

Healthy diet education for type 2 diabetes patients in China

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<p>Abstract</p> <p>Diabetes is one of the most serious chronic diseases in the world today, with 400 million people living with the disease worldwide as of 2014. Type 2 diabetes has a strong life style trigger of disease and among others, diet plays an important role in glycemic balance. However, not everyone with type 2 diabetes has the knowledge to rationalize their diet, and this is where the role of the nurse becomes extremely important.</p> <p>The aim of this study was to understand how nurses conduct health education on healthy eating for patients with type 2 diabetes and how the nurse can educate type 2 diabetes patients to achieve a healthy nutrition.</p> <p>This study was implemented as a literature review and the data for the literature review was collected using two databases. Medline and Cinahl. A total of 21 articles were collected.</p> <p>In total, 6 articles were selected for the review. Content analysis was used in the analysis of the data. There were three main parts. Health education by nurses, patients' own conditions and healthy eating.</p> <p>In the current situation in China, diabetic diet-related health education is not yet widespread. Research into this avenue of health education on the dietary habits of type 2 diabetic patients, with the aim of patients becoming self-aware of their dietary control and ultimately reducing their dependence on insulin or medication, is not yet well established in the world of nursing. However, the prospects for related areas are positive.</p>		
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1 Introduction

Diabetes is one of the most harmful chronic diseases in the world today. As of 2014, data from the WHO shows that there are approximately 422 million diabetics in the world with diabetic patients. Among them, the proportion of low- and middle-income countries is even higher(WHO,2019).

According to the data collected by the China Type 2 Diabetes Prevention and Control Guidelines published in 2017, the prevalence of diabetes in China has reached 10.8% in 2013, which is an increase of 10.13% compared with the data in 1980. my country's economy has developed rapidly in the past 40 years. With the improvement of the national economy, most Chinese residents are no longer troubled by the problem of hunger. After the problem of food and clothing has been improved, with the special dietary structure, more diabetic patients have appeared. At the same time, the increasingly severe trend of population aging is also one of the main reasons for the sharp increase in the prevalence of type 2 diabetes in China (Chinese Diabetes Society, 2017) .

In China, after being diagnosed with diabetes, patients need to receive diabetes-related self-management education, including diet, exercise, smoking cessation, and alcohol and other aspects. In the above education, our medical staff focus on supporting patients, focusing on individualization, respecting patients, and responding to patients' personal hobbies, needs and values. Health care workers can provide diabetes patients with as comprehensive diabetes self-management education as possible at the best time. Considering the current Chinese population and national conditions, there are very few nurses trained in specialized diabetes, and it is difficult to implement comprehensive self-management education programs for patients (Chinese Diabetes Society, 2017).

However, in the field of theoretical research, there is rather few research on healthy nutrition education for persons with type 2 diabetes. Based on the above-mentioned

problems, this study chooses different dietary structures as the research theme, and the main target is Chinese type 2 diabetes patients. With published academic papers as the research background data, it focuses on exploring the influence of different nutritional structures on the blood glucose concentration of type 2 diabetes patients. Develop a composition of daily diet suitable for patients to provide theoretical basis and related help for the vast population of type 2 diabetes patients in China.

2 Background

2.1 Current diabetes situation

According to WHO data, premature deaths caused by diabetes increased by 5% between 2000 and 2016(WHO, 2019). In China, diabetes has gone from a rare disease to an epidemic in 40 years. With the rapid development of China's economy in recent decades, the living standards of the people have also improved, leading to a substantial increase in the number of people with diabetes. According to the 2016 epidemiological statistics, the prevalence rate of type 2 diabetes in Chinese adults was 11.6%, and the pre-diabetes prevalence rate was 50.1%. Therefore, it can be inferred that there may be 113.9 million diabetic patients and 493.4 million in Chinese adults. It is not difficult to find that the prevention and control of diabetes is one of the major issues that China needs to solve most(Jingjing, 2018).

There are many factors influencing the diabetes epidemic in China. First, with the rapid development of China's economy, China's urbanization has also accelerated at the same time. From 2000 to 2016, the proportion of China's urban population has

increased significantly (34%-57%). What has changed at the same time as the urban population ratio is the lifestyle of the masses. Compared with the rural population, the urban population has significantly reduced physical labor in daily life, while the pace of life has accelerated significantly. At the same time, urban residents live in a stressful environment for a long time, which is closely related to the occurrence of diabetes (Chinese Diabetes Society, 2017).

