Effects of Multifaceted Nurse-Coaching Intervention on Diabetic Complications and Satisfaction of Persons with Type 2 Diabetes

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Objective: *To examine the effects of multifaceted nurse-coaching intervention on diabetic complications which were assessed by HbA1c, blood pressure, LDL-C levels and satisfaction with nursing intervention of persons with type 2 diabetes.*
Material and Method: *Quasi-experimental design study was conducted from October 2007 to March 2008. Forty participants with type 2 diabetes of two Red Cross Health Stations in Bangkok, Relief and Public Health Bureau of the Thai Red Cross Society, were selected by purposive sampling and matched pair. The participants of the 11th Red Cross Health Station were the control group (n = 20) who received the usual care while the participants of the 2nd Red Cross Health Station were the experimental group (n = 20) who received the multifaceted nurse-coaching intervention over 12 weeks. A multifaceted nurse-coaching intervention was performed on a trail basis on the coaching model of Eaton and Johnson (2001). The coaching process included assessment, goal definition, analysis, exploring, action plan, learning and feedback and consisted of 3 individualized sessions and 2 follow-up phone calls over 12 weeks. The community nurses were trained to be involved in the intervention. Data from each participant were collected by using a questionnaire related to their personal demography and signs or risk factors of diabetic complications including HbA1c, blood pressure and LDL-C testing, and interviewing satisfaction with nursing intervention questionnaire. The data were analyzed using dependent samples t-test, and independent sample t-test.*
Results: *Both groups were similar in age, sex and duration of diabetic history. After 12 weeks, the mean average of HbA1c of the experimental group was significantly lower than that of the control group ($\bar{x}_{exp}$ = 7.10, SD =.67 vs. $\bar{x}_{cont}$ = 7.72, SD =.97; $p \leq 0.5$). There was no statistically significant difference in blood pressure between the experimental group and the control group (systolic blood pressure: $\bar{x}_{exp}$ = 121.0, SD = 10.28 vs. $\bar{x}_{cont}$ = 127.4, SD = 15.30; $p > 0.5$, diastolic blood pressure: $\bar{x}_{exp}$ = 81.30, SD = 9.18 vs. $\bar{x}_{cont}$ = 79.4, SD = 19.43; $p > .05$). There was also no difference between the two groups in average mean of LDL-C level ($\bar{x}_{exp}$ = 123.60, SD =.45.53 vs. $\bar{x}_{cont}$ = 110.40, SD = 25.60; $p > .05$). The participants in the experimental group had significantly higher satisfaction score than the control group ($\bar{x}_{exp}$ = 4.91, SD = 0.91 vs. $\bar{x}_{cont}$ = 2.49, SD = 0.18; $p \leq 0.5$).*
Conclusion: *The multifaceted nurse-coaching intervention could reduce HbA1c and increase satisfaction but could not decrease blood pressure and LDL-levels in persons with type 2 diabetes who received the intervention for 12 weeks.*

Keywords: *Cholesterol LDL, Diabetes mellitus type 2, Diabetes complications, Hemoglobin A glycosylated, Hypertension*

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Diabetes mellitus is a health problem worldwide. It is a metabolic disorder which is characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolisms. The disease determines a person's risk for developing diabetic complications or secondary diseases[1,2] which are classified into two categories, namely: macrovascular complications, *i.e.* coronary heart diseases, cerebrovascular disease; and, microvascular complications, *i.e.* retinopathy, peripheral neuropathy, and nephropathy[3]. Unfortunately, evidence has shown that the prevalence of these diabetic complications in Thai persons with type 2 diabetes was dissatisfactory. Diabetic retinopathy was presented in about one-third of type 2 diabetic patients in Thailand[4], Furthermore, the prevalence of diabetic complications in the long duration of the diabetes group was higher than those in the short duration group[5]. If left without management, these devastating complications can result in cognitive impairment, lost days from work, unemployment and poor quality of life[6] and suboptimal process of care[7].

