

REVIEW ARTICLE

Promoting Self-care and Management for Patients With Type 2 Diabetes Based on Lifestyle Changes Under the Concept of Person-centered Care: A Review

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ABSTRACT

Context • Diabetes, a metabolic disease, can affect multiple organs and systems, including the heart, brain, kidneys, and nerves, and is the seventh leading cause of human death. Professional health education can help modify urbanization-related lifestyle habits, such as diet and physical activity, and is the foundation for self-management of type 2 diabetes.

Objective • The current review aimed to (1) examine policies and guidelines related to type 2 diabetes in the UK and China; (2) identify lifestyle impacts of the disease; (3) evaluate the barriers and challenges to patients' self-management; (4) investigate diabetes-related health education; (5) investigate methods of support for disease promotion; (6) evaluate the efficacy of self-care; (7) explore various treatment options when diabetes is comorbid with other diseases; and (8) describe the contributions of the health, social, and tertiary sectors involved in chronic disease management.

Design • The research team performed a narrative review by searching Scopus, PubMed, CINAHL, PsycINFO and Academic Search Complete databases. The search employed the keywords, such as Type 2 Diabetes, lifestyle changes person-centred care, self-care and management.

Setting • The research is based on the clinical environment in China and the United Kingdom.

Results • Recently published guidelines on diabetes nutrition and physical activity in the United Kingdom and China encouraged patients to self-manage their diabetes. Although patients are more aware of the need for disease self-management, they need more professional knowledge to manage the disease through lifestyle modifications, such as diet and exercise.

Conclusion • Managing diabetes necessitates long-term treatments, guidance, and follow-up, with the support of the patients' families, caregivers, and the entire community. (*Altern Ther Health Med.* 2023;29(5):302-307).

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The International Diabetes Federation (IDF) *Diabetes Atlas: Global Estimates of Diabetes Prevalence for 2017 and Projections for 2045* projects that the number of diabetic patients worldwide will rise to 693 million by 2045¹ and reveals that one in ten people has diabetes,² with 90% having type 2 diabetes.³ According to the *Global Report on Diabetes*

published by the World Health Organization (WHO), diabetes is no longer more prevalent in developed nations than in middle-income nations.⁴

Diabetes, a metabolic disease affecting numerous organs and systems, including the heart, brain, kidneys, and nerves, is the seventh leading cause of human death.⁴ Hu et al. and Jia et al. reported that many factors, including genetics, age, and family history, can influence the development of type 2 diabetes. The disease is nearly impossible to prevent in such individuals.⁵

Professional health education can help modify urbanization-related lifestyle habits, such as diet and physical activity,^{2,6} and is the foundation for self-management of type 2 diabetes.⁷

Around \$850 billion of the annual global healthcare expenditure is spent on diabetes health management.¹ General hospital nurses are now responsible for supervising, educating, and promoting self-management of type 2 diabetes to reduce potential complications, improve patients' quality of life, and prevent readmission through healthy lifestyles.⁸ These actions are also fundamental to the concept of person-centered care.⁹

The current review aimed to (1) examine policies and guidelines related to type 2 diabetes in the UK and China; (2) identify lifestyle impacts of the disease; (3) evaluate the barriers and challenges to patients' self-management; (4) investigate diabetes-related health education; (5) investigate methods of support for disease promotion; (6) evaluate the efficacy of self-care; (7) explore various treatment options when diabetes is comorbid with other diseases; and (8) describe the contributions of the health, social, and tertiary sectors involved in chronic disease management.

METHODS

Procedures

The context of this study is based on the clinical environment of Type 2 diabetes in the UK and China. The research team performed a narrative review by searching databases of Scopus, PubMed, CINAHL, PsycINFO and Academic Search Complete. The search employed the keywords, such as Type 2 Diabetes, lifestyle changes person-centred care, self-care and management.