The second influencing factor is that in China in the 21st century, the aging of the population is one of the biggest livelihood issues. The proportion of people over 60 in China rose from 10% to 13% between 2000 and 2006. The prevalence of people over 60 years of age suffering from diabetes is above 20%. According to the "Report on the Status of Nutrition and Chronic Diseases of Chinese Residents (2015)", the prevalence of overweight and obesity in China is increasing. The overweight rate and obesity rate of adults aged 18 and above is 30.1%, and the obesity rate is 11.9%, an increase of 7.3% from 2002. 4.8%. Obesity is one of the main causes of diabetes (Chinese Diabetes Society, 2017).

The defect of dietary structure is also one of the main causes of obesity. It is particularly important to change the traditional dietary structure of Chinese families. The role of nurses is unique in this respect. Nurses who have received specialized training and experience can provide patients with professional and targeted health education as soon as they are diagnosed with type 2 diabetes, and answer questions for patients. Education improves the patient's feelings of fear, confusion, and helplessness after diagnosis, and can effectively improve the patient's quality of life (Chinese Diabetes Society, 2017).

Diabetes is a systemic chronic metabolic disease that is not contagious and is mainly caused by the long-term effects of genetic and environmental factors. Diabetic patients continue to have high blood sugar because of absolute or relatively insufficient insulin secretion. The ways to prevent and treat diabetes can be divided into two types: medication and scientifically reasonable diet(Jingjing,2018).

Diabetes is one of the most harmful chronic diseases at this stage. For diabetic patients, it is not diabetes itself that affects the health of diabetic patients the most, but the complications of diabetes, including heart disease, vascular disease (vascular disease) and blood circulation Poor, blindness, kidney failure, poor healing, stroke and other neurological diseases have seriously affected the living standards of diabetic patients and brought great inconvenience to their lives (Miaomiao,2014).

Diet therapy, exercise therapy, drug therapy, blood glucose monitoring and diabetes education are the main methods of diabetes treatment, while diet therapy and diabetes education are the most basic, most common and most life-oriented treatment methods. A healthy lifestyle can not only reduce the risk of diabetes. Risk, it can also improve blood sugar, blood lipids, blood pressure and other indicators of diabetic patients.It can effectively control the development of diabetes complications(Torpy, 2011).

According to Wen Guimin's survey of healthy eating behaviors in 302 hospitalized diabetic patients using a questionnaire survey, the healthy eating behaviors of diabetic patients accounted for only 33.1% in the action and maintenance phases, indicating that only a small number of diabetic patients have been healthy in the past 6 months. Eating behavior has changed significantly or has become a habit. Yin Rongping applied the diet self-management scale to investigate the diet of 345 diabetic patients and found that diabetic patients had a positive attitude toward dietary self-management, but generally had low dietary knowledge. For example, patients are less aware of issues such as "what food should be used when hungry?" "Does high-fiber food affect blood sugar changes?" "Appropriate oily foods can prevent the occurrence of diabetic vascular complications" and other issues. This is similar to Yang Xiaoling (Guimin, 2017).

There is a need to enhance dietary health education for diabetic patients to improve their dietary behavior compliance. This is consistent with the findings of Yang S. L. et al. on the dietary status of 6043 diabetic patients who had been diagnosed for more

than 1 year in inpatient, outpatient and community settings in 29 provinces in China. All in all, the current situation of diabetic diet self-management for diabetic patients in China is not optimistic. It is necessary to strengthen dietary health education for diabetic patients to improve their dietary compliance(Mao Jingjing, 2018).

As an indispensable part of human daily life, the impact of diet cannot be underestimated. Diabetes is a disease of the body's unbalanced regulation of blood sugar, and diet is the main way for normal humans to obtain blood sugar. With the data available, rational diet can effectively control the blood glucose fluctuation range of diabetic patients. By controlling the GI index of the food used by the patient, the goal of controlling the blood sugar of the patient can be achieved. Due to the particularity of Asian diet, the proportion of carbon and water in the diet is extremely high, so the impact is great, and diet control is of great significance. Influenced by traditional Asian culture, diet control, a relatively conservative treatment method, is more accepted by patients (especially middle-aged and elderly) than the treatment of injections and medicine(Jingjing, 2018).

