

# Diet Adherence among Adults with Type 2 Diabetes Mellitus: A Concept Analysis

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## Introduction

Diabetes mellitus affects 98,000 individuals in Oman, and each year increases by  $\approx 7,000$  newly diagnosed cases (1). Adults with diabetes must adhere to dietary restrictions, physical exercises, taking medications, and self-monitoring of glucose levels. However, abiding by healthy diet protocols requires behaviour changes that are not always clear-cut and are more difficult to follow and maintain than other types of behaviour change (2). Diet is particularly challenging because it involves multiple small behaviours in the course of everyday life, as opposed to medication adherence, which requires a defined action taken once per day. Diet adherence, therefore, may be more strongly influenced by daily contexts and emotional reactions and may be highly variable within individuals over time (3). When providing treatment, counselling, advice, or support, health care providers often consider adherence as one of a patient's outcome goals.

Diabesity (diabetes associated with obesity) is a global public concern affecting Arab countries and developed countries because of dramatic changes in nutritional and eating patterns (4). Adherence to diabetes dietary guidelines and recommendations was found to improve glycemic control and long-term health outcomes (5, 6). Nevertheless, patients' strict adherence to dietary recommendations averages only 25% (7, 8). Diet adherence is an essential challenge among adults with T2DM for three main reasons. First, there are some differences in dietary recommendations based on the client's weight, glucose level, type and stage of the disease. Second, there are several authorities, agencies, and associations that vary in dietary recommendations for people with T2DM. Third, nutritional science is evolving, and therefore, what is recommended today may be outdated shortly.

Additionally, knowledge about the diet adherence concept is limited because most of the literature is focused on medication adherence rather than other treatment modalities. Therefore, this paper aims to define the concept of dietary adherence as a preliminary step to help health

care providers develop strategies to optimize dietary habits in adults with T2DM. This literature review will provide a baseline for health care providers to understand the operational definition of the concept as they attempt to provide holistic care to individuals, families, and communities. Finally, the analysis will help researchers to develop tools, interventions, and scientific methods to manage patients' poor adherence.

## **Background**

In nursing and healthcare settings, the terms adherence, compliance, concordance, and sustenance are often used interchangeably (9). The meaning of the word adherence can be traced to Hippocrates (400 B.C.), who was the first to note that some patients did not take their prescribed therapies. Many patients later complained because the management did not help (10). In the modern era and specifically at the beginning of the 1970s, groundwork on patient compliance resulted in a remarkable book entitled "Compliance with Therapeutic Regimens," authored by Sackett & Haynes (11). Since then, the term 'Patient compliance' was presented in 1975 as an official Medical Subject Heading (MeSH) in the U.S. National Library of Medicine (12).

Before 1996, the terms, 'compliance' and 'concordance' appeared in the literature more often than adherence (9). The use of the term compliance or concordance versus the term adherence was debated for years. Adherence is intended to be nonjudgmental, in that it is a statement of fact rather than of blame of the provider, patient, or treatment (13). Over time, the terms "compliance" and "concordance" have been increasingly replaced by "adherence" (9). Burke and Dunbar-Jacob described the term adherence as emphasizing the mutual responsibility between patient and health care provider to help the patient implement and follow their treatment plan (14).

In medical terminology, the term adherence is used in combination with other terms like treatment adherence, medication adherence, exercise adherence, and diet adherence. Diet adherence is the keystone of T2DM management and recommended as first-line therapy. Dietary recommendations are individualized and usually given within the context of medical advice. A healthy diet includes at least 400g (i.e. 3-5 servings) of fruit and vegetables per day, low intake of free sugars (<10% of total energy intake) and low energy intake from fats (<30% of total energy intake). It is advocated for all adult patients, not just those with T2DM (15-17). Despite the widely proven benefits of a healthy diet, adherence to dietary recommendations in patients with T2DM remains low, and patients demonstrate difficulties in following dietary recommendations (18). For example, the US-based National Health and Nutrition Examination Survey [NHANES] suggested that 65, 28 and 18% of people with diabetes adhered to protein, saturated fat, and fibre intake, respectively (19). In New Zealand, only 22% of patients with T2DM reported complete adherence to dietary recommendations (20). In Jordan, a developing country, it has been found that about 81.4% of patients with diabetes did not adhere to their

dietary recommendations (21). Adults' values, preferences, and treatment goals in diet allow them to achieve adherence over the management of T2DM (22).