The review comprises articles in English and Chinese language. To guarantee the accuracy of the data, the research group found a large number of qualitative and quantitative articles on the topic of self-care for diabetic patients. Due to the requirement of a narrative review, the study has only adopted the point of view of each article included in the study that relates to topic and can solve the research problem. The research team listed all the included studies in the reference list.

RESULTS

Policies and Guidelines

The long-term effects of diabetes can substantially impact individuals and society, and there is an immediate need for local, national, and international healthcare policies to manage diabetes.¹⁰ The first Global Diabetes Report from the World Health Organization highlighted not only the magnitude and impact of diabetes but also the possibility of a trend reversing that impact.⁴ Only through long-term positive self-care can diabetes patients reduce the burden on society, such as medical care and economy.

In the article *Diabetes: The Sweet Irony of Modern Technology* published by WHO, Chris Feudtner from the University of Pennsylvania's School of Medicine emphasized the need for governments to increase oversight, management, and support for food production and farming techniques by re-enacting a tax on sugary foods and subsidy policies.³ In addition, he suggested that governments should encourage technology companies to develop and sell technologies that encourage people to leave their sofas for low-intensity sports and provide more incentives for people with diabetes to improve their health.

The Chinese government has proposed the Health China 2030 Action Plan, which demonstrates the government's commitment to covering public health services, such as increasing spending on diabetes treatments, urging producers to reduce sugar and salt, and constructing a health information

service system capable of treating and caring for patients with chronic diseases, with the availability of health information shifting from secondary care to the community.¹¹ The plan also identifies the need to increase the number of family physicians available for long-term treatment and surveillance, particularly for diseases such as diabetes and hypertension.

Regarding the diet management of diabetic patients, the majority of Chinese professionals adhere to internationally recognized nutritional guidelines¹² or the Chinese diabetes nutritional guidelines.¹³ Furthermore, the Chinese Guidelines for Exercise Therapy in Diabetes Mellitus, in conjunction with traditional cultural practices, provide standardized guidance, such as the practice of Tai Chi, an exercise that can help combat diabetes.¹⁴

Clinical professional practitioners, patients, their families, and caregivers can obtain accurate information and support from these evidence-based guidelines, which may also increase diabetes patients' self-management awareness.

Lifestyle Impacts on the Disease

As a result of the issuance of national health policies and the promotion of pertinent guidelines, diabetic patients worldwide have increased their awareness of the importance of diabetes self-management. Breen et al. discovered that patients misunderstand many dietary and exercise guidelines.¹⁵

Although there are a variety of Chinese diets depending on the eating habits and food supply in different regions, the nutrient composition is not well-balanced,¹⁶ which can lead to overnutrition due to an excessively high intake of fat, salt, and sugar.¹⁷ These dietary ingredients are frequently the most critical risk factors in the dietary management of diabetic patients and are also the primary causes of obesity.¹⁸

The potential causal relationship between abdominal obesity and hyperglycemia in the Chinese population was supported by a randomized controlled trial based on Mendelian genetics. When they went to the community for medical treatment, some patients with diabetes also suffered from obesity, so the community doctors told them that obesity may be one of the causes of diabetes, and developed a self-management plan for them to control their weights. Patients' self-management has improved as a result, but professional knowledge and skills remain lacking.¹⁹

Although the majority of diabetics may have strict carbohydrate and protein control,²⁰ they may also be at high risk for malnutrition, frailty, and sarcopenia,²¹ resulting in unavoidable hospitalizations.²² Furthermore, moderate exercise can improve the blood sugar levels of patients with type 2 diabetes, reduce cardiovascular risk factors, promote weight loss, and enhance health status.²³ In contrast, a lack of physical activity, which is highly detrimental to the care of people with diabetes, can eventually lead to obesity.²⁴

However, vigorous exercise can increase the likelihood of hypoglycemia, syncope, and even diabetic ketoacidosis.²⁵ To promote safe self-care practices, nurses must provide diabetic patients with reasonable, standardized dietary and physical activity guidelines.²⁶