2.2 Healthy diet for type 2 diabetics

Common diabetes diet management methods in real life and clinical nutrition mainly include: calculation method, food exchange portion method and blood glucose generation load method. Among them, the food exchange portion method is the most widely accepted by the public and medical organizations, because of its simplicity and ease of implementation(Qing, 2019). The nutritional meal designed for patients replaces the same part of the diet with foods with a lower glycemic index, making the diet more scientific and reasonable. This method is called the food exchange method, which can effectively improve The nutritional status of diabetic patients can also improve the quality of life and health of diabetic patients(Qing, 2019).

Commonly used foods are classified according to the approximate values of their nutrients, which are generally divided into six categories: staple foods, vegetables, fruits, fish, meat and eggs (including soy products), milk, and oils. Calculate the nutrient value and food quality of each type of food, and then list the content of each type of food in a table for exchange (Qing, 2019).

Nutritional diet design principles for people with diabetes: reasonable control of total calorie intake, optimal protein limit, appropriate amount of carbohydrates, low fat and low cholesterol, and eat more vegetables, fruits, bacteria and algae foods. First of all, according to the patient's age, gender, height and weight related factors, calculate the necessary daily calories. Protein is an important part of 15-20% of total energy. Except patients with diabetic nephropathy, other patients should ensure that more than 1/3 of their protein intake is high-quality protein. At the same time, the carbohydrate intake of patients should also choose foods with low glycemic index. Carbohydrates should account for 50-60% of the total energy intake. Reduce or avoid intake of trans fatty acids and sweets. At the same time, use potato and other plant high dietary fiber crops to replace staple food. Strictly control the intake of unhealthy fatty acids in patients. (Qing, 2019).

Because the main complications of diabetes are hyperlipidemia and coronary heart disease and other cardiovascular and cerebrovascular diseases, it is most reasonable that fat accounts for 20% to 25% of the total energy. In fat intake, the ratio of polyunsaturated fatty acids, monounsaturated fatty acids, and saturated fatty acids should be controlled to 1:1:1. According to the Chinese residents' balanced diet pagoda, the recommended amount of vegetables should be 300~500 g/d, and the amount of fruits should be 200~350 g/d (Qing, 2019).

However, this staple food fixation method does not take into account factors such as non-staple foods and fats, so it is easy to cause imbalanced nutritional intake. However, this kind of food exchange method was introduced from in other countries, and Chinese food categories are complex, cooking techniques are different, and the

specific calories of meals are difficult to accurately calculate. In view of this, many domestic and foreign scholars are also exploring new diabetic diets. When a nurse recommends a dietary structure to a patient, it is necessary to consider the patient's metabolic goals and personal preferences. Under the premise of China's huge population base, it is difficult to complete an individualized diet plan that varies from person to person(Jingjing, 2018).

2.3 The current situation of health education

Nowadays, the literature on diabetes research in Chinese academia is mostly on the treatment or new advances in nursing, while the analysis of diabetic diet food is relatively rare. However, when most patients are diagnosed, the medical staff will give oral and written health education. However, even if the medical staff repeatedly emphasized the importance of diet for the treatment of diabetes, the desired effect has not been achieved (Jingjing, 2018).

As the most important part of diabetes treatment, health education is regarded as the core means of effective diabetes management. Due to patients' deep understanding of diabetes-related knowledge, their attitude towards diabetes has become more and more correct. When the patient starts to face the disease correctly, the disease will no longer be audible, and health education is of great significance (Danyun, 2017).

With the continuous deepening of diabetes knowledge, more and more people are aware of the importance and urgency of diabetes health education. With the continuous exploration and research of related scholars, more and more diabetes health education methods are used worldwide. At present, the mainstream applications include picture-viewing dialogue tools, food simulation models and insulin interview tools (Danyun, 2017).

The picture-speaking tool is a way for patients to use images and life simulation scenarios to learn and discuss with nurses how to participate in self-control of diseases, find their own problems, and correct bad behaviors. This tool has the advantage of initiative, highly flexible changes in teaching, focusing on the key knowledge of the investigation, and the key feedback information in order to adjust the teaching direction in time(Dan-yun,2017).