Managing complex care and needs of people with type 2 diabetes is a public health issue of global concern as well as in Thailand. It has been documented that diabetic complications, particularly in those macrovascular events, are associated with ignorance of the patient[8], non-adherence to diabetes management[9] and poor diabetic control, long duration of diabetes[10], as well as the lack of access to healthcare services[11]. The macrovascular complications could be reduced by tight control of blood sugar, blood pressure and LDL-C level[12]. However, a number of studies indicated that many people with type 2 diabetes could not achieve their recommended targets because of the factors mentioned above[13,14]. Moreover, the majority of Thai persons with type 2 diabetes received most of their care from their own community[15], but these services had many obstacles to provide structured care for the prevention of diabetic complications. The process for monitoring of glycemic control was mainly based on the measurement of fasting plasma glucose (FPG). HbA1c, on the other hand, was barely assessed because it is unavailable in most primary healthcare units[15].

Nurses are mainly in the forefront of healthcare services and perform a key role in improving the process of care, health and well-being of the people in public health[16]. Nevertheless, care delivery in primary care unit or community care in Thailand is very complex. The practices are delivered by nurses in this setting. Evidently, the first healthcare service which was often delivered in this system were diagnosis and treatment of common health problems (88.2%); the second, delivery of healthcare for the elderly (87.9%); and, the third, providing continuity of care for the chronically ill persons (85.4%)[17]. According to the complex nature of the tasks, primary care service could provide complex intervention of diabetes self-management education for people with type 2 diabetes to receive their treatment. However, there were certain obstacles found in this system such as the lack of certain nursing knowledge of the nurses, whereas skills, attitudes and belief system may also significantly alter their approaches in the prevention of diabetic complications[18]. As a result, there have been frequent significant treatment and outcomes gap between the clinical diabetes care and the actual clinical practices in community setting. This gap was mostly marked in disadvantaged communities.

Previous studies had focused on provision of diabetes management by nurses. One improved diabetes self-management program was a simple intervention but did not clearly mention behavior change to prevent or reduce signs of diabetic complications[19]. Also, another study provided cognitive behavioral group therapy but it did not improve HbA1c level[20]. Instead of giving direct specific instructions to improve behavior change, coaching focuses on development of individual potentiality through active process of dialogue based on the goals set by the coached. Hence, the technique has become a more accepted intervention in psychology, sports, and business. It enables individuals to improve their own performance, manage stress and achieve work based on set, personal goals[21]. The process of coaching has also been used in various clinical practices including to improve nurse-patient interaction[22], to assist patient management with procedures[23], to train the patients to improve their health conditions[24,25], and to improve the quality of staff teaching[26]. Moreover, coaching through telephone-delivered interventions represented a potentially cost-effective method to increase medical adherence[27]. This multifaceted approach could help people with type 2 obtain skills and confidence in self-management by focusing on patient-centered care, and goal-setting[28]. The coaching process of Eaton and Johnson[29] was modified with an aim to prepare a group of nurses as a proactive team to inform and activate people with type 2 diabetes. The nurses would deliver the multifaceted approach via individual coaching process through

one-on-one meetings and telephone contacts which include assessment, goal definition, analysis, exploration, learning, action plan and feedback. These processes focus on diabetes self-management education using educational materials to help a person with type 2 diabetes to construct his/her own definition of problem, collaborative goal setting, collaborative problem solving, contracting for change, continuing support and feedback over 12 weeks. To facilitate the progress toward a change, a nurse would tailor the intervention depending on the needs of the individual, given that the person with type 2 diabetes was willing to change. The process could help the person increase their cognitive knowledge and acquire self-management skills. The nurse would also use a guideline manual and self-report form for behavior change to monitor and support their decision, and use the clinical information of an individual person with type 2 diabetes such as HbA1c, blood pressure and LDL-C level to motivate the person for behavior change.

The primary purpose of the present study was to evaluate the effects of a multifaceted nurse-coaching intervention on diabetic complications and satisfaction of persons with type 2 diabetes in community care setting. The specific aims were namely: (a) to compare diabetic complications which were assessed by using signs of diabetic complications including HbA1c, blood pressure and LDL-C level, between persons with type 2 diabetes receiving a multifaceted nurse coaching intervention and those who received the usual care; and, (b) to compare satisfaction to nursing intervention with persons with type 2 diabetes receiving the multifaceted nurse-coaching intervention and those who received their usual diabetic care.

