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Perceived Behavior Control in Diabetic Patients: A Conceptual Analysis

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ABSTRACT
Diabetes mellitus is a chronic metabolic disease that requires long-term self-management and sustainable treatment efforts to prevent complications, reduce the risk of morbidity, and improve the patient's quality of life. One of the important psychosocial concepts in diabetes management is Perceived Behavior Control (PBC), which refers to an individual's perception of their ability to control health behaviors related to glycemic control, decision-making, and problem-solving. The analysis of this concept was carried out through a review of the latest literature on the determinants of PBC. The results of the analysis showed that PBC was influenced by internal and external factors such as knowledge, psychological conditions, family and health worker support, health insurance, culture and spirituality, communication, clinical conditions, and self-efficacy. PBC plays a major role in the success of patients managing their diet, engaging in physical activity, adhering to medication, monitoring glucose levels, and overcoming barriers in self-management. The consequences of good PBC include increased healthy behaviors, decreased complications, improved quality of life, and decreased health care costs. Thus, a deep understanding of PBC is essential to develop effective self-management interventions for diabetic patients.

INTRODUCTION

Diabetes mellitus is one of the non-communicable diseases with a very high and continuously increasing incidence rate each year. This increase in cases occurs globally, including in Indonesia. According to the 2023 Indonesian Health Survey, the prevalence of diabetes in the productive age group is 52.1%, and in the elderly group, it is 48.9% (KEMKES, 2024). Many people with diabetes remain unaware of their condition—one-third of them undiagnosed. This may stem from a lack of knowledge about diabetes or its often invisible symptoms. Uncontrolled diabetes leads to serious complications, damaging various organs and systems, including the kidneys, heart, nerves, blood vessels, and eyes (Deberneh & Kim, 2021).

Self-management is a critical component in managing diabetes mellitus. Key aspects include regular monitoring of blood glucose levels, medication adherence, lifestyle modifications, and routine health checkups. Research shows that these self-management behaviors are interrelated and exhibit interactive effects (Che et al., 2023). Diabetes management extends beyond medications to consistent lifestyle changes and optimizations. Recommended behaviors include maintaining a normal weight, avoiding smoking, following a healthy diet, and engaging in physical activity (Geng et al., 2020).

Various studies indicate that lifestyle changes can reduce mortality and the risk of diabetes complications, yet their success largely depends on individuals' ability to consistently apply self-management behaviors in daily life. Many struggle to sustain these changes long-term. Individuals who initially attempt lifestyle modifications often revert to old habits, particularly after facing obstacles such as increased discomfort, conflicts with personal priorities, or

unsatisfactory blood glucose control. Persistent poor outcomes can foster beliefs that diabetes is too difficult to control, that one is genetically predisposed with little room for change, or that it is beyond personal control (Lo et al., 2023).

Previous studies on the complex interplay between patients' perceptions of diabetes care quality, comprehensive self-care behaviors, and glycemic control reveal a positive association: higher perceived care quality correlates with improved glycemic control (Li et al., 2024).

Perceived Behavioral Control (PBC) is a key concept for understanding factors influencing self-management behaviors in diabetic patients. It reflects patients' beliefs in their ability to perform specific behaviors, as well as their perceptions of potential obstacles. This concept determines the extent to which patients feel capable of taking actions needed for optimal health outcomes (Sukarno et al., 2024).

Although Perceived Behavioral Control (PBC) is widely used in research on diabetic patients' behaviors, its conceptual understanding remains unclear. Studies often employ varying definitions or delimitations, leading to a fragmented and challenging comprehension of PBC. This inconsistency hinders nurses and researchers in using PBC as a foundation for interventions aimed at enhancing patients' health behavior control.

Given this background, a concept analysis of Perceived Behavioral Control (PBC) in diabetic patients is warranted. This analysis will elucidate PBC's attributes, dimensions, influencing factors, and impacts in a structured, comprehensive manner. The findings aim to provide a robust theoretical foundation for more consistent future research and to enable nursing practices to effectively apply the concept, helping patients achieve optimal glycemic control. Ultimately, this concept analysis seeks to clarify the theoretical definition of Perceived Behavioral Control (PBC) in diabetic patients while comprehensively addressing its attributes, dimensions, influencing factors, and impacts in this context.