The picture-speaking tool is a way for patients to use images and life simulation scenarios to learn and discuss with nurses how to participate in self-control of diseases, find their own problems, and correct bad behaviors. This tool has the advantage of initiative, highly flexible changes in teaching, focusing on the key knowledge of the investigation, and the key feedback information in order to adjust the teaching direction in time. Although the conversation tool is used to enable diabetic patients to master disease knowledge, improve self-efficacy, and implement self-management behaviors, they are carried out more frequently in the hospital, and each conversation is time-consuming and laborious. Clinical nurses cannot devote a lot of time and energy to using this tool. Provide health education to patients. In addition, educators need to have rich theoretical knowledge and clinical experience related to diabetes, as well as good expression skills and skills. However, in China, there is a lack of formal training in diabetes specialist nurses. In addition, some of our hospitals do not have complete dialogue tools, and even the space for development is very limited. These are all factors and problems that affect educational activities(Dan-yun,2017).

The physical simulation model is based on the concept of food exchange to produce the weight of each type of food. The diet of diabetic patients is a therapeutic diet that prevents the patient's blood sugar from rising excessively after a meal by changing the diet structure. However, because the physique and weight of the patients are different, and the level of education is also different, the patient's control of the quality of food and energy is not accurate enough. The food exchange method can use the simulated food model to make up for the vague concepts of

food quantity, weight, volume, and thickness. Combining theory and practice, the food exchange table can change the recipe, ensuring the diversification of the diet and the energy intake(Dan-yun,2017).

The insulin use interview tool consists of 4 parts: my opinion on insulin, professional interview reference manual, drawing about insulin, and my insulin treatment. By filling in relevant forms, patients let us know their views and concerns about insulin. The main form is based on DAWN (diabetes attitudes wishes and need) Translated and revised, and the supplementary table is made according to the survey report on the status quo of self-management and influencing factors of Chinese type 2 diabetic patients. The scale includes the use of insulin and cognition, life management, attitude, injection-related problems, adverse reactions and cost and other aspects of the use of obstacles, a total of 27 items. The professional interview reference manual includes two parts: discussion points, questions and answers. They are used to explain materials and discussion points in different aspects of "My View on Insulin". Nurses use communication skills to ask questions of patients and further explore the use of insulin. The reason behind the treatment disorder. "Drawing on Insulin" is a nurse-patient interactive discussion tool that interprets diabetes knowledge in the form of diagrams, tables, and texts. "My Insulin Therapy" is an individualized insulin therapy education prescription formulated by health education and the patient's treatment and treatment plan(Dan-yun,2017).

2.4 The role of nurses in health education

In the ideal health education for nurses, the goal of education and management is that every diabetic patient should receive diabetes education once he is diagnosed. The goal of education is to enable the patient to fully understand diabetes and master diabetes self-management capabilities. The overall goal of diabetes self-management education is to support decision-making, self-management behavior, problem solving, and active cooperation with the medical team, ultimately improving clinical outcomes, health status, and quality of life (Danyun,2017).

The form of education and management is diabetes self-management education, which can be group education, such as large class, group type, or individual education. The content includes guidance on diet, exercise, blood glucose monitoring, and self-management capabilities. Groups or individualized forms are more targeted. Diabetes self-management education methods include individual education, group education, a combination of individual and group education, and distance education (Danyun,2017).

Self-management education and supporters, emphasizing a multidisciplinary team. Each diabetes management unit should have a specially trained diabetes education nurse, and a full-time diabetes educator position to ensure the quality of education. The best diabetes management model is team management. The basic members of the diabetes management team should include practicing physicians [general physicians and/or specialist physicians], diabetes educators (education nurses), dietitians, sports rehabilitation specialists, patients, and their families (Danyun,2017).

3 Aim, purpose and research question

The aim of this thesis was to explore scientific literature to establish the elements of healthy nutrition education for type 2 diabetes patients. The purpose was to increase knowledge and awareness about healthy nutrition among nursing staff and diabetes type 2 patients. The following research question was formulated: *how the nurse can educate type 2 diabetes patients to achieve a healthy nutrition?*

4 Methods

4.1 Literature Review

A literature review is where people identify a research topic and often produce different research directions based on different academic backgrounds and modes of thinking, and the body of knowledge in related fields is thus enriched. Therefore, before completing the research, a large amount of previous research literature is collected and collated, and the information is synthesized to organize the relevant information of the latest research, and a new research direction is proposed(Yao Jihai, 2017).

This bachelor's thesis was written as a literature review to summarize the health education tools and models of nurses for patients with type 2 diabetes that exist at this stage by analyzing others' studies and summarizing the most suitable methods for the current Chinese situation.