Material and Method

Study design and setting

The present study used a quasi-experimental design, a pre- and post evaluation of participants cared for at intervention and control sites. A Red Cross Health Station, Relief and Public Health Bureaus are mainly in urban areas. The health stations support health services for patients who suffer from chronic illness including diabetes. Nurses are employed and become leaders in the clinic. Patient volunteers from the two Red Cross Health Stations in Bangkok offered themselves to participate in this multifaceted nurse-coaching intervention and were exposed to the program for 12 weeks. The two Red Cross Health Stations are similar to other health stations in terms of the number of staff and socio-economic status of the communities. The volunteers of the 2nd Red Cross Health Station served as the experimental group whereas those of the 11th Red Cross Health Station the control group. The community nurse teams were volunteers of the Red Cross Health Stations who participated in the present study.

Samples

The Institution Review Board (IRB) of the Faculty of Medicine, Chulalongkorn University, approved the study protocol. The calculated sample size of the subjects were 14[30], but the attrition rate was 8% from a previous study[20]. In order to minimize the effect of the drop-out rate, the researcher increased the number of participants to 20 at each site. The recruited participants were persons with type 2 diabetes whose average fasting blood sugar reading were higher than 130 mg/dl over their two consecutive previous visits and who had no detected severe diabetic complication. The researcher formally invited them from the two health stations to participate in the trial, and after they agreed and signed their informed consent form. Then, the researcher drew blood samples for their tests of HbA1c and directed LDL-c levels. The researcher matched pair each participant between the two settings in terms of sex, age and duration of diabetic history. The matched-pair was performed by the researcher to reduce confounding factors which might produce error in the results.

Measurements

The measurements of the present study were composed of demographic data, signs or risk factors of diabetic complications, and satisfaction with nursing intervention questionnaire.

The demographic data were obtained from interviewing, examining the people with type 2 diabetes and reviewing their medical records including age, sex, and duration of diabetes, status, education level, occupation, and incomes.

Signs or risk factors of diabetic complications were measured and recorded including HbA1c, blood pressure and LDL-c levels. The blood samples were sent to the central laboratory of a tertiary care setting that used standard methods with local quality control. Blood pressure was measured by a nurse team on the left arm of the participant who had rested for 5 minutes (twice, 30 seconds apart) using a sphygmomanometer.

The "Satisfaction with Nursing Intervention Questionnaire" was a measurement to assess the perception of the persons with type 2 diabetes who received the multifaceted nurse-coaching intervention at the 2nd Red Cross Health Station and those with type 2 diabetes who received the usual care at the 11th Red Cross Health Station. The measurement was based on the concepts of access[31]. Four dimensions of satisfaction included availability, accessibility, accommodation and acceptability were evaluated. Twenty-one items were separated into each dimension: availability, accessibility, accommodation and acceptability. The reliability was 0.92.

Protocol

The researcher began enrolling participants in October 2007 and completed the enrollment in March 2008. The control group (n = 20) included persons with type 2 diabetes who received the usual physician care only at the 11th Red Cross Health Station. The experimental group (n = 20) received the multifaceted nurse-coaching intervention employed by community nurses. This comprehensive intervention was a coaching process and administered diabetes self-management education which was designed to address the complexity of diabetes self-management for persons with type 2 diabetes. The goals of the intervention were namely: (a) to provide education and educational support (cognitive component); (b) to help the persons integrate dietary and exercise management recommendations into their daily lives (behavioral component); and, (c) to provide psycho-social support for changing roles, relationships, and emotions (affective component).

