Specific theory regarding family behavior of people who have type 2 diabetes

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SUMMARY

Introduction: Nursing professionals develop theories about specific situations in order to have a better explanation of the practice, and be able to provide quality care to individuals, families, and the community. **Objective:** Describe the specific theory about family behavior regarding self-management and glucose control of individuals with type 2 diabetes. **Methodology:** Inclusive process was the method used for the development of this theory. Results: Four main concepts were identified: family behavior, self-management, glucose control, and individual constraint agents of an individual with type 2 diabetes. **Conclusions:** The specific theory developed allows us to obtain a theoretical framework to understand the interaction of a relative of someone with type 2 diabetes in order to achieve self-management and glucose control of these individuals.

Key words: Nursing theory; social support; self-management; diabetes mellitus (DeCS;BIREME)

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INTRODUCTION

Type 2 diabetes (T2D) is one of the primary health problems of the 21st century; one that has significant effects on the quality of life of those afflicted with this illness. During recent decades, the global incidence and prevalence of this illness has increased exorbitantly. The World Health Organization (WHO) and the International Diabetes Federation (IDF) consider diabetes as a pandemic, which affects most of the countries in the world[1,2]. According to reports from the IDF in the year 2015, more than 8.8% of adult population from 20-79 years of age (415 million) had this illness[3], while the WHO reported about 442 million people in the year 2016. The increase of this illness continues year after year and, if not controlled, it is estimated that by the year 2040, there will be 642 million people with this illness[2] worldwide.

In Mexico the situation is no different since Mexico is ranked sixth in the world for the number of people with T2D (11.5 million). If measures to prevent this illness are not implemented, it is expected that by the year 2040 Mexico will rank fifth[3]. The National Health and Nutrition Survey (known in Spanish as ENSANUT)[4], reported in 2016 that 9.4% of the Mexican population have T2D and it's being diagnosed at much earlier ages. Likewise, it is reported as one of the primary causes of demand on health services and premature disability in the population, thus representing an economic burden for both patient and society in general[5].

There is evidence that the illness is the result of current cultural and social changes, such as population ageing, increase of urbanization, new diets, decreased physical activity, and an increase in sedentary jobs[6]. This illness requires continuous attention, education, and support in order to prevent the development of the illness and retardation of complications, and, above all, premature mortality of people affected[7].

Life for one with T2D and its complications (acute and chronic) present many challenges, ranging from adherence to therapeutic regimes and the implementation of changes in behavior, aimed at improving glucose control[8]. Additionally, persons with T2D continuously experience difficult and stressful situations in their lives as consequence of having to manage such changes and delay complications, both acute and chronic, of the illness[9,10]. Such stress may have negatively affected the proper management of the illness[11]. Therefore, coping with the illness is essential. This way people can deal with the various situations that occur during their lives because of the illness. T2D coping is understood as those processes of cognitive and behavioral changes made by the person in order to deal with stressful situations and to adapt to social environments[11,12].

Autosuggestion is key to controlling the illness, which will significantly contribute to the delay of complications and improvements in the quality of life of the sick people, both short and long term[7,13]. This is understood as those actions or activities carried out by the individual, aimed at monitoring signs and symptoms (management of hypoglycemia and hyperglycemia and care of feet), maintenance and improvement of health behaviors (improve eating patterns, physical activity, medication, ceasing alcohol and tobacco consumption) and decreasing the negative impact of the illness (stress management, complications, and side effects)[7,14].

Said autosuggestion is influenced by several factors, such as physical, psychological, cultural, and social factors. In this case, autosuggestion plays an important role in the management of the illness, since it is required that people trust in their capabilities to manage and control their illness. Self-efficacy is understood as the beliefs held by the person with T2D in order to behave in certain way and overcome obstacles in order to reach a specific goal (glucose control and delay of complications)[17,18].