4.2 Article selection process

After analyzing the topic selection and combining with the appropriate research direction, in order to provide a more appropriate theoretical basis for the research conclusion, the following information is selected as the key points. The inclusion criteria shown in Table 1 was applied to the literature search.

Inclusion criteria
peer reviewed scitific articles
published during 2011-2021

Abstract and full text available
Language English and Chinese

Table 1. Inclusion criteria

Table 2 shows the keywords used in the literature search in the databases

keywords
type 2 diabetes OR type 2 diabetes mellitus OR t2dm
nurseOR nurses OR nursing
nutrition OR diet

Table 2. Keywords

To show the system developed during this review A PRISMA flow diagram was created to demonstrate the various stages of the systematic investigation developed during this review (Figure 1).

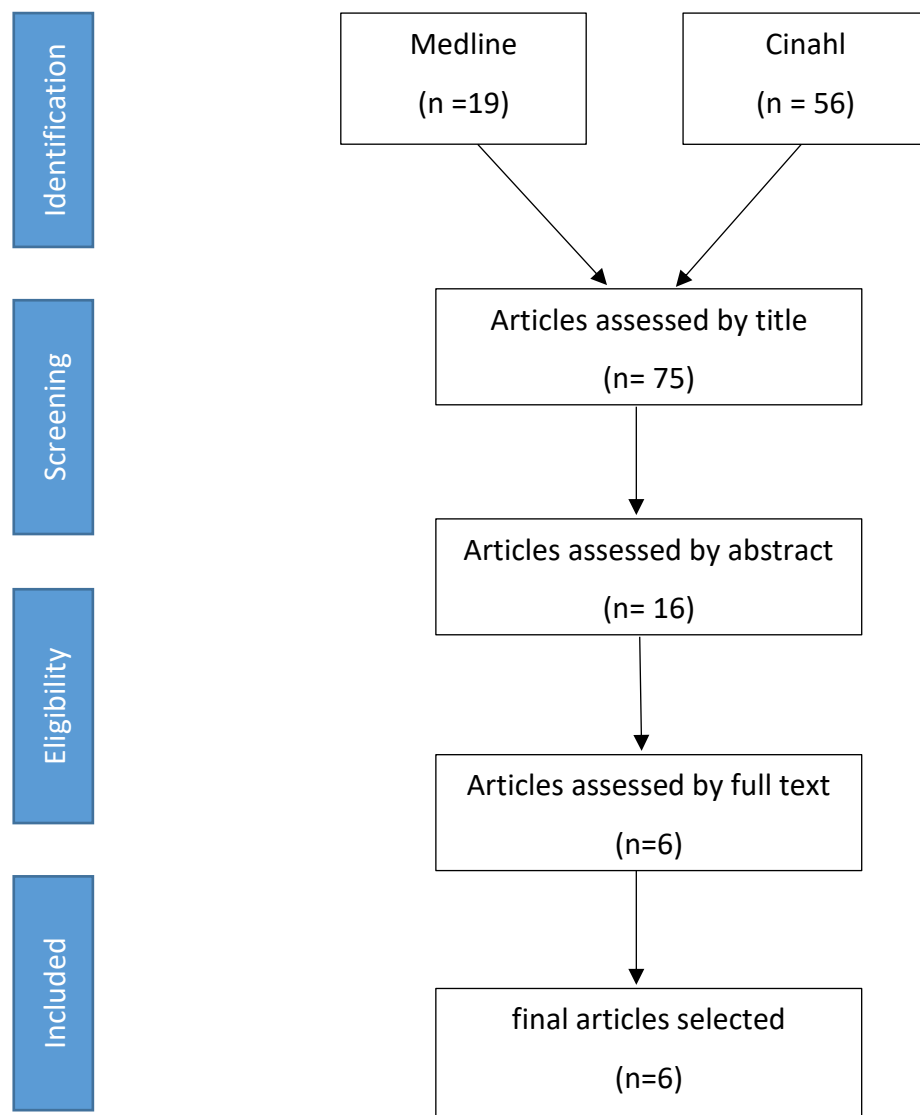


Figure1. PRISMA chart of article selection

The search was conducted in Cinahl Plus full text, Medline by keywords. A total of 75 articles were collected, and criteria were adopted to exclude duplicate articles and to screen for inclusion. By initial selection of the articles by title, 54 articles were excluded and 21 were included. Ten of the articles matched the keywords but had very different research directions, so they were excluded. 26 articles examined the diabetes direction but had no relevance to the role of nurses. 18 articles did not

examine any of the perspectives on healthy diets, type 2 diabetes, or health education, so they were excluded. The remaining articles were excluded based on their abstracts because they were not associated with dietary education for type 2 diabetes. By reading the remaining articles, it was concluded that the remaining content was citation-worthy, so the following 6 articles were reviewed (Appendix 1).