METHODS

Control compliance can be an important aspect for success in controlling blood sugar levels (Kurniati, 2023). Once the research objectives are determined, search for literature-related concepts in databases such as ScienceDirect, PubMed, and the Health literature. The keywords used were behavioral control, diabetic patients, and concept analysis. Behavioral and social control, searched in the literature. All articles were independently reviewed by the team, and the selected articles were related to behavioral control for diabetic patients. The search focused on the term diabetes, as well as behavioral and social controls used in 2015-2025. A synthesis of the literature is carried out to identify the characteristics.

The use of characteristics can be seen in the case of models, transitions, related and conflicts. An explanation of the characteristics and consequences related to the concept of behavioral control is proposed. Empirical references are further considered, theoretical and operational definitions are stated. An explanation of the concept can provide a fundamental foundation for clarifying the theoretical definition of behavior control in DM.

Diabetes mellitus (DM) is a metabolic disease characterized by hyperglycemia due to defects in insulin secretion, insulin action, or both. DM is a complex chronic disease and requires ongoing medical treatment with multifactorial risk reduction strategies beyond glycemic control to maintain well-being and quality of life over time, control risk, manage disease symptoms, and reduce the incidence of complications (Conti, 2017). People with DM are at risk of physical and psychological complications. Short-term complications include hypoglycemia, while long-term complications include cardiovascular disease, neuropathy, nephropathy, and retinopathy.

The latest and most up-to-date estimates of the burden of DM worldwide are provided by the International Diabetes Federation (IDF) in their Diabetes Atlas. In 2013, it was estimated that 382 million people worldwide suffered from DM, with 90% or more having Type 2 disease.

About 80% of these people live in low- and middle-income countries (LMICs), and if the trend of the last 10-15 years continues with 10 million new cases occurring each year, it is estimated that 592 million people will suffer from DM by 2035 (Harries et al., 2016).

Behavioral control for people with DM will be effective if they can maintain blood sugar levels, eat a healthy diet, be physically active, take medication regularly, maintain healthy behaviors, and reduce risk factors. Those who suffer from DM and practice self-care have shown positive results by reducing DM complications, slowing down.
development, and leads to a significant decrease in burden due to DM (Ahmad & Joshi, 2023).

Behavioral control is a habit developed by individuals who are at risk or suffer from diabetes so that the disease can be managed on its own without much help or intervention. Diabetes-related self-care requires patients to undergo lifestyle changes, diet, and diet with the help of a doctor, leading to successful behavioral and attitude changes with confidence in dealing with diabetes (Ahmad & Joshi, 2023).

DM behavior control efforts must recognize that internal factors are more important than external factors. Self-awareness that internal factors primarily determine everything that happens. Individuals with behavioral control attribute their progress and decline in health to fate or luck will tend to feel that their efforts are not paying off. In contrast, internal factors are more willing to follow advice and input to treat their illness because they believe that the progression of their disease depends on self-management. behavioral control can be a support to help treat DM patients and provide an understanding of the psychosocial factors involved and the management of difficulties and barriers of this chronic disease and also provide positive support for DM patients to control their DM (T. W. Id et al., 2023).

So behavioral control in DM is the patient's ability to monitor conditions, follow treatment, make health decisions and actively collaborate with health workers through activity control. This literature is the basis for concept analysis. With reference to these ideas, the authors conduct a further literature review to identify and support the ideas, so as to arrive at the causal factors, consequences, substitute terms, as well as the concepts and contexts of the related application of the collection of additional data and cited references. Regardless of the type of diabetes, there are several things that need to be considered in DM behavioral control, namely medical management, symptom management, psychological problem solving, and necessary lifestyle modifications.

First, the most important goal of self-management for diabetic patients is to control blood glucose and glycated hemoglobin (HbA1c), reduce the occurrence of complications, prevent vascular diseases, and have a good quality of life. When diabetic patients require insulin intervention for better blood glucose control, their willingness to self-manage can affect diabetic changes (Lin et al., 2022). In chronic diseases such as diabetes mellitus, repeated blood and instrumental examinations, overlapping diagnostic and therapeutic decisions among different care providers, and finally improper hospitalization are common.