When there is no proper support, meeting and keeping these complex behaviors become especially difficult due to the fact that many of the activities require help and collaboration from family, friends, and health care providers[18,19]. It has been found that social support (SS) reinforces and positively influences behaviors with respect to autosuggestion, coping, and self-efficacy of people with T2D[13,20]. SS are those interpersonal relationships of at least two or more people, among whom there is a reciprocal exchange of tangible and intangible resources, whose purpose is to dampen stress factors of the illness and environment[21–24].

Family context is an important determinant so people with T2D effectively carry out autosuggestion actions regarding their illness, considering that the main function of the family is to satisfy the individual needs of its members. Family functioning is an important aspect of the family environment that can assist or influence the quality of life of people with chronic diseases. It has been identified that in families with good interactions, there are gradual changes in lifestyles, an increase of wellbeing and support to face stressful situations from the illness[25,26]. The assistance provided includes helping the individual to prepare healthy foods, encourage them to take their medication on time and in appropriate manner, carry out physical activities individually or in group, and lastly, facilitate access of the sick person to health professionals such as doctors, nurses, psychologists, dietitian, etc.[13,18,27]. But in cases with dysfunctional families, these actions are associated with poor glucose control, the presence of stress, and depression in people with T2D[25].

Throughout history, different nursing theories have increased nursing knowledge, thus developing models and theories that allow for the description, explanation, and prediction of phenomena of interest of the discipline, in order to distinguish itself from other disciplines responsible for providing care to individuals[28]. During recent decades, there has been a boom in the development of nursing theories that can be applied in practical environments of nursing, thus labeled 'Specific Theories' about the situation (micro-theories), which attempt to describe the phenomena in a more specific and practical manner and are less abstract than complex theories or nursing models and can result from a medium range theory; however several authors mention that they can also emerge from Models and Big theories[29,30]. The objective of this paper is to describe how the specific theory about family behavior affects self-management and glucose control of people with type 2 diabetes.

METHODOLOGY

The specific theory about family behavior for self-management and glucose control of people with type 2 diabetes was developed using the inclusive approach (IA) proposed by Im et al.[31,32], which is comprised of four stages: 1) checking assumptions for the development of the theory 2), exploration of the phenomenon through multiple sources 3), theorization, and finally 4) reporting, sharing, and validating. The process used for the development of this micro-theory is described in Figure 1.

Description of steps of the IA

First step: Assumptions

To explain the first step of the IA, several assumptions were identified and verified. The first assumption focuses on how the behaviors displayed by members of the family contribute influence behaviors of persons with

Figure 1. Process for the development of the Specific Theory about family behavior for Self-management and glucose control of people with type 2 diabetes.

Step1. Assumptions
Family behavior contributes to the fact that people with diabetes carry out actions to control the illness.
In order for the person with diabetes to perform activities to manage their illness, they have to make decisions continuously and have confidence in themselves to reach the goals imposed by the illness.
The control of the illness will depend on family support and actions carried out by the sick person.
There are internal and external factors that contribute to the control of the illness.
Step 2. Multiple sources
Social support theory
Review of empirical evidence
PubMed
EBSCO Host
Inclusion criteria:
English language
Published in the last 5 years
Descriptors used were "Diabetes Mellitus", "Social Support", and "Auto-Suggestion"
Magazine articles
Step 3. Theorization
Four main concepts were obtained after the analysis of empirical evidence: Family behavior Self-management of person with type 2 diabetes Glucose control Individual constrain agents
Step 4. Report, share and validate

Source: Own development

T2D, specifically if they will perform activities in an effort to control the illness or not. The second assumption focuses on the fact that in order to engage in self-management, it is required that the sick person has the capacity to face and make decisions continuously, according to the demands of the illness; also, they need to have confidence to reach goals imposed by health professionals. The third assumption states that control of the illness will depend on the actions carried out by the sick person and the support received from the family, through interactions within their family context. The fourth assumption establishes that there are agents that condition family behavior, self-management, and glucose control of people with T2D.

Second step: Multiple sources

For the development of the specific theory, the following was used: a) the social support theory, and b) a review of empirical evidence using multiple databases.