Empirical and clinical results thus indicate the need to define the concept of diet adherence, investigate the problem systematically, and develop new strategies and interventions to improve patients' adherence to dietary recommendations. Therefore, the purpose of the current study was to use concept analysis methods to clarify the meaning of diet adherence among adults with diabetes, including the attributes, antecedents, and consequences of diet adherence. This analysis can help clinicians understand gaps in diet adherence among patients with diabetes and suggest potential directions for future intervention research.

## **Methods**

The Walker and Avant method of concept analysis were utilized. Concept analysis comprises of identifying the concept, determining the purposes of the analysis, defining the concept and its uses, determining the critical attributes, constructing the cases, identifying the antecedents and consequences, identifying a model case, borderline, related, contrary, invented and illegitimate cases, and defining the empirical referents (23).

The scientific databases CINAHL, PubMed, PsycINFO, Health and Psychological Instruments, Psychology and Behavioral Sciences Collection, and SocINDEX were queried for the research articles. The search strategy included publications from 2010-2020 using the search terms: compliance, adherence, treatment adherence, diet adherence, type 2 diabetes mellitus, and concept analysis. Identified articles published in the English language were reviewed for inclusion. The abstracts of these articles were evaluated for the following inclusion criteria: definition of diet adherence, defining attributes, antecedents, consequences, and measurement. Articles meeting any of these requirements were reviewed.

Furthermore, the reference lists for valuable articles were reviewed for relevant studies and revealed notable studies not found directly through the database searches.

## **Results**

### *Definition*

The two words "diet" and "adherence" are not found together in the Oxford Online Dictionary. However, both are listed separately. According to the Oxford Online Dictionary, the verb 'adhere' originates from the Latin word: 'adhaerere,' from ad- 'to' + 'haerere' 'to stick.' The verb means to give support or allegiance to a person, party, agreement, or opinion. It also means to believe in and follow the practices of, and to stick fast to a substance. The noun *adherent* is defined as an attachment or commitment to a person, cause, or belief. It also means the quality or process of sticking fast to an object or surface (24).

For this concept analysis, the term ‘*adherence*’ is discussed as it relates to diet. In healthcare, the term ‘*adherence*’ is generally associated with one's ability to maintain the behaviours associated with a plan of care. These self-care behaviours often involve taking medications, keeping appointments, or changing health behaviours. Adherence is used interchangeably with other terms such as compliance, concordance, and maintenance in the healthcare literature. The opposite of adherence is referred to as noncompliance or nonadherence.

Diet also has different contextual definitions. According to the *Oxford Online Dictionary*, the diet originated from Middle English: from Old French ‘*diète*’ (noun), ‘*dieter*’ (verb), via Latin from Greek ‘*diaita*’ ‘a way of life’ (24). The noun diet is defined as the kinds of food that a person, animal, or community habitually eats, such as "a vegetarian diet." Alternatively, it means a certain kind of food either to lose weight or for medical reasons. This definition is more relevant to the term adherence. Diet is also used as a modifier (of food or drink) with reduced fat or sugar content such as ‘diet’ soft drinks (24).

The World Health Organization (2003) has defined adherence as "the extent to which a person's behaviour such as taking medication, following a diet, and executing lifestyle changes, corresponds with agreed recommendations from a health care provider (25)." In this definition, adherence to dietary recommendations was considered as an essential component of successful treatment. When the term diet is paired with adherence, it presents a concept of faithful commitment to healthy dietary recommendations that are mutually planned by the health care provider and the recipient to promote health and prevent disease-related complications.

In adults with T2DM, the dietary plan should be individualized according to the disease stage, biochemical parameters, and food availability. The American Diabetes Association (ADA) suggested that there is no “one-size-fits-all” eating pattern for individuals with diabetes (26). Instead, patients and providers should plan a diet that suits patients’ preferences and matches healthy dietary recommendations. Generally, the American Diabetes Association (ADA) recommended vegetarian, low-fat, and low-carb diets.