Self-care Barriers and Challenges

As diabetes is a lifelong disease, it is essential to educate patients on self-care to improve treatment outcomes. In addition, according to the National Service Framework (NSF) for diabetes in the UK, diabetic patients should spend approximately 3 hours per year on appointments with health professionals and the remaining 8757 hours on disease management.¹⁰

Therefore, as professional practitioners, nurses must equip patients with self-management knowledge and skills and instill the confidence to engage in self-care.²⁷

However, self-care for chronic diseases such as diabetes still faces obstacles²⁸ due to patients' lack of knowledge about type 2 diabetes and appropriate self-care strategies. In addition, finding online self-management resources is difficult for some seniors.²⁹ Sometimes, people with diabetes are more likely to care for themselves according to their preferences than adhere to standard practices.³⁰

Since Chinese health insurance does not cover diabetes testing supplies, the Chinese government cites the cost of care as a barrier.³¹ Additionally, family responsibilities are an essential aspect of Chinese culture that can influence self-care implementation among older Chinese individuals. For instance, they may have less time for self-care due to the need for cooking, helping raise a family, and taking care of grandchildren.³¹

Furthermore, cultural foods are essential for some patients who refuse to alter their eating habits. Additionally, it can be difficult for male patients to abstain from alcohol in China, where drinking during social activities is the norm.³¹

Strategies for Health Promotion

Nicol et al. noted that most patients know the need for disease self-care and desire involvement in disease-related decision-making, facilitating nurses' efforts to empower them in self-care.³² Additionally, nurses must correctly identify patients who are capable of self-care, as self-care is not appropriate for all patients.¹⁰

Furthermore, it is essential to emphasize that nurses can classify care for diabetic patients at various disease stages based on age, self-demand, social status, and educational level. Because different patients have their own concepts and ideas of self-care for the disease³³

Following the concept of person-centered care,¹⁰ nurses must be able to assist patients with health management and develop care plans that reflect patients' needs in order to promote their autonomy and empowerment.³²

Traditional Health Education

According to Nicol et al., nurses should employ individualized health education methods based on the health promotion goals of their patients.³² Consequently, nurses should be able to inform patients about their current disease states using strategies that improve patients' knowledge of their care;³¹ informed patients can be more confident in their ability to practice self-care, thereby increasing their self-efficacy.³⁴

For instance, according to The *Guideline for Medical Nutrition Treatment of Diabetes* of the Chinese Diabetes Society recommendations, nurses should inform patients with type 2 diabetes that controlling their daily caloric intake is essential for self-care. However, the exact number depends on their occupation and daily activities.¹³ The guideline advise patients to choose carbohydrates with a low glycemic index, such as whole grains and various beans,^{12,13} and to consume between 300 and 500 g of vegetables per day.¹³

Diabetes UK recommends that diabetic patients consume two servings per week of oily fish, such as salmon and mackerel because they are rich in omega-3 oil, which has cardiovascular-protective properties.¹² This organization's recommendations indicate patients may choose snacks such as fruit, yogurt, or oil-free nuts between meals.¹²

The *Guideline for Medical Nutrition Treatment of Diabetes* of the Chinese Diabetes Society indicate that the daily intake of salty foods should not exceed 6 g because exceeding this amount may increase the risk of cardiovascular disease and stroke.^{12,13} In addition, they indicate that alcohol consumption is not a healthy behavior for those taking hypoglycemic medications because it can potentially cause hypoglycemia.¹²

In addition, the *Guidelines for Exercise Therapy in Diabetes Mellitus* of the Chinese Diabetes Society recommend that exercise plans for patients with type 2 diabetes be based on their health status and exercise habits.¹⁴ Some of the most effective aerobic exercises for older adults are walking, jogging, and Tai Chi. These guidelines indicate that resistance exercises can also be beneficial for young patients.¹⁴

Because numerous exercise programs already exist for diabetic comorbidities like hypertension, kidney disease, and neuropathy, Chinese healthcare professionals are advised to consult the *Guidelines for Exercise Therapy in Diabetes Mellitus* in order to provide standardized and individualized exercise programs to their patients correctly.¹³