The future of a newer class of glucose-lowering drugs, namely dipeptidyl peptidase-4 inhibitors (DPP-4), glucagon-like peptide-1 receptor agonists (GLP-1RA), and sodium/glucose-2 cotransporter inhibitors (SGLT-2), are being redefined by large-scale prospective cardiovascular output trials (CVOT). These trials have more than confirmed cardiovascular safety (CV): in fact, various cardio-renal parameters have improved over several trials with GLP-1RA and SGLT-2 inhibitors in type 2 diabetes. CVOT has raised expectations that newer glucose-lowering agents will offer benefits that go beyond glycemic control and weight management to address the complications and comorbidities of type 2 diabetes, especially cardiovascular disease. Although large-scale prospective trials require high costs that may prompt a reconsideration of their design, these trials produce evidence that allows for more appropriate and effective management of diabetes of the cardiovascular diseases that accompany them (Day, 2019).

Second, Treatment of diabetes symptoms is an effort to overcome the symptoms that arise due to diabetes. Nutritional therapy provides the basis for the treatment of diabetes and has historically been based on restricting carbohydrate intake. Rigid CHO restrictions carry the risk of replacing CHO energy with that of fat due to the increasing availability of processed foods and the tendency of excess nutrition (Farabi & Hernandez, 2019). The goal of diabetes treatment is to control blood sugar levels to prevent complications that can lead to death. Diabetes treatment is carried out with two approaches, namely: (1) pharmacological therapy (drugs) and (2) non-pharmacological therapy (non-drug).

Prevention of DMT2 (Type 2 Diabetes Mellitus) can be done by adopting a healthy lifestyle, namely with regular diet and exercise. Diets that reduce individual calorie assumptions and monitor cardiometabolic indicators such as blood pressure, fat, and inflammation can help control blood sugar levels, maintain blood pressure, blood fat levels, and normal body weight, and improve sleep quality and overall health (Marín-Peñalver et al., 2016). DMT1 is diabetes caused by damage to cells β pancreas, so insulin production is disrupted and requires insulin from outside the body for life. For DMT2, oral medications such as metformin and sulfonylurea have been used for a long time. Metformin is the top choice because it is effective, safe, and inexpensive. Metformin works by reducing hepatic glucose secretion and increasing glucose absorption (Asimina & Nebojsa, 2020).

Exercise: improves insulin sensitivity, controls blood sugar, improves fat and blood pressure profiles, loses weight, and reduces the risk of heart disease and depression. Diet: lowers calories, monitors blood pressure, fat, and inflammation, thus helping to control blood sugar, blood pressure, blood fat, and weight. Diets that are beneficial for people with prediabetes include a low-calorie and low-fat diet.

RESULTS AND DISCUSSION

Identify Antecedents and Consequences That Precede

The need for information about DM is very important because it impacts the type of information the patient needs. Good information will increase the patient's knowledge and understanding of the disease. Further, diabetes care involves daily self-management decision-making and performing complex self-care tasks, which require visual, motor, cognitive, and executive skills as well as problem-solving and coping strategies. Therefore, ongoing diabetes education, support for self-management, and regular monitoring are essential to reduce the personal and social impact of diabetes (P. C. Id et al., 2023).

Behavioral control of chronic diseases is quite complex, especially for patients with limited health literacy. Patients with limited health literacy experience difficulties in certain domains of self-management. The findings suggest that HL-driven interventions have a positive impact on glycemic control and improve self-management behaviors. Glycemic control levels and self-management skills are improved through individual interventions (Butayeva et al., 2023).

Support from family and health professionals is essential as it can help DM patients develop problem-solving skills and increase their confidence in managing the disease. Ongoing interaction and feedback from healthcare providers and families also makes patients feel more comfortable and confident.

It should be noted that behavioral control in patients with diabetes mellitus is influenced by a number of multidimensional determinants, including internal factors such as disease perception, intrinsic motivation, self-efficacy, and health knowledge; external factors that include social and family support, health care systems, and physical and social environment; as well as individual characteristic factors, including age, education level, socioeconomic status, and disease experience, that simultaneously shape the patient's self-management behavior pattern.

Illness perception

Patients with diabetes mellitus need to have the right perception of the disease in order to be able to understand their chronic condition and be encouraged to control health behaviors.

Intrinsic motivation

Patients with diabetes mellitus need strong intrinsic motivation to maintain consistency in carrying out self-care and lifestyle changes. Several studies suggest that the support of parents, partners and peers is very influential in managing diabetes independently, family and friends, especially those around them, can be supportive in managing diabetes.