4.3 Method of Analysis

The structure of this review uses data analysis to analyze logical analysis of previous literature on the topic and to quantitatively integrate existing research findings on the topic to determine the current state of research on the topic (Yao Jihai, 2017).

Research question: how the nurse can educate type 2 diabetes patients to achieve a healthy nutrition?

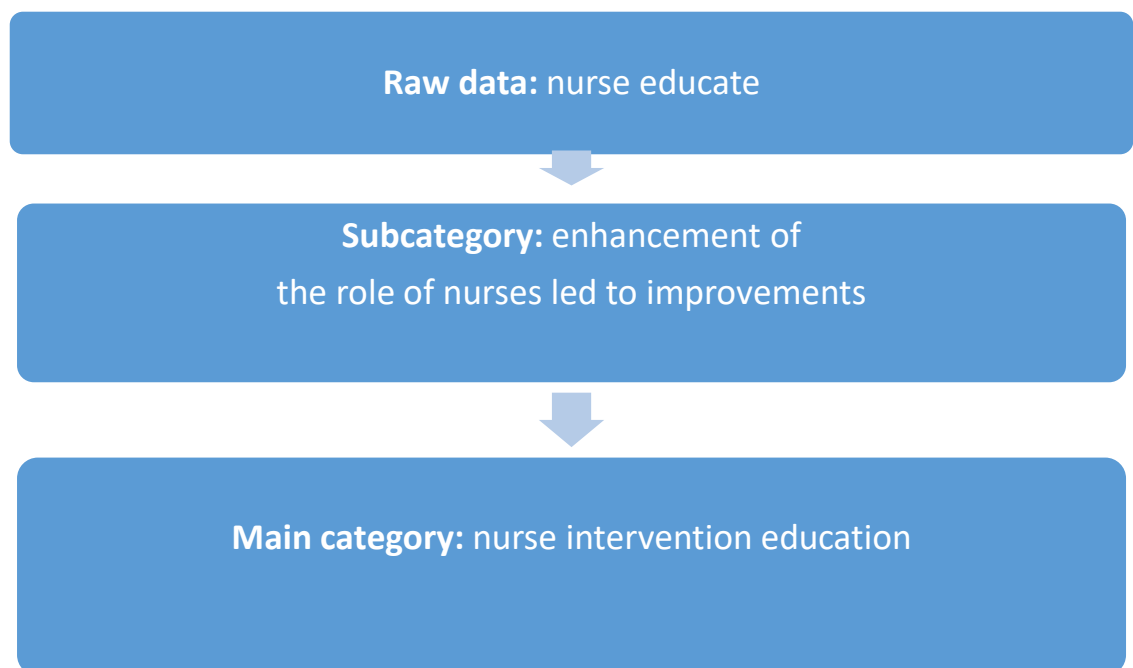


Figure 2. Sample of content analysis

5 Results

After reviewing the database of relevant literature, three themes were identified: nurse intervention education, the condition of the patients with type 2 diabetes, and the content of healthy diet. Among them, nurse intervention education emphasizes the development of individualized health education programs for different patients. The importance of the specialist nurse was also mentioned. Regarding the different conditions of the patients themselves, different means can be used to develop the plan. When it comes to diet healthification improvement, the focus was on changing the diet structure of type 2 diabetic patients through substitution method. The details are shown in Table 3 below.

Health education by nurses	The specific characteristics of type 2 diabetes	What healthy diet mean
multicultural Education	The impact of age on people with diabetes	dietary control for diabetic
Regionalized services	The impact of weight on people with diabetes	Ways to help with diet control
Self-improvement of nurses		

Table3 Category and Subcategories in the results

5.1 Health education by nurses

Provide individualized education programs for patients with different conditions (cultural background, age, education, basic health level, etc.) When providing health education, nurses need to provide different educational orientations according to dif-

ferent cultural backgrounds (Berkley, 2013), providing special and accessible education especially for elderly patients, considering various factors such as limited mobility, decreased basal metabolism, and decreased cognitive ability.