The coaches were community nurses of the 2nd Red Cross Health Station. The researcher trained them to form a pro-active team. In the training process, they were required to undertake a five-day afternoon-training program to inform and activate persons with type 2 diabetes in order to improve their health outcomes. The program was developed to help the nurses facilitate the participants in the experimental group who would receive the intervention, and the nurses would use a scheduled appointment to deliver diabetes self-management education and coaching process to assess, set the coaching goal, analyze, explore, design action plan, learn and feedback to the participants.

After the training, each nurse had one-on-one meeting with each participant and telephone coaching for behavior change (Table 1). Each coaching session was tailored to the individual's need and used as the collected information as the platform for the following coaching session. The intervention addressed diabetes self-management that involved lifestyle of diet control, exercise, oral hypoglycemic medication and side effects, stress, self-monitoring, hygienic and foot care. An individual participant also received a handbook for diabetes self-management. In each session, the nurses also measured blood pressure, postprandial glucose level, and evaluated the diabetes self-management and changed behavior. These assessing data were then used for discussion and monitoring dietary behavior, exercise, medication used, self-monitoring, hygienic and foot care. The nurses also provided emotional support and used motivational interviewing or open-ended questions to assist personal problem-solving three times every two weeks (till the 8th week) and biweekly through telephone coaching, twice (till the 12th week).

Table 1. The multifaceted nurse-coaching intervention

Coaching process	Activities
Assess	- Find out individual's trajectory of diabetes diagnosis, treatment, and impact on life, the individual's patterns of daily living related to diabetes self management including diet control, exercise, medication used, stress and foot care, important roles and values - Establish and tailor the individual's diabetes self-management education (focusing on cognitive knowledge)
Goal definition	- Definition of coaching behavior goal (focus on behavior change of diet, exercise, medication, stress, self-monitoring and foot care)
Analyze	- What is the present situation that the coachee is at the present time with regard to the coaching goal?
Explore	- Define the options and what are the different options aimed at obtaining the goals?
Action plan	- Moving forward; identify and commit to an action
Learning	- Implementation of the agreed-on actions for 2 weeks
Feedback	- The coach and coachee meet at the site and discuss what has been learned? How does the behavior change?

Procedure

A written informed consent form was obtained after the subject had agreed to participate either in the experimental or control group. The data of the experimental group were collected. The researcher assessed their diabetes knowledge and self-management using the diabetes knowledge questionnaire and the "Summary of Diabetes Self-care Activities Questionnaire[32]" and took a blood sample for HbA1c and LDL-C testing at the beginning of the multifaceted nurse-coaching intervention (pre-test) and at the end of the last coaching session (post-test) at the 12th week following the completion of the intervention. Data were collected by the researcher at entry into the present study and at the end of 12 weeks for the control group.

Statistical analysis

Descriptive statistics were applied to analyze the data for frequency and percentage. Differences in mean values of variables including HbA1c, blood pressure and LDL-C levels and satisfaction scores were compared through dependent sample t-tests, independent sample t-tests with 0.05 levels of significance. Statistical analyses were performed using SPSS version 13.0.

Results

The result of the multifaceted nurse-coaching intervention obtained after the 12th week showed positive effects on signs or risk factors of diabetic complications including HbA1c, blood pressure, LDL-C levels and satisfaction with nursing intervention.

Demographic data of participants

The demographics of the 40 participants enrolled in the present study showed that age, duration of diabetes and marital status were not significantly different between the two groups. However, in comparing their education levels, more of the participants in the experimental group had received a certificate or a bachelor degree ($n_e = 9$), the majority of the control group, on the other hand, received only primary school education ($n_c = 8$), and there was statistically significant difference between the two groups.