Self-efficacy

Patients with diabetes mellitus need to have good self-efficacy in order to be able to manage medication, diet, and physical activity independently (Mardon et al., 2023).

Health Knowledge

Patients with diabetes mellitus need adequate health knowledge to be able to make informed decisions in disease management and complication prevention. They must know how to apply behavioral control in daily life and understand the importance of managing their illness. Otherwise, their efforts to control diabetes will be in vain.

Family support

Patients with diabetes mellitus need family support to be motivated to carry out self-care, maintain lifestyle changes, and improve adherence to treatment.

Health service system and access

Patients with diabetes mellitus need adequate access to health services to obtain education, regular monitoring, and ongoing therapy management. The key facilitators identified by the implementation team focus on the clinical environment. Conducting educational sessions in the clinic seems to reduce distractions (Mcelfish et al., 2020). It involves direct interaction between nurses and patients to improve the health and well-being of patients.

Physical and social environment

Patients with diabetes mellitus are influenced by a supportive physical and social environment, such as the availability of healthy food and physical activity facilities, so that health behavior control can be carried out optimally.

Age

Patients with diabetes mellitus with a later age need to adjust behavior control because physiological changes and decreased physical capacity can affect self-care abilities.

Disease experience

Patients with diabetes mellitus with longer disease experiences tend to have better adaptability and behavioral control in diabetes management.

Psychological

Psychological stress can affect behavioral control and give rise to various factors such as anxiety, the onset of other diseases, and fear. Anxiety can make a person more vigilant and concerned about their illness.

Health Insurance

Health Insurance is a part of social security that guarantees the provision of necessary health services to citizens in exchange for periodic tax contributions Managed care and strategic purchasing options have been promoted as potential approaches to advance the equity, access, and quality of recipients' healthcare services (Lee et al., 2022). Any increase or strengthening of access to health services and insurance coverage can also improve the quality of life of citizens. Increased insurance coverage will further support the achievement of three objectives: the development of reliable sources of healthcare for every individual, the expansion of access to medical, dental, and eye health services, and the improvement of patient satisfaction in each area of healthcare.

Insurance is here to protect participants from financial risks due to high-cost disaster events with low probability. Health insurance does start from a sick fund, where workers make weekly contributions to a fund that will provide a temporary wage reduction.

Communication

Good communication in behavior control is the ability to express needs, feelings, and thoughts clearly and effectively, so as to better manage oneself and achieve desired goals. It also involves the ability to listen to oneself and understand internal needs. It was found that nurse-led interventions were associated with better glycemic control which can be explained by the fact that practice nurses are able to handle complex health issues and can efficiently provide information and support to patients and their families, which is important in empowering patients to adopt new behaviors (Butayeva et al., 2023).