Among the daily treatment, care, the use of encouragement, encouraging the patient to do simple exercises every day, and gradually increasing the patient's awareness of self-management (McClinchy, 2018).

When choosing the scope of services, a small area is chosen to provide specialized educational content for the community and specialized interventions for the patient. Multiple types of educational tools such as health education leaflets can be used (Mary, 2017).

Increase patients' awareness of self-control and encourage them to make positive changes such as increasing their exercise routine (Burden, 2017).

Develop nurse specialization, improve the professional level and expertise of nurses, and organize joint learning with local institutions. Nurses can use a multiple intelligence model when serving patients, i.e., guiding more than instructing and listening more than telling (McClinchy, 2018).

As for the nurses themselves, they need to have enough basic knowledge and dietary influences to provide lifestyle advice to patients (Wattanakorn, 2013), so the training of specialist nurses is of utmost importance.

When providing health education, nurses need to provide advice and guidance on different comorbidities and health issues, and actively participate in local institutions to enhance the training of diabetes-related specialist nurses. Professional and effective health education needs to be provided to each patient at the first point of diagnosis, considering the different levels of education of the patient (Burden, 2017).

5.2 The specific characteristics of type 2 diabetes

Diabetic ages and underlying health level of patients varies, and diabetes varies from patient to patient. Diabetes affects older adults more than other ages, many of whom are at risk for hypoglycemia due to malnutrition from poor blood sugar control (McClinchy, 2018).

Diabetic patients are often accompanied by psychological problems in terms of overweight and complications. 44% of diabetic patients have problems with obesity, tend not to participate in physical activity, tend to consume too much energy and have poor glycemic control (Wattanakorn, 2013).

But it takes a process, often over a period, for people with diabetes to go from having the awareness of change to having concrete actions to lose weight (Wattanakorn, 2013).

5.3 What healthy diet means

People with type 2 diabetes need dietary control, including: a low-sugar diet, a low-salt diet, and a low-fat diet to keep daily calorie intake to a very low level. A healthy diet can reduce a patient's risk of cardiovascular complications (Wattanakorn, 2013).

Alternative diets can be used when choosing a diet with whole grains, high fiber, and low glycemic index foods rather than traditional carbohydrates (Burden, 2017).

5.3.1 Ways to help with diet control

Moderate exercise can help patients to actively control their diet and adhere to it, and exercise therapy helps to change the patient's eating behavior while helping to adhere to a program of self-control (McClinchy, 2018).

Patients with diabetes can achieve dietary control through different means, for example patients with large families can choose to eat individually to achieve dietary control. Also, different sizes and types of containers can be chosen to serve food at mealtimes (McClinchy, 2018).

6 Discussion

Since patients' conditions vary greatly from one another, such as age, gender, weight, and presence of co-morbidities. When providing health education, nurses need to develop individualized recommendations to address these differences (Watanakorn, 2013). In terms of education methods, nurses should be timely, effective, and multi-method (Rosmawati, 2013).

Providing comprehensive and effective health education in a timely manner is often the most difficult to achieve in China, where written education is only the most rudimentary form of education based on the country's large population base and varying levels of education. In the future, nurses will move in a variety of different educational directions (Dan Susanna, 2017).

In addition, nurses need frequent encouragement and positive feedback when helping patients. The data suggests however, in the clinical setting, it is difficult for nurses to understand each patient in a holistic manner due to the large number of patients, which is the primary challenge to face at this stage in China (Wattanakorn, 2013).

Patients have a reduced overall ability to control their blood glucose due to having diabetes. Therefore, nurses need to discuss and guide in many aspects when providing health education. Emphasize the importance of changing carbohydrate choices in terms of diet, the importance of a low salt and low-fat diet in terms of lifestyle, and the importance of daily exercise. When patients are positive, feedback should be given to encourage them to go further and stay on the right track (McClinchy, 2018).

Health education for diabetic patients is highly specialized, which illustrates the importance of good specialist nurses (Rosmawati, 2013). In China, the healthcare system is placing increasing emphasis on the training of specialist nurses, and the role of excellent specialist nurses in the clinical setting cannot be underestimated. Specialty nursing is not ideal for nursing students within colleges and universities because specialty learning cannot be separated from clinical work, and in the future, the training of diabetes specialist nurses is an important direction for development (Dan Susanna, 2017).