The effect on signs or risk factors of diabetic complications

The signs or risk factors of diabetic complications of 40 participants enrolled in the study are shown in Table 2. There were differences between those receiving their usual diabetic care and the intervention participants in term of HbA1c at post testing. However, there were no significant differences in the levels of blood pressure and LDL-C for participants completing 12 weeks of the intervention, the mean HbA1c level in persons with type 2 diabetes receiving the multifaceted nurse-coaching intervention ($\bar{x}_{exp} = 7.10$, SD = 0.67) was lower than those with type 2 diabetes receiving usual care ($\bar{x}_{cont} = 7.72$; SD = 0.97) with statistical significance. Regarding the blood pressure and LDL-C, there were no statistically

Table 2. Comparisons of $HbA1_c$, blood pressure, and LDL-C level before and after the intervention

Dependent variables		Control group ($n_c = 20$)		Experimental group ($n_e = 20$)		t
		$\bar{x}$	SD	$\bar{x}$	SD	
HbA1c level	Before	8.17	0.99	8.60	1.41	1.16^{ns}
	After	7.72	0.97	7.10	0.67	-2.33*
Blood pressure level						
Systolic pressure level	Before	133.00	14.90	132.00	10.56	-0.245^{ns}
	After	127.40	15.30	121.00	10.28	-1.52^{ns}
Diastolic pressure level	Before	85.00	9.46	84.50	8.87	1.17^{ns}
	After	79.40	19.44	81.30	9.10	0.395^{ns}
LDL-C level	Before	139.30	29.61	138.75	40.39	-0.49^{ns}
	After	110.40	25.60	123.60	45.54	1.05^{ns}

* $p \leq .05$; $p > .05$, ns = non significant

significant differences between the average systolic blood pressure ($\bar{x}_{exp}$ = 121, SD = 10.28; $\bar{x}_{cont}$ = 127.4, SD = 15.3), and the average diastolic blood pressure ($\bar{x}_{exp}$ = 81.3, SD = 9.1; $\bar{x}_{cont}$ = 79.4; SD = 19.44) and LDL-C ($\bar{x}_{exp}$ = 123.6, SD = 45.54; $\bar{x}_{cont}$ = 110.4, SD = 25.6) of the experimental and the control group.

Effects on satisfaction with nursing intervention

The result of the comparison of the mean average score of satisfaction with nursing intervention (Table 3) shows that the total mean average score of satisfaction of persons with type 2 diabetes receiving the intervention ($\bar{x}_{exp}$ = 4.91, SD = 0.18) are higher than the total mean average score of satisfaction of persons with type 2 diabetes who received their usual diabetic care ($\bar{x}_{cont}$ = 2.49, SD = 0.91) in all dimensions with statistical significance.

Discussion

The community nurses in the 2nd Red Cross Health Station were trained to facilitate the persons to access the diabetes self-management education program through an individual coaching process. The program was a complex process in which participants in the experimental group received a nurse-coaching intervention based on enhancing cognitive knowledge and skill-training for problem-solving, and then compared to participants who received their usual diabetic care. Therefore, the discussion in this part was based on a theoretical framework and methodological issues.

To the authors' knowledge, this is the first study to evaluate the effects of the multifaceted nurse-coaching intervention. This intervention was managed on issues related to diabetes self management. The number of studies indicated that individuals with type 2 diabetes lack an understanding about the principles of diabetes self-management and had difficulty in modifying specialized and complex knowledge to their daily life to prevent macrovascular and microvascular diseases[33-36]. In addition, individuals with type 2 diabetes have a higher risk of developing diabetic complications such as cardiovascular disease, retinopathy and neuropathy[36-38]. As a consequence, knowledge underpinning, strategies to increase the applicability of management suggestion and psycho-social support were collectively provided as components of the multifaceted nurse-coaching intervention to concentrate on these important problems.

This finding was similar to a study that illustrated that coaching has modified behavior change in individuals with several chronic diseases, such as asthma, and older adults[39,40]. The reason for the timing of the intervention to follow-up diabetes self-management education was to increase behavior change that began during the coaching process and to provide ongoing support when the individuals began to come to terms with the possible difficulties associated with long-term maintenance of a complex self-management regimen. The important finding of the present study was the reduction of HbA1c which was of greater benefit to persons with type 2 diabetes

Table 3. Comparison of mean average score of satisfaction between the control and experimental groups before and after the intervention

