health literacy do not quite express their opinions on self healthcare, and usually depend on people in families, friends and hospital staff in making decision ([15]; [16]; [17]). In the worse case, patients with low health literacy were found to have a problem in memorizing and understanding medical information. This should be greatly concerned by healthcare service providers, as these patients cannot know how to gather or search for more information as they still do not understand or cannot remember the details received from hospitals, due to ineffective communication [6] Schillinger et al. [7] found that when comparing a communication level between doctors and 2 types of patients: patients with adequate health literacy and patients with low health literacy, doctors did not usually explain about health condition and steps in treating to low health literacy group. Therefore, doctors, nurses and other healthcare service providers should try to adjust the ways of communication which facilitate an effectiveness and appropriateness to this type of patients so that the patients will be able to understand the messages and they can be persuaded to change to more appropriate behavior. Although some studies found that there was no correlation between health literacy and self-care behavior of diabetic patients [18], healthcare service providers should aware of how much their patients are ready to receive suggestions and willing to adjust their behavior.

Individuals are social actors, residing in social environments that contain various degrees of support and resources. While low health literacy may have adverse health effects, in order to evaluate precisely the extent of limitation that it places on individuals, we need to account for the social support and resources that people utilize when they encounter problems stemming from their health literacy deficiency. In traditional society, family and friends provided social support. In modern industrial society, however, family and community ties are often disrupted due to mobility and other social changes. Thus, people often choose to join with others who share mutual interests and concerns.

Self-help groups, also known as mutual help, mutual aid, or support groups, are groups of people who provide mutual support for each other [19]. In a self-help group, the members share a common problem, often a common disease or addiction. Their mutual goal is to help each other to deal with, if possible to heal or to recover from, this problem. In self-help groups, specific modes of social support emerge. Through self-disclosure, members share their stories, stresses, feelings, issues, and recoveries. They learn that they are not alone; they are not the only ones facing the problem.

Participatory action research (PAR), a research method wherein the investigator and participants collaborate, espouses the value of emancipation and empowerment to help identify and explore constraints affecting participants' lives, as well as to brainstorm about ways to overcome such barriers. [20] The key features of PAR are to: plan for change; initiate action for change; observe processes and consequences of change; reflect on the processes and consequences; revise the plan; and, continue in the cycle. [20]

Since the overall purpose of self-help groups is to afford mutual assistance in accomplishing set goals, [21] such groups have been considered forms of PAR that can help disadvantaged individuals learn ways to overcome their circumstances and improve their lives. [22] Evidence suggests self-help groups empower older people with diabetes to better manage their disease through mutual sharing of illness-related information and experiences. [23] The positive resources and support in individuals' social networks can improve their ability to acquire and understand medical information and to negotiate the health care system. Such social support and resources, when present, would be particularly important for those with low health literacy in facilitating the establishment of healthful attitude and behavior, increasing the use of preventive

and routine physician visits, improving health status, and reducing the amount of costly, intensive emergency and hospital care.

Therefore, the overall aim of this study was to gain a better understanding of the process and perceived benefits for Type 2 diabetic patients receiving services at sub-district health promotion hospitals, participating in a self-help group program. The objective of this quasi-experimental research was to evaluate the effectiveness of the Self-Help Group program for improving health literacy among Type 2 diabetic patients receiving services at sub-district health promotion hospitals in Bangkonthee district, Samut Songkram province, Thailand.

METHODOLOGY

A Self-Help Group program was developed by using participatory action research. This method involved the use of both qualitative and quantitative methods. Qualitative data were collected though self-help group discussions and observations, while quantitative data were obtained, at before and after intervention, via questionnaires regarding socio-demographic characteristics and health literacy. The PAR process, in this study, involved 5-interactive stages: a) planning; b) action; c) observation; d) reflection; and, e) revising the plan [14]. The researcher and participants worked collaboratively, throughout each of these stages.