Low education, low income, and poor foot care behaviours (non-healing diabetes foot ulcers) led to worsening diet adherence (27). Specifically, foot care behaviour was related to painful diabetes ulcers, poor foot circulation, and an inability to mobilize freely for easy access and availability of foods. Increased consumption of high fats, carbs, food choices, and bigger size of portions (28), poor attitude towards food, and poor food control (29) led to poor diabetes control. Adults with T2DM perceived a dislike for foods included in meal plans, where social influences played a more critical role. Self-efficacy and self-care behaviours were positively associated with diet adherence and are predictive factors (5). Additionally, adherence to diet required family support with meal planning, diet recommendations, and financial support during changes in the illness, ageing, travelling, and climate changes. Adults with T2DM need an

individualized diet plan for dietary preferences, family customs, lifestyle, sociocultural, and psychological conditions.

### *Attributes*

Determining the defining attributes is crucial in concept analysis. They provide researchers with broad insight into the concept and help differentiate the phenomenon from another similar or related one (23). A review of numerous research studies revealed several common attributes associated with diet adherence. These attributes are organized below based on their importance and relevance to promoting dietary adherence.

The first attribute is following the recommendations. Following the recommendations involves cognitive and behavioural change. The cognitive process involves changing the negative thoughts into a positive internal dialogue. The behaviour change includes implementing new thoughts and learning new skills that help the client to practice new behaviour. Currently, there are no specific dietary recommendations for patients with T2DM. However, decreased calorie intake, increased physical activity to promote weight reduction, and monitoring of carbohydrate intake are all recommended (30).

The second attribute of diet adherence is self-monitoring. Wilde and Garvin (31 p343) defined self-monitoring as “awareness of symptoms or bodily sensations that are enhanced through periodic measurements, recordings and observations to provide information for improved self-management.” Self-monitoring of dietary intake in T2DM is an essential component of programs promoting dietary change. It generally takes one of two forms: recording of certain micronutrients such as grams of fats, calories, protein, or use of an exchange system, in which persons are given a recommended daily number and sizes of servings of various food groups (32). The process of self-monitoring of diet has three components: awareness of the importance of monitoring, interpretation of the current situation, and response to the outcomes (33). These components are closely related, interdependent, and non-hierarchical. A significant association was consistently found between self-monitoring and weight loss in a systematic review of studies concerning self-monitoring and diet, which in turn improves the overall health of patients with T2DM (34).

The third attribute is maintenance and relapse prevention. "Maintenance is a critical stage in the diet adherence process, and much less is known about interventions to sustain change over time until it becomes an integral part of a lifestyle (35 p176). The National Weight Control Registry (NWCR) is the most extensive database with the most detailed information on successful adult weight maintainers in the United States. Successful weight loss maintenance criteria include eating a low-fat, low-calorie diet, frequent monitoring of weight of at least once a week, staying connected to the source of support, and an hour of moderate-intensity physical activity per day (36).

After the successful implementation and maintenance of dietary recommendations, it is essential to monitor for relapse prevention. Individuals who have made dietary changes face many challenges and high-risk situations that can lead to lapses. Psychosocial events such as stress, divorce, job change, or financial worries may drive people to go back to their old unhealthy diet. Therefore, relapse prevention training and health education are vital. Health care providers should train individuals on how to predict high-risk situations and provide them with strategies to deal with such situations.

### *Antecedents*

Antecedents are described as factors that must precede the occurrence of the concept of interest (23). Multiple antecedents have been identified in the literature, but the most important are motivation, understanding dietary recommendation, self-efficacy, goal setting, and social support. These factors play a significant role in determining the extent of dietary adherence and predicting the success of the behaviour change. Researchers studying obstacles to healthy diet behaviors found that lack of information and motivation to eat a healthy diet is a main challenge to healthy diet adherence (4). The first antecedent identified in this concept analysis is motivation, which plays a crucial role in adherence to other types (37). Motivation strengthens personal abilities and improves commitment to a specific diet. It is useful during the initial phase of behaviour change as well as throughout treatment. Numerous studies have found that motivational enhancement significantly improves glycated hemoglobin (HbA1c) in adults with T2DM (38, 39).