Dependent variables		Control group (n_c = 20)		Experimental group (n_e = 20)		t
		$\bar{x}$	SD	$\bar{x}$	SD	
Availability	Before	4.53	0.64	4.43	0.61	-0.53^{ns}
	After	4.33	0.81	4.93	0.17	3.21**
Accessibility	Before	3.28	1.38	3.08	1.38	-0.45 ^{ns}
	After	3.01	1.53	4.95	0.16	5.60**
Accommodation	Before	2.95	1.01	3.36	1.05	1.27 ^{ns}
	After	2.58	1.14	4.95	0.16	9.16**
Acceptability	Before	2.98	1.04	2.41	1.45	-1.42 ^{ns}
	After	1.87	1.03	4.89	0.22	12.71**
Total	Before	3.24	0.84	2.93	1.04	-1.03 ^{ns}
	After	2.49	0.91	4.91	0.18	11.56**

* $p \leq 0.05$; ** $p \leq 0.01$; $p > .05$, ns = nonsignificant

resulting in the reduction of diabetic complications. The mean reduction of.96% in HbA1c was outstanding when compared to the control condition with the decrease of.45%. At the end of the intervention, all participants in the intervention group had a lower level of HbA1c. Besides being statistically significant, the scale of the reduction of HbA1c, if sustained, could significantly affect the persons with type 2 diabetes, *i.e.* in terms of mortality and morbidity. The DCCT[41] suggested that 1% decrease of HbA1c is associated with 30-35% reduction of microvascular complications of diabetes (*e.g.*, retinopathy and nephropathy). A reduction of 1% of HbA1c has also been associated with 28% decrease in mortality independent of age, blood pressure, serum cholesterol, body mass index as well as cigarette smoking habit. Although the mean reduction of HbA1c was not 1%, the.965% was almost the same level as that suggested by the DCCT[41]. Finally, along with the need for replication of the present study, future research should investigate whether the positive effect of the multifaceted nurse-coaching intervention sustain after the intervention has been concluded.

The lack of the effect on blood pressure associated with the multifaceted nurse-coaching intervention may be a result of several factors. Although after the intervention the means of the blood pressure level in persons who received the intervention was averagely lower than the mean blood pressure level in individuals who received the usual care, they were not significantly different. The reasons of this result revealed the basic nature of hypertension that it is a silent killer disease[42]. It is atherosclerosis which causes the stiffness of the blood vessels and problems of blood flow. Hypertension is extremely a common co-morbidity in diabetes[43] and has been associated with cardiovascular and microvascular diseases[44]. Moreover, the majority of persons with type 2 diabetes in the present study had mild hypertension with a wide age range and period of diabetic onsets. Therefore, the research participants in both the experimental and control groups might not be similar. Besides, they did not even receive the same medication and treatment. This might be an extraneous variable that could limit the effect of the result of the present study.

The lack of significant LDL-C effect through the multifaceted nurse-coaching intervention may also be associated with some factors. The nurses' approach to coaching allowed the persons to choose their own topics of discussion. This might occur that the persons chose the topic of session focusing on the blood sugar level that was linked to the symptoms of high or low blood sugar level rather than the LDL-C level. It may be possible that although LDL-C is associated with atherosclerosis, but there was no symptom[45] which was related to any physical change. Additionally, it may require more intervention for a longer duration and with a larger sample size to reveal a small but clinically significant effect on LDL-C level.

Satisfaction with nursing intervention

After the intervention, the overall mean of satisfaction scores with nursing services in the experimental group was significantly higher than that of in the control. Taking into consideration the items in the questionnaire, it appeared that the average score of every item was higher after the intervention. This meant that the persons with type 2 diabetes were satisfied with the nursing intervention. This result was similar to the study of Duangla[46]. It presented that the effect of nursing service with volunteers' participation which assisted the number of persons with type 2 diabetes to get easily into a diabetic clinic could increase the patients' satisfaction and their self-management. Obviously, the delivered intervention provided them easy access to utilize the service, accept the process of coaching and the information for diabetes self-management and the availability of documents that they received, not to mention that they had more opportunity to ask questions and to discuss their experiences on self-management and their preferences in problem solving. All these were valued by most of the participants and seen to be very useful.