Consequences

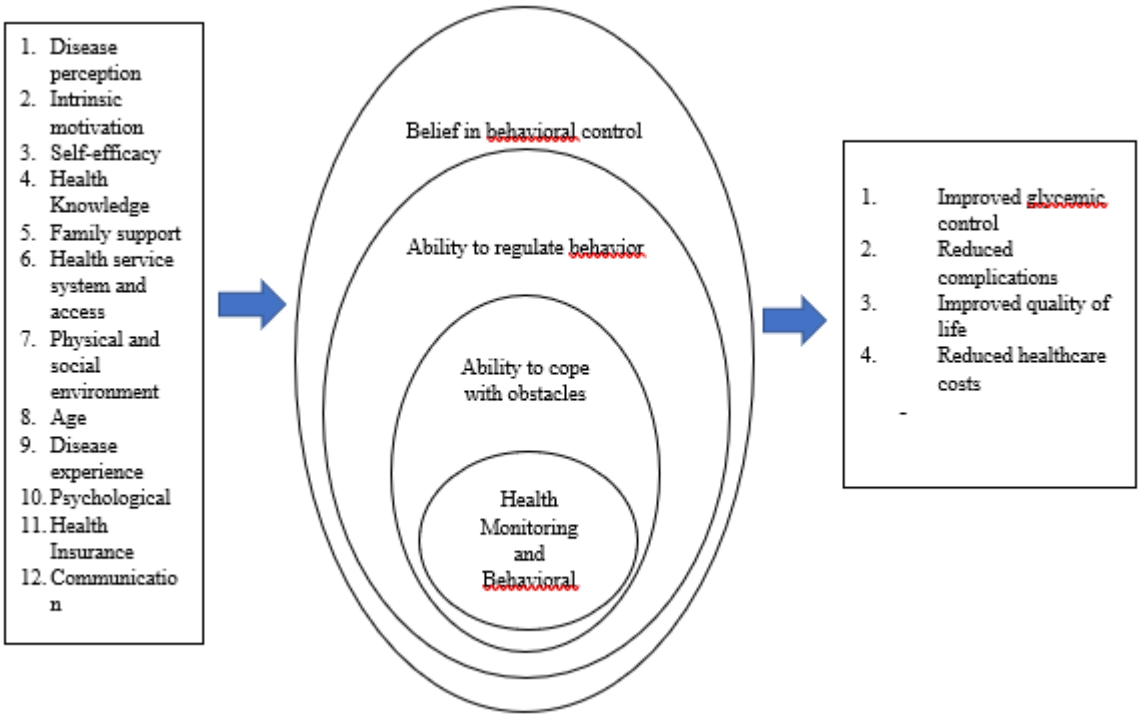
The impact of globalization today is leading to changes in people's behavior and lifestyles. Recently, these changes have led to people who tend to consume fast food and also lack physical activity. These changes have an impact on health, including an increased risk of degenerative diseases, one of which is Diabetes Mellitus.

The increasing number of DM sufferers is coupled with the increasing cost of treatment due to complications in DM patients. So the best action is to prevent complications. By preventing complications, it is hoped that it can minimize the possibility of complications. Self-management of DM is an effort to prevent complications. Self-management can be done by increasing the patient's knowledge of symptoms, physical, psychosocial consequences and lifestyle changes in people with diabetes mellitus (Lisa Hersanti, n.d.).

Other studies in the literature show that the success of behavior control programs is measured through behavior changes. These behavioral changes are manifested by visits and consultations to healthcare providers, self-monitoring of blood sugar, appropriate self-care activities, and cooperation with health services. Through behavioral changes, hospitalizations, service utilization, and visits to emergency departments will decrease, resulting in a decrease in health care costs.

Therefore, good behavioral control is needed, in this case the study also states that good control is needed. Healthy behaviors that require self-management in DM patients are following a healthy diet, increasing physical activity, using medications in special circumstances safely, and routinely monitoring blood sugar levels and performing regular foot care.

Concept Analysis



Pict 1. Concept Analysis

Operational Definition of Preceived Behavior Control (PBC) in Diabetic Patients

Perceived behavior control (PBC) in diabetic patients is the perceptual ability that patients have to control actions, health behaviors, and decisions related to the management of diabetes. PBC is formed from a patient's belief in his or her ability to influence his or her health condition through behaviors, including diet management, physical activity, medication adherence, blood glucose monitoring, problem-solving, and seeking health services. In the context of diabetes mellitus (DM), this ability is very important considering that DM is a complex chronic disease and requires long-term self-management to prevent acute and chronic complications.

PBC in diabetic patients develops through a process of learning and experience, which is then manifested in internal and external actions. Internally, PBC arises from the patient's perception and self-confidence regarding personal control over health behavior. Externally, PBC can be seen from real activities such as eating regulation, regular physical activity, independent glycemic monitoring, and decisions when facing symptoms of hyperglycemia and hypoglycemia.

Behavioral control efforts in the context of diabetes involve various daily health activities, including limiting the intake of simple carbohydrates, choosing low-fat foods, regulating meal portions, and maintaining regular meal times. Eating small portions every 4–5 hours, not skipping breakfast, and paying attention to food composition are important part of behaviors that support glycemic management. Physical activity such as walking, cycling, or swimming for 30 minutes at least four times a week, or ideally daily, is highly recommended. The best time to exercise is 1–2 hours after meals when blood sugar levels are at their highest.

In addition to physical factors, PBC also includes the ability to manage emotions and psychologically. Diabetic patients often face stress, anxiety, and even fear of complications of the disease. The ability to control emotional responses through coping strategies, education, and family support helps patients maintain a consistent healthy behavior. Patients who are able to recognize the signs of hyperglycemia or hypoglycemia and use that information to determine the appropriate course of action show that PBC is working effectively.