The second antecedent understands dietary recommendations. The literature search shows that eating a consistent amount of healthy food every day and taking medications as prescribed can significantly improve blood sugar control and decrease the risk of T2DM related complications such as coronary artery disease, nephropathy, and neuropathy (40). Understanding is the mental grasping and the capacity to apprehend general relations of the received information. In a study that involved 98 adults examining how people understand the Dietary Guidelines for Americans (DGA), most of the participants showed a good understanding of DGA recommendations. At the same time, some misinterpreted the guidelines (41). In a randomised control trial conducted among 90 patients with T2D, those who received group discussion-based education where information and understanding were emphasized showed better adherence to diet ( $t = 5.22, p < 0.001$ ) (42).

Health beliefs and self-efficacy are other important antecedents that have been reported to affect dietary adherence. Self-efficacy is the belief that one can execute a specific behaviour required to produce a particular outcome (43). Individuals who demonstrated high self-efficacy for long-term maintenance were better in relapse prevention and problem-solving (44). A study conducted by Yun and Choi (2016) found that a dietary program based on self-efficacy was instrumental in improving adherence to the diet (45). In another similar study, researchers found

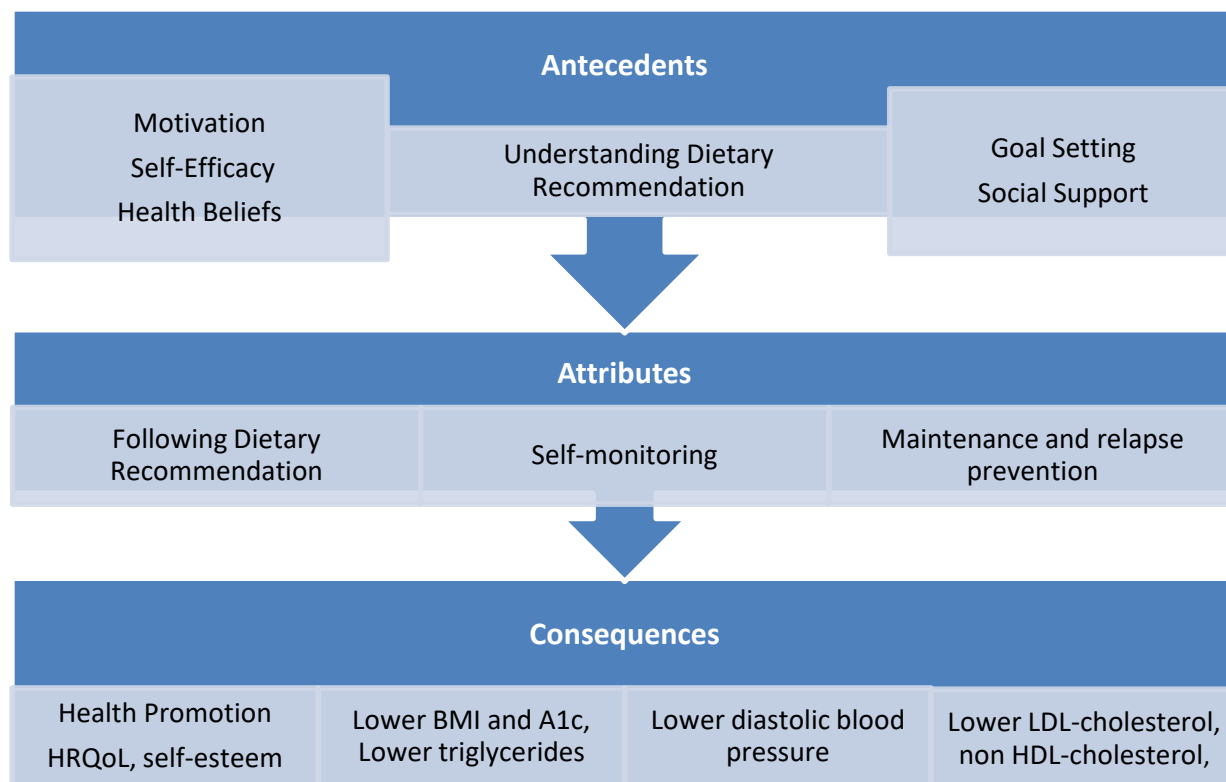
that self-efficacy improvement over time promoted better dietary adherence and supported more significant weight loss (46). Similarly, health beliefs were found to improve adherence to dietary recommendations (47).