Implication for nursing practice

The finding of the present study has provided knowledge for quality improvement of care services especially in the delivery of diabetes self-management education program. In fact, during a diabetes clinic day at the health station, the clinic can be scheduled for individuals to visit a family physician in the morning. According to this routine, the persons with type 2 diabetes normally have to wait for the laboratory testing results, and then make a visit to the physician. After having visited the physician, they have to wait for their prescribed medication. This is the usual time for a lecture program on diabetes self-management delivered to the persons waiting online. This may not be an effective model because the environment was not favorable, it was noisy and crowded. The multifaceted nurse-coaching intervention should be

more appropriately implemented in community care or in primary care services in Thailand. The results showed that the signs of diabetic complications such as HbA1c level as well as satisfaction of persons with type 2 were better in the experimental group. Although the signs of blood pressure and LDL-C levels showed no statistically significant difference between the two groups, the level of blood pressure seemed to be declining, whereas the level of LDL-C rising. This program should be implemented as a section of practice in primary care to reduce macrovascular complications but the intervention time should be longer. Although the diabetes self-management education service is not well established, the new model could be redesigned for the service. A pro-active team of nurses could reorganize their services to help more personal access to diabetes self-management education.

Limitations

The present study has some limitations, however. Firstly, this was a quasi-experimental study design using purposive sampling; there might be residual or unmeasured confounding factors that could have affected the results. Secondly, this was a study of type 2 diabetes persons in community care, and the age of the samples varied widely; the present results may not be appropriate for generalized use.

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ผลของระบบการพยาบาลชี้แนะแบบหลากหลายต่อภาวะแทรกซ้อนและความพึงพอใจในผู้ที่เป็นเบาหวานชนิดที่ 2

รุ้งระวี นาวีเจริญ, ยุพิน อังสุโรจน์, สุรีพร ธนศิลป์

วัตถุประสงค์: *เพื่อประเมินผลโปรแกรมการพยาบาลชี้แนะแบบหลากหลายต่อภาวะแทรกซ้อน ซึ่งประเมินจากค่าระดับน้ำตาลสะสม ความดันโลหิต ไขมันชนิดไม่ดี และความพึงพอใจต่อโปรแกรมการพยาบาลในผู้ที่เป็นเบาหวานชนิดที่ 2*

วัสดุและวิธีการ: *ดำเนินการวิจัยกึ่งทดลองเพื่อประเมินผลของโปรแกรมการพยาบาลชี้แนะแบบหลากหลาย ระหว่างเดือนตุลาคม พ.ศ. 2550 ถึง มีนาคม พ.ศ. 2551 ผู้ที่เป็นเบาหวานชนิดที่ 2 จำนวน 40 ราย ซึ่งมารับบริการการตรวจรักษาที่สถานีกาชาด สำนักงานบรรเทาทุกข์และประชานามัยพิทักษ์ ในเขตกรุงเทพมหานคร ได้รับการคัดเลือกตามเกณฑ์คุณสมบัติที่กำหนด ทำการคัดเลือกด้วยวิธีการจับคู่ (matched pair) โดยคำนึงถึงความคล้ายคลึงกันด้านอายุ เพศ ระยะเวลาการเป็นเบาหวาน จำนวนกลุ่มละ 20 คน ผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งได้รับการรักษาพยาบาลที่สถานีกาชาด ที่ 2 เป็นกลุ่มทดลอง และผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งได้รับการรักษาพยาบาลตามปกติที่สถานีกาชาด ที่ 11 เป็นกลุ่มควบคุม ดำเนินการทดลองเป็นระยะเวลา 12 สัปดาห์ เครื่องมือที่ใช้ในการศึกษา ได้แก่ โปรแกรมการพยาบาลชี้แนะแบบหลากหลายในผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งพยาบาลชุมชนได้รับการอบรมเกี่ยวกับการใช้โปรแกรมนี้ประกอบด้วย แผนการสอนชี้แนะให้แก่ผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งมีแนวคิดพื้นฐานจากการสอนแนะของ Eaton and Johnson (2000) มีขั้นตอนดังนี้ คือ การประเมิน การกำหนดเป้าหมาย การวิเคราะห์การสำรวจ การวางแผนปฏิบัติ การเรียนรู้ การประเมินผลย้อนกลับ และเป็นขั้นตอนการพบกันระหว่างพยาบาลและผู้ที่เป็นเบาหวานรายบุคคล จำนวนติดต่อกัน 3 ครั้ง ทุก 2 สัปดาห์ และติดต่อทางโทรศัพท์ 2 ครั้ง ห่างกัน 2 สัปดาห์ จนครบ 12 สัปดาห์ เครื่องมือที่ใช้เก็บรวบรวมข้อมูล ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล และแบบบันทึกปัจจัยเสี่ยงต่อการเกิดภาวะแทรกซ้อน ได้แก่ ระดับน้ำตาลสะสม ระดับความดันโลหิต ระดับไขมันชนิดไม่ดี และ แบบสอบถามความพึงพอใจ สถิติที่ใช้วิเคราะห์ข้อมูล คือ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สถิติทดสอบที*