Health-seeking is also an integral part of PBC. Patients with good PBC actively seek information from healthcare professionals, take diabetes education classes, understand treatment plans, and engage in treatment discussions. Monitoring efforts such as routine blood glucose checks, HbA1c checks, and health behavior evaluations are manifestations of self-control in diabetes management.

Overall, PBC in diabetic patients is an integration of the patient's ability to control behavior, make informed decisions, solve problems independently, conduct health monitoring, and seek information and support to optimize diabetes management. PBC plays an important role in lowering the risk of complications, improving long-term health, and supporting the quality of life of diabetic patients.

Case Studies

Model cases

Mrs. A, 52 years old, came to the health center for a routine diabetes checkup. Mrs. A said that since she was diagnosed with type 2 DM one year ago, Mrs. A felt more able to control her health-related activities. Every day, Mrs. A keeps a record of her diet, checks her blood sugar before and after meals, and does 30 minutes of brisk walking exercises.

Mrs. A understands that managing diabetes is her responsibility. Mrs. A actively seeks information through nurse education modules, attends diabetes management classes, and asks questions when she is unsure about her medication or diet. When her blood sugar suddenly increased due to the consumption of high-carbohydrate foods during family events, Mrs. A decided to increase her physical activity in the afternoon and improve the menu the next day.

The nurse assessed that Mrs. A showed excellent perceived behavioral control, characterized by her ability to control behavior, make appropriate decisions, solve problems, and manage glycemic control independently. Her last HbA1c result decreased to 6.5%, indicating the effectiveness of her controlling behavior. This case fulfills all the attributes of the concept.

Contrary Case (Kasus Bertentangan)

Mrs. L, 49 years old, only found out she had diabetes after experiencing dizziness and was very weak. Doctors provide complete education about the dangers of high blood sugar, complications, and the importance of treatment and lifestyle changes. However, Mrs. L rejected all suggestions.

Ms. L said that diabetes is an "incurable inherited disease," so Ms. L believes nothing can be done to control it. Mrs. L did not want to take medicine because she was afraid of side effects and preferred herbal herbs recommended by her neighbors. Mrs. L also does not want to change her diet because she feels that sweet food makes her more excited about daily activities.

Mrs. L ignored all control schedules and refused to check blood sugar. Even when her blood sugar was very high, Mrs. L still didn't believe that she could control her condition.

The case is the opposite case, because there is no single attribute of PBC: no perception of ability, no behavioral effort, no decision-making, and no self-control.

Related case (Kasus Terkait)

Mr. B, 60, was diagnosed with type 2 diabetes and was advised to eat and take medication regularly. While at home, Mr. B followed all the doctor's instructions for fear of being scolded by his son, not because he felt he was able to control his own behavior. Mr. B takes medication on time, eats according to schedule, and comes to control every week if delivered.

However, if his child is at work and cannot deliver, Mr. B does not come to control. Mr. B also does not know how to check blood sugar or determine the portion of food. When asked by the nurse if he felt he was able to manage his lifestyle, Mr. B replied, "I just follow the doctor's and the child's words. I don't know if I can do it on my own."

This case shows compliance, not PBC, because behavior is done based on social pressure, not individual perceptions of control. So this case is a related case, because the concept is close to but does not fully reflect PBC.

Bordeline case

Mrs. R, 52 years old, was newly diagnosed with type 2 diabetes mellitus after complaining of frequent thirst, frequent night baths, and weight loss. The results of the examination showed an HbA1c of 8.1%. The nurse explained the importance of taking medication regularly, controlling diet, checking blood sugar, and physical activity. Mrs. R received education well and seemed to be trying to understand her condition. For one month at home, Mrs. R tried to follow only part of the health recommendations. Mrs. R takes medication quite regularly, but not every day. Mrs. R began to limit rice consumption, but still often ate wet cakes while drinking tea because it had become a family habit in the afternoon. Mrs. R has not done physical activity as recommended, but occasionally walks around the house if she feels her body is "good."

Mrs. R has enough perception of control, Mrs. R feels that she can manage her meals if she is at home. However, they still find it difficult to control themselves if they are at family events because the food served is unhealthy. Mrs. R does not have the habit of checking blood sugar independently because she is afraid of injecting herself. Her blood glucose control began to improve slightly, but not optimally. This case shows that the PBC attribute appears partially, but does not yet include consistent behavioral control and has not yet fully self-regulated.