The Chinese Diabetes Society also recommends that patients choose appropriate footwear¹⁴ to reduce the risk of foot injuries and prevent the development of diabetic foot ulcers.³⁵ In cases of hypoglycemia, society suggests that nurses should remind patients to use oil-free nuts or fruits as sugar substitutes.¹⁴

Based on patients' varying disease states and lifestyles, nurses should analyze critically and develop individualized health guidance programs.¹⁰ Chinese nurses can also invite nutritional or sports experts to develop a healthcare plan based on the patient's disease state in their capacity as healthcare coordinators.³⁶ In China, nurses can refer patients directly to nutritionists and exercise therapists, whereas in Europe and the United States, nutritionists and exercise therapists are merely adjuncts to medical care.³⁷

Health-promotion Approaches

Nursing professionals should not be restricted to traditional health education models to empower and promote the ability of diabetic patients to engage in self-care. According to Nicol et al., various health promotion methods are crucial

for treating and managing chronic diseases.³² Due to the application and promotion of the evidence-based nursing model, the author found that health education in this model should be explored and innovated in clinical practice to obtain a more suitable self-care model based on person-centred.

The purpose of changing daily habits is to encourage individuals to utilize healthy lifestyles to enhance their health. During their daily contact with patients, nurses can employ the strategy of “making every contact count,” which provides an opportunity to promote patient lifestyle changes through well-coordinated communications.³⁸

Nurses help patients transition from passive care to active care through interactive health education with patients.¹⁸ Nurses can also use motivational interviewing (MI) and open-ended questions to educate patients on behavioral changes during their interactions.³²

For instance, nurses could ask type 2 diabetes patients, “How does overeating sugar make you feel?” or “How does not taking a walk after meals affect how you feel?” Afterward, nurses can provide reflective feedback based on patients’ responses and help them understand the importance and benefits of behavioral change.³⁹

In addition, nurses can assist patients in developing individualized goals.¹⁰ For example, nurses can recommend patients to eat a diet that is beneficial for reducing fat, such as high-quality protein. In addition, nurses can also help patients develop daily exercise plans that can be completed based on their personal working hours and intensity, and regularly remind and supervise them on social media platforms. Although these strategies focus on establishing effective communication between nurses and patients, they can be the best predictors of behavioral-change outcomes.¹⁰

Supports for Health Promotion

Lack of support from patients’ employers and family members can undermine self-care effectiveness, despite numerous efforts by nurses and patients.⁴⁰ WHO emphasizes the importance of family members and caregivers for patients with type 2 diabetes in managing the disease, obtaining education about it, and preventing negative consequences of the disease.⁴

In addition, community nurses can advise patients at home to create a lifestyle-management manual in a notebook to record their daily cigarette and food consumption to improve self-care efficacy.⁴¹ They can use this manual to evaluate patients’ lifestyle changes during monthly home visits.⁴²

In addition to helping patients reduce sedentary behaviors and maintain a healthy diet, text reminders may also assist nurses in monitoring and promoting patients’ self-management and care capabilities.

Healthcare professionals can create a safe and efficient care culture and organization by establishing diabetes health-management forums to answer patients’ online questions via social media platforms such as Weibo, WeChat, and Facebook.¹⁰ They can also use these platforms to publish daily or weekly articles based on dietary guidelines and exercise recommendations related to type 2 diabetes.⁴³

Assessment of Effectiveness

Jobling discovered that education and support for diabetes self-management could positively affect the clinical, psychosocial, and behavioral aspects of diabetes, but only under proper expert guidance and follow-ups.⁴⁴ Nursing practitioners should provide regular telephone follow-ups, reviews, and appointment reminders to improve patients’ self-care.¹⁰

In addition, nursing professionals should evaluate whether the content of a healthcare plan meets an individual’s long-term needs.¹⁰ In China, nurses in general hospitals are typically responsible for contacting community nurses to evaluate patients’ self-care skills, knowledge, and behaviors during in-home visits.²⁷