ผลการศึกษา: *ทั้งสองกลุ่มมีความคล้ายคลึงด้าน อายุ เพศ และระยะเวลาการเป็นเบาหวาน ระดับน้ำตาลสะสม ค่าความดันโลหิต และค่าระดับไขมันชนิดไม่ดี แต่หลังจาก 12 สัปดาห์พบว่า ค่าเฉลี่ยของระดับน้ำตาลสะสมของ ผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งได้รับโปรแกรมการพยาบาลชี้แนะแบบหลากหลายมีค่าระดับน้ำตาลสะสมน้อยกว่า ในกลุ่มที่ได้รับการพยาบาลตามปกติอย่างมีนัยสำคัญทางสถิติ ($\bar{x}_{exp}$ = 7.10, SD = .67 vs. $\bar{x}_{cont}$ = 7.72, SD = .97; $p \leq 0.05$). แต่ไม่มีความแตกต่างระหว่างค่าความดันโลหิต ในกลุ่มซึ่งได้รับโปรแกรมการพยาบาลชี้แนะแบบหลากหลาย และในกลุ่มที่ได้รับการพยาบาลตามปกติ (systolic blood pressure: $\bar{x}_{exp}$ = 121.0, SD = 10.28 vs. $\bar{x}_{cont}$ = 127.4, SD = 15.30; $p > 0.5$, diastolic blood pressure: $\bar{x}_{exp}$ = 81.30, SD = 9.18 vs. $\bar{x}_{cont}$ = 79.4, SD = 19.43; $p > 0.5$). นอกจากนี้ไม่มีความแตกต่างระหว่างค่าระดับไขมันชนิดไม่ดีในกลุ่ม ซึ่งได้รับโปรแกรมการพยาบาลชี้แนะแบบหลากหลายและในกลุ่มที่ได้รับการพยาบาลตามปกติ ($\bar{x}_{exp}$ = 123.60, SD = .45.53 vs. $\bar{x}_{cont}$ = 110.40, SD = 25.60; $p > 0.5$). ผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งได้รับโปรแกรมการพยาบาลชี้แนะแบบหลากหลาย มีค่าคะแนน ความพึงพอใจต่อการปฏิบัติการพยาบาลสูงกว่าในกลุ่มที่ได้การพยาบาลตามปกติ ($\bar{x}_{exp}$ = 4.91, SD = 0.91 vs. $\bar{x}_{cont}$ = 2.49, SD = 0.18; $p \leq 0.05$) อย่างมีนัยสำคัญทางสถิติ*

สรุป: *โปรแกรมการพยาบาลชี้แนะแบบหลากหลายสามารถลดระดับน้ำตาลสะสม และเพิ่มความพึงพอใจแต่ไม่สามารถลดระดับความดันโลหิตและระดับไขมันชนิดไม่ดีในผู้ที่เป็นเบาหวานชนิดที่ 2 ซึ่งได้รับโปรแกรมดังกล่าวเมื่อครบ 12 สัปดาห์ได้*