Goal setting is the fifth identified factor that influences dietary adherence positively. Once the person gets motivated to start a dietary program, reasonable goals must be established. Setting SMART goals (Specific, Measurable, Attainable, Rewarding, and Timely) may help to achieve dietary changes that will improve long-term outcomes. Goals may be based on current recommendations for a specific condition, such as the American Diabetes Association guidelines.

Social support is another crucial factor contributing to successful dietary adherence. It involves an active inclusion of the individual's spouse or the individual in the household who is most responsible for cooking, shopping, and meal planning. Social support can benefit patients' health by moderating stress, changing affective states, increasing self-efficacy, and influencing change in negative health behaviours (48). Empirical studies have shown that social support is significantly improving the diet adherence of chronic disease patients (49). Additionally, an incidental benefit of any dietary change is that changing the diet of a family member may benefit the entire family.

### *Consequences*

Adherence to healthy dietary recommendations has shown to cure diseases, slow disease progression, and markedly reduce the risk of chronic diseases to a similar extent as pharmacologic therapy (50). In adults with T2DM, adherence to dietary recommendations promotes overall health. It improves disease-specific parameters such as lower BMI and HbA1c, a better level of triglycerides, LDL-cholesterol, non-HDL-cholesterol, and lower diastolic blood pressure (51). Besides the physiological benefits of adherence to a healthy diet, there are several psychological positive outcomes of adherence to a healthy diet, including self-esteem, self-confidence, and overall health-related quality of life (HRQoL) (52). A summary of the antecedents, defining attributes, and consequences of diet adherence are presented in Figure 1.



**Figure 1.** Attributes, antecedents, and consequences of diet adherence in adults with T2DM

### *Model Case*

Sam, aged 42 years, has always been heavy. He weighs 280 pounds, body mass index (BMI) is 32, and he reports a sedentary lifestyle. He describes significant episodes of eating and consuming upward of 5,000 calories per day. He is a banker and lives with his wife and three kids. Four months ago, he started feeling tired and thirsty and developed polyuria. He visited a family physician and discovered that he had T2DM and hyperlipidemia. The physician encouraged him to modify his lifestyle, especially in diet and exercise and started him on first-line pharmacologic therapy. The physician explained the prognosis of uncontrolled T2DM and hyperlipidemia to Sam. Sam understood the importance of diet modification and believed he could improve his diet. Sam and the doctor set a goal of reducing Sam's weight by three pounds a month. Sam got motivated to start a new diet regimen. His wife encouraged him and started cooking healthy food for him. Sam consistently followed the new lifestyle of a healthy diet and exercise. He kept weighing himself daily and recording his meals and nutritional values and calories. After three months, Sam went to a full checkup, and the physician was surprised that he had lost nine pounds, and his BMI was 27. His HbA1c, LDL-Cholesterol, and triglyceride improved significantly. After these improvements, the physician encouraged Sam to continue



with the program and monitor his weight closely. Sam has planned to continue with the program and prevent relapse of his previous condition.

### *Additional Cases*

#### *Borderline Case*

Sara is a 55-year-old Caucasian woman who presented with polyuria, polydipsia, and "feeling dry" during the past two months. Her medical history was remarkable for a 3-year history of poorly controlled T2DM. Her fasting blood glucose was 350 mg/dl, initial serum cholesterol was 300 mg/dl, triglycerides were 940 mg/dl, and high-density lipoprotein (HDL) cholesterol was 32 mg/dl before treatment. Her endocrinologist explained the possible complications of uncontrolled hyperglycemia and hyperlipidemia. He also encouraged her to start changing her diet habits and sedentary life. The physician and Sara drew a plan for three months and set achievable goals. Sara felt motivated and decided to start a program of a healthy diet and daily physical exercises. After one month of adherence to the program, Sara did not tolerate the new program and failed to continue due to stress and low-income family support. She continued with daily physical exercises but not the full dietary recommendations. Even though she has not followed through with tracking calories and modifying her nutrient intake, she has tried to reduce portion size and the frequency of meals. She hoped that exercise alone will help and is willing to consider medication to improve her glycemic control.