Multimorbidity Healthcare Management

Nursing professionals are responsible for assisting patients with type 2 diabetes and identifying early risk factors for multimorbidity, such as unhealthy lifestyles.⁸ A recent study discovered that cardiovascular disease is the first significant multimorbidity associated with metabolic diseases such as diabetes, hypertension, and coronary heart disease.⁴⁵ This multimorbidity is a significant challenge for existing healthcare delivery models and calls for comprehensive care.⁴⁶

Therefore, nurses should collaborate with multiple medical disciplines. Oni et al. emphasized the importance of the patient’s perspective in managing and caring for patients with multiple diseases.⁴⁷

The ultimate goal of discussions about different self-care methods for nurses is to improve patients’ quality of life and treatment outcomes.⁴⁸ These discussions may improve a patient’s self-efficacy at the start of a healthcare program⁴⁹ and represent an effective way to ensure the quality of care and empower patients and caregivers to participate in disease management and care.⁴⁸

In addition, nurses should emphasize mental health and non-drug treatments, such as diet, exercise, and psychotherapy, when discussing a patient’s disease and treatments.⁴⁸ Nurses should also develop personalized management and care plans with the patient and obtain consent from other healthcare professionals, such as heart and brain specialists, community doctors, and nurses.⁵⁰

Community health caregivers should participate in the health management and care programs for patients with multimorbidity after discharge from general hospitals.⁵¹ In particular, community nurses should regularly review a patient’s disease status and psychological state during family visits to help improve the patient’s quality of life.

Society’s Contributions

For the health management and care of diabetes, active participants must include professional healthcare providers, patients, their families or caregivers, and the entire society, which must control and manage chronic diseases.⁵¹ For example, the Blu-ray Action for Diabetes Prevention, co-sponsored by the Chinese Diabetes Society and the China

International Medical Foundation, has organized significant public-welfare activities, including diabetes screenings, health education, science lectures, media campaigns, posters about diabetes that provide bits of health knowledge, educational manuals, and weighing scales in more than 100 cities across China since 2010.⁵² This initiative is similar to the Expert Patient Program in the UK. Moreover, Chinese community administrators distribute salt-control spoons to every household annually, advising no more than 6 g per person daily, especially for people with diabetes.¹⁷

These health education programs help individuals understand their disease status, their need to participate in decisions about self-care, their ability to feel confident and improve their lifestyles, and how they can use these skills and knowledge to live an active life.¹⁰

Moreover, under the management of multiple non-profit organizations whose mission is to optimize people's transportation methods, the establishment of shared bicycle services has increased the physical activity of diabetic patients, which has shown promising results in increasing their metabolic rates and assisting them in maintaining a stable weight when used regularly.⁵³

Similarly, China's municipal construction department has constructed activity venues and rubber runways for residents to run and exercise in nearly all cities, demonstrating the significance and contribution of societal administration in providing infrastructure and long-term support for health promotion.

DISCUSSION

The current research team examined the significant impacts of type 2 diabetes on individuals, society, and the globe, identifying current guidelines and national policies relating to nutrition and physical activity in type 2 diabetes, particularly in China. These guidelines are health promotion methods based on the national conditions of type 2 diabetes patients.

An analysis of the benefits of self-management of type 2 diabetes through diet and exercise can help patients explore their quality of life. However, further data and experiments are required to prove the significance of self-care. Moreover, since these analyses are occurring, medical practitioners should incorporate potential complications of type 2 diabetes into their advice about health self-management.

In addition, the team reviewed how nurses can help and support patients with type 2 diabetes to change their lifestyles through diet and exercise and promote self-care following the concept of person-centered care. The team also briefly discussed the healthcare perspectives of multimorbidity and the contribution of health social-care organizations to managing type 2 diabetes.

CONCLUSIONS

Managing diabetes necessitates long-term treatments, guidance, and follow-up, with the support of the patients' families, caregivers, and the entire community.

AUTHORS' DISCLOSURE STATEMENT

The authors declare that they have no conflicts of interest related to the study.

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