The sample of this study was 70 participants, aged 50 – 80 years, were purposively assigned to the intervention groups (n = 35 patients receiving services from Jormploug sub-district health promotion hospital) and the control group (n = 35 patients receiving services from Bang Prom and Bang Yeerong sub-district health promotion hospitals). The Self-Help Group program was applied to the intervention groups for three months, while a regular health promotion program was applied to the control group. A questionnaire for socio-demographic characteristics and health literacy was used for data collecting at baseline and 3 months. The 3-level Health Literacy Scale developed by Ishikawa was used to assess health literacy level. Descriptive statistic, Independent and Paired t-test: Baseline and 3 months were used for data analysis.

Ethical approval was attained from the Suan Sunandha Rajabhat University Institutional Review Board on human rights, prior to commencing the study.

RESULTS

Qualitative findings: All participants expressed satisfaction with participating in the Self-Help Group program. During the group's activities, feelings, experiences and recommendations, related to health information and managing diabetes were noted. The social support received from the group appeared to enhance knowledge about diabetic care, access to health information, confidence of communication with others, decision making, acceptance of diabetes, and understanding the need for self-care diabetes management. Joining the program appeared to enhance the participants' confidence in control their diabetes.

Quantitative findings: The majority of the participants were female, aged 50-76 years old. Most participants were diagnosed with DM more than one year (ranged 1- 20 years) prior to interviewing. Most of them were not able to control their blood sugar (HbA1c > 7.0). There was no significant difference between the socio-demographic characteristics regarding gender, age, duration of DM, and blood sugar of intervention and control groups. Also, as noted in Table 1, before applying the Self-Help Group program, health literacy of intervention and control groups was not significantly different. After 3 months of applying the program, health literacy of intervention group was significantly increased, compared to their health literacy score prior to participating in the program, as noted in Table 2. On the other hand, health literacy of control group was not significantly increased, as noted in Table 3. In addition, after 3 month participation in the Self-Help Group program, health literacy of intervention group was significantly higher than the control group, as note in Table 4.

Table 1
Health literacy mean score of intervention and control groups at baseline

Group	N	Mean	S.D.	Sig.
Intervention group	35	2.60	0.653	0.441
Control group	35	2.72	0.693	

Table 2

Health literacy mean score of intervention group before and after 3 month participation in the Self-Help Group program

Time	N	Mean	S.D.	Sig.
Baseline	35	2.60	0.653	0.00[**]
After 3 months	35	2.97	0.296	

[**]Difference is significant at the 0.01 level (p < 0.01)

Table 3

Health literacy mean score of control group before and after 3 month participation in the regular health promotion program

Time	N	Mean	S.D.	Sig.
Baseline	35	2.72	0.693	0.809
After 3 months	35	2.73	0.628	

Table 4

Health literacy mean score of intervention and control groups after 3 month participation in the programs

Group	N	Mean	S.D.	Sig.
Intervention group	35	2.97	0.296	0.034[*]
Control group	35	2.73	0.628	

[*]Difference is significant at the 0.05 level (p < 0.05)

CONCLUSION AND FUTURE WORK

Using the Self-Help Group program, as a form of mutual aid, aligned well with Participatory action research in that participants worked together to share information and experiences to overcome their health literacy barriers. The program help enhance participants' ability to access, understanding, and using health information as the finding showed the significant improvement in health literacy. This finding is consistent with prior studies wherein self-help groups and social support have been found to enhance health literacy [3],[23],[24]. It was concluded that the self-help group program could enable diabetic patients receiving services at sub-district health promotion hospitals in Bangkonthee district, Samut Songkram province, Thailand to enhance their health literacy to control their diabetes.

Limitation of this study was that the majority of participants were females, thus, perceptions about positive changes in self-care behavior were likely to be derived, primarily, from a female viewpoint. Future studies need to consider developing and assessing the effectiveness of self-help group programs that include more male participants and also implement the program in other areas of Thailand.

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