#### *Contrary Case*

Jacob is a 52-year-old man with obesity and a seven-year history of T2DM. He presents to his practitioner with complaints of fatigue, difficulty losing weight, and no motivation. He is living alone, and most of his meals are from fast-food restaurants. His health care practitioners have repeatedly advised weight loss and exercise to improve his health status. He had tried once to follow dietary recommendations but failed to continue. He started back eating a high caloric diet, fast foods and drinking soft drinks. He complains that the pain in his knees and ankles makes it difficult to do any exercise. His laboratory parameters are worsening with each visit to the obesity clinic. He believes that the disease is from God and that he should not disagree with God's wisdom.

### *Empirical Referents*

As Walker and Avant (2011) discuss, the empirical referents are "the means by which you can recognize or measure the defining characteristics or attributes" (p.168). The literature includes various self-report tools to measure the concept of diet adherence attributes. Perceived Dietary Adherence Questionnaire (PDAQ) is a self-report screening tool used to monitor dietary adherence in patients with T2DM (51). The questionnaire consists of nine questions rated on a seven-point Likert scale structured to cover recent diabetes nutrition therapy guidelines. The correlation coefficients for PDAQ items range from 0.46 to 0.11. The intra-class correlation (0.78) is acceptable, indicating excellent reliability (53). When compared with 24-h recall PDAQ

showed excellent convergent validity in terms of dietary recommendations that are specific to people with T2D and includes more vegetables and fruits, and low glycemic index, sugar, and fats. These results suggested that PDAQ is a valid and reliable measure of diabetes dietary recommendations.

Patient Diet Adherence in Diabetes Scale (PDAD) is another standardized tool developed based on Polish Diabetes Association guidelines and consists of 20 behaviours demonstrating dietary options for adults with T2DM (52). Each behaviour scores one point with a maximum possible score of 20. The psychometric analysis of the PDAD showed that the instrument's internal consistency is 0.642, and the factorial analysis of the instrument suggested a significant degree of variation in the evaluated behaviours (from physical exercise through to alcohol drinking and eating behaviors) (54). The main disadvantage of PDAD is that it does not focus on one construct, but different unhealthy behaviors.

The Compliance Praxis Survey-Diet (COMPASS-Diet) is another instrument used to measure adherence to dietary recommendations. The COMPASS survey was developed in 2000, and measures four components of adherence: Normative behaviour, Effective structural circumstances, Social support, and Wisdom/Knowledge (NESW) (53). Each of these components contains three items answered on a 9-point Likert-type scale (from *completely disagree* to *completely agree*) with total possible score ranges from 12–108 points. Internal consistency has been measured for COMPASS-Diet, and the Cronbach alpha score (0.82) means that the tool has excellent internal reliability (55). The instrument highlighted the importance of knowledge in changing eating behaviors and illustrated the importance of social support in promoting weight loss programs.

There are, however, other tools commonly used, such as multi-day food diaries, 24-hour recalls, and food frequency questionnaires (FFQ) (56). FFQ is used to measure long-term dietary habits. It is usually composed of a food list accompanied by a close-ended question that asks about frequency of consumption for each item, usually over the preceding year. The tool takes the average diet intake of a long period, it is inexpensive and relatively easy for participants to complete. In turn, the tool composed of fixed food list, which may interfere with prospective studies as hypotheses to be tested are limited by the fixed options. Additionally, the food list must be tailored to the targeted population and the food list must be available in market (57). A 24-hour dietary recall is a structured interview aimed to gather detailed information about all foods and drinks including dietary supplements in the past 24 hours. The tool can either be administered by expert interviewer or through automated self-administered tools. 24-hour recall is very helpful in measuring actual dietary behaviors, examining relationships between diet and other factors, and confirming the effectiveness of diet interventional studies (58). The interview intended to explore the food type, time, portion size, and sources of food. Multi-day food diaries is similar to 24-hour recalls, but the interview includes multiple days of food diary entries rather than a single day in order to account for variation in diet over time. These tools are easy to

administer, in-expensive, and can be used by any individual to provide a global picture of dietary intake. Their disadvantage is that they are quite time-consuming to both complete and analyze.