Invented case

Mrs. M, 35 years old, is a young mother who is busy working from home. Mrs. M was diagnosed with type 2 diabetes after a routine health check-up. After education from the nurse, Mrs. M made a daily plan to manage her diabetes. Mrs. M sets medication reminder alarms, keeps a food journal, and marks days to exercise. Mrs. M also prepares healthy food alternatives such as oatmeal and fruit, because she knows that her job often makes her "forget to eat" or snack carelessly. Ms. M feels able to control most of her behavior, but she also realizes obstacles: her work schedule sometimes makes it difficult to move.

To overcome these obstacles, Mrs. M began to implement 10-minute exercises every 2 hours indoors. Mrs. M bought a glucometer and regularly recorded the results. When her blood sugar is higher than usual, Mrs. M does an evaluation: is eating too many carbohydrates? Is there less exercise.

The case is an invented case that illustrates the full attributes of PBC: control perception, problem-solving, self-regulation, monitoring, and the ability to overcome obstacles.

Ilegitimate case

A small clinic created an educational program for diabetic patients. In the evaluation report, the nurse wrote that "Patients' perceived behavioral control increased because they already knew the list of do's and don'ts of foods." But in reality, patients were only given brochures with no training, no discussions, no evaluation of perceived abilities, and no effort to understand the patient's barriers.

One of the patients, Mr. T, only received a brochure and was still confused about what to do. Mr. T did not know how to evaluate his portions, did not feel able to change his eating habits, and was never taught how to use a glucometer. Even so, the clinic still writes that the patient's PBC is high. The case is an illegitimate case, because the term PBC is used not according to its original meaning. PBC assessments were not performed, there were no measurements of ability perception, and there were no behaviors that indicated self-control.

Empirical References

Measuring the concept *of perceived behavioral control* in diabetic patients involves the use of various empirical references. Perceptions of behavioral control can be assessed through patients' self-reports of the extent to which they feel they are able to regulate and control

behaviors related to diabetes management. This perception can be seen from an individual's belief in their ability to maintain consistent glycemic control through dietary regulation, physical activity, glucose monitoring, and long-term medication adherence, until these behaviors become part of their life habits. The level of perception of control can be measured through psychometric instruments that assess confidence in one's own abilities as well as perceptions of inhibiting and supporting factors.

Patients' involvement in managing diabetes can be observed through the real behaviors they engage in on a daily basis. This information includes individual preferences, personal goals, as well as physical indicators such as blood glucose levels and HbA1c. A patient's problem-solving and decision-making abilities can be measured by assessing how they respond when faced with signs of hypoglycemia or hyperglycemia, including the steps taken to manage them. In addition, patients' propensity to seek out Health information can be evaluated through their knowledge of diabetes and their involvement in seeking out relevant sources of information.

Evaluation of *perceived behavioral control* in diabetes management can be assessed through laboratory results, physical examinations, long-term behavioral changes, and the use of instruments to assess self-efficacy and quality of life. These results provide an idea of the extent to which perception of behavioral control contributes to the self-management success of patients with diabetes.

CONCLUSION

Perceived Behavioral Control (PBC) plays a vital role in diabetic patients' self-management by reflecting their perceived ability to regulate key health behaviors, encompassing control, self-regulation, problem-solving, and decision-making; influencing factors include knowledge, health literacy, psychological state, family and healthcare support, insurance, culture, spirituality, and self-efficacy, all of which enable consistent practices like diet maintenance, physical activity, medication adherence, and glycemic monitoring. Strong PBC yields benefits such as stabilized blood glucose, reduced acute/chronic complications, enhanced physical/psychological health, and improved quality of life, whereas weak PBC heightens self-management failure and complication risks—thus, nursing interventions should prioritize bolstering PBC via information support, skills training, health literacy enhancement, psychosocial strategies, and therapeutic communication to foster long-term diabetes success. For future research, longitudinal studies could investigate culturally tailored PBC-enhancing interventions in diverse Indonesian diabetic populations, measuring sustained glycemic outcomes and self-efficacy gains using validated scales like the Diabetes Management Self-Efficacy Scale.

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