Before providing health education, nurses also need to develop their own qualities and continue to learn relevant expertise over time so that they can help patients more effectively and purposefully (Burden, 2017).

7 Ethical considerations

Ethics, defined as norms of behaviors, is a more complex blend of human nature and morality than law. In the research for this thesis, the concepts and principles of ethics to analyses the issue have been used. The significance and importance of ethics is reflected in the referenced citations. I need to respect the work of each author and researcher and the experimental data in each article has be abided with (Resnik, 2011).

In this study, plagiarism was overcome by accurately marking citations, recording authors and the year in which the article was published. The research method used in this study was a literature review (Bretag 2013).

Validity is whether our findings can be replicated to other situations or settings. (Orn 2018) This study uses surveys and literature to summarize coping methods in different settings. Appropriate guidance and care are offered.

The countries studied in this paper were the UK, China, Thailand, and the USA. However, the results of the study are summarized for the specific context of people with diabetes in contemporary China. Reliability in research is defined as a measure or instrument is reliable if it produces the same results when tested repeatedly (Orn 2018).

Once the research topic has been identified and the research steps and methods have been established, the researcher can repeat the test on the results to ensure the reliability of the study. Also, the principle of research reliability is reflected in the summary of the literature and the consideration of accurately documenting the research within the same ethical standards. (Houser 2008).

8 Conclusion

In China, diabetes has become an epidemic, and the ability to produce insulin in the body of patients with type II diabetes is not completely lost; some patients even produce too much insulin in their bodies, but the effect of insulin is greatly reduced, so the insulin in the body of patients is a relative lack of insulin. (Liu, Q. et., 2017) In terms of care, the education of health care providers on healthy eating for diabetic patients is the healthiest and most effective means of prevention and control, taking into account the tripartite relationship between the patient, the disease and the health care system.

The goal of education and management is that every patient with diabetes should receive diabetes education once diagnosed and that the patient is fully aware of diabetes and has the ability to self-manage diabetes. Empowering patients to support decision making, self-management behaviors, problem solving, and active collaboration with the health care team ultimately improves clinical outcomes, health status, and quality of life (Chinese Diabetes Society, 2017).

However, these are ideal scenarios, and in the context of China's current situation, diet-related health education for diabetes is not yet so widespread. The research on this approach through health education on the dietary habits of type 2 diabetic patients to reach the goal that patients have self-awareness of dietary control and eventually patients can reduce their dependence on insulin or medication is not very mature in the field of nursing worldwide, but the prospect of the related field is good. Further in-depth research can be conducted in conjunction with clinical nurses.

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Appendices

Appendix 1. Reviewed articles

Author	Published year and country	Title	Research method	Main results
Berkley M. Carter, Beth Barba, and Donald D. Kautz	2013 USA	Culturally Tailored Education For African Americans With Type 2 Diabetes	Literature review	Culturally appropriate education can lead to significant progress and marked improvements in self-care among African Americans with type 2 diabetes.
Jane McClinchy	2018 the UK	Dietary management of older people with diabetes	Literature review	How to properly guide elderly diabetic patients to a healthy diet in order to avoid malnutrition in the elderly
Kamonpun Wattanakorn, Aporn Deenan, Saichai Pua-pan, Joanne Kraenzle Schneider	2013 Thai	Effects of an Eating Behavior Modification Program on Thai People with Diabetes and Obesity: A Randomized Clinical Trial	Literature review	Changing the diet plan for obese and diabetic Thai patients to achieve body mass index, body fat percentage, waist circumference and blood glucose levels
Gaynor Bussell	2014 the UK	Providing dietary advice for people with type 2 diabetes	Literature review	The nurse provides dietary advice to the patient in order to control the blood glucose level and weight loss of the diabetic patient
Mary Burden MPH, RGN	2017 The UK	Supporting patients to self-manage their diabetes in the community	Literature review	How nurses can provide basic diet planning and advice to patients in the community
Rosmawati,M, B.Sc.Nursing, M.Sc. Nursing ; Rohana, A.J, B.Sc., M.Sc., PhD & Wan A. Manan, B.A., M.Ed., Ed.D	2013 USA	The Evaluation of Supportive-Developmental Nursing Program on Self-Care Practices of Persons with Type 2 diabetes at the Health Centre in Bachok, Kelantan	experiment	How nurses can raise awareness of self-care in the population to achieve self-control in patients with diabetes