## **Discussion**

The results of this concept analysis indicate that diet adherence is a central concept for many chronic diseases and an essential component of T2DM management. The concept attributes include the following diet recommendations, self-monitoring, maintenance, and relapse prevention. Antecedents for dietary adherence include motivation, understanding of diet recommendations, health beliefs, self-efficacy, goal setting, and social support. Consequences include overall health promotion, health-related quality of life (HRQoL), and improve disease-specific parameters such as lower BMI and HbA1c, a better level of triglycerides, LDL-cholesterol, non-HDL-cholesterol, and lower diastolic blood pressure.

The results of this concept analysis suggest that diet adherence in T2DM may be understood through the lenses of the Information–Motivation–Behavioral skills (IMB) model, some constructs of the Health Belief Model, and the Transtheoretical Model. The IMB model constructs have been applied to many promotive behaviours that include adherence to medications, diet, and exercise (59). The constructs of the model, including information, motivation, and behavioural skills, are congruent with the antecedents and attributes of diet adherence concept analysis. While understanding dietary information and motivation represents the first and second constructs of IMB, following diet recommendations, self-monitoring, maintenance, and relapse prevention fit well with the third construct of IMB. The Health Belief Model is another model that can be used to explain diet adherence. The model theorizes that people's beliefs about whether or not they are at risk for a disease or health problem, and their perceptions of the benefits of taking action to avoid it, influence their readiness to take action (60). In the case of T2DM, persons' beliefs about the benefits of diet adherence in preventing disease complications will influence their decision and action. The Transtheoretical Model and stages of change is another theory with relevance to the diet adherence concept. It proposes that long-term changes in health behaviour involve multiple actions and adaptations over time (61). The theory states five stages of change: pre-contemplation, contemplation, preparation, action, and maintenance. These stages of change are consistent with the antecedents and attributes identified for the concept of diet adherence, the need to initiate and then maintain diet changes over time, and to prevent relapse.

Diet adherence is affected by social pressure, cultural, psychological factors and self-efficacy specific to diet. Antecedents can be distinguished in terms of social factors (e.g. watching others consume forbidden foods) and individual factors (e.g. adhering to diet recommendations, resisting the offer to eat unhealthy foods at social events). Fatalism or beliefs about the causes of diabetes outside the self are associated with low socioeconomic status and

negatively associated with adherence (62). Diet adherence is a mediating factor for the effects of individual beliefs, attitudes, and self-efficacy on health outcomes among adults with T2DM.

Diet adherence has numerous implications for health research and clinical practice. In research, operationalizing the definition of diet adherence will help develop valid and reliable tools, effective interventions, and long-term strategies to improve diet adherence in adults with T2DM. In clinical practice, understanding the term "diet adherence" can help nurses encourage patients to adhere to lifestyle modifications. It also may help health care providers and nurses to advocate for their patients to receive a comprehensive discharge plan that focuses on the importance of medications, diet, and exercise.

Using the Walker and Avant (2011) strategy has some limitations. The literature search was limited to meet Walker and Avant's (2011) guidelines. The identification of the concept antecedents, attributes, and consequences is dependent on the literature reviewed and the researcher's understanding of the literature. Additionally, nursing science is continuously changing, and concepts are changing as well. The health system, cultural, social, and technological variations play an essential role in defining any concept.

## **Conclusion**

The strengths of Walker and Avant's concept analysis method is that it provides a step-by-step guide to concept analysis in nursing. Adherence to a healthy diet for patients with T2DM is a primary determinant of treatment success. In turn, poor adherence attenuates optimum expected outcomes and therefore reduces the overall effectiveness of health systems. Based on the current literature review, knowledge about the diet adherence concept is limited. Most of the literature is focused on medication adherence rather than other treatment modalities, such as diet and exercise adherence. The current findings contribute to the body of knowledge regarding the education of nurses and adults about the importance of diet adherence and better nutritional choices in reducing complications. In the future, more research is needed to develop useful tools, interventions, and strategies to promote diet adherence in adults with T2DM. Additionally, researchers should study the concept of diet adherence as part of a comprehensive and multifactorial approach to providing better control of T2DM.

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