Description of the social support theory

The social support theory (TSS) addresses the structure and function of interpersonal relationships, whose purpose is the exchange of tangible and intangible support, mutually and in a stress context[23,24,33]. The first theoreticians to mention and work with TSS were Cassel[34] and Cobb[34], who declared that coping is both a protection and facilitation factor, as well as the adaptation in response to stressful events that occur in the environment, the final objective of which is the well-being of the person. For his part, Cohen, et al.,[21] states that stress is caused when a person perceives a threatening situation (internal or external stimuli) and does not exhibit a coping response to said situation.

TSS has been analyzed from a structural and functional perspective. The structural vision analyses the support provided through social networks (SN), understanding these as specific relationships between the focal individual (receiver of social support) and the other person of the network (supplier of social support)[35]. The support provided can be given formally (health professionals) and informally (family, friends, self-help groups). This structure can be described as a dyadic feature; the SN has several functions ranging from social influence, social control, and social camaraderie to undermining[23,35].

The functional vision addresses the exchange of tangible resources (not psychological) and intangible (psychological) within interpersonal relationships, classified under four types: emotional, consisting of comforting acts (care, empathy, affection, love, concern, and trust), which pretend to alleviate uncertainty, anxiety, despair, and depression; this is the most important category through which the perception of support is transmitted. The informative type involves counseling, suggestion, and information, which is provided to solve problems in stressful situations. Evaluation (feedback) consists of the transmission of information and feedback to perform self-evaluation through social comparison. Finally, the instruments used are the provision of tangible or direct help to the person in need, which can be through goods (economic or material help) or services (care of the person or help to perform the work assigned to others) [22,23,36].

Literature review

For the exploration of current knowledge about the AS regarding self-management of people with type 2 diabetes, a revision of empirical evidence took place across several databases (Pub Med and EBSCO Host). The papers included for the development of this specific theory were guided by the following criteria: a) they were written in English, b) published during the last 5 years, c) descriptors used were "diabetes mellitus", "social support" and "self-management", and d) journal articles. Four hundred fifty two articles (452) were found, 7 of which were identified as meeting the aforementioned criteria, which allowed us to develop this theory.

Third step: Theorization

Development of the specific theory about family behavior for self-management and glucose control of people with type 2 diabetes.

Human interaction in the environment responds to multiple stressful factors. This interaction is fundamental to all people in order to achieve research and provide support to face changes in the environment[37]. Social relationships are the foundation of human existence, and interpersonal levels are the key to understand and participate in such relationships. Relationships at interpersonal levels involve relationships with family members, friends, companions, neighbors, and health care providers. Family relationships are the first and foremost of these relationships, since through this relationship help (informative, emotional, instrumental, and evaluative) is provided to individuals to successfully face stressful situations in their environment, thus achieving well-being for the receiving party. Although these interactions are positive, we have been able to identify negative interactions where the support provided does not achieve the proper well-being of the receiving person[38].

People with T2D continuously face a stressful situation, since the illness demands a continuous change in their behavior patterns to reach glucose control and delay chronic complications[10]. The actions performed by

the sick person (balanced diet, increase of physical activity, adherence to drug therapy, glucose monitoring, periodical checking of the feet, abandonment of alcohol and cigarette, etc.) are key to controlling the illness and improving the quality of life of the sick person, both long and short term[8,17]. Fulfillment and maintenance of these complex activities are especially difficult if there is no support since many of these activities require the participation of the family (balance food preparation, accompaniment during physical activity, reminders for the appointments with health care professionals, etc.) [13,39].

The specific theory about family behavior for self-management and glucose control of people with diabetes is comprised of four concepts. The main concepts are family behavior and self-management of people with type 2 diabetes, thus explaining the interaction among them. The third concept, glucose control, is the response achieved by the interaction of the two aforementioned concepts. And finally, the fourth concept is comprised of individual constraint agents, both related to behavior concept, the person with diabetes, and glucose control.

Family behavior

Family behavior (FB) is the main concept of this specific theory (ST). It is described as those behaviors from the members of the family toward the person with type 2 (PT2D by its acronym in Spanish). These conducts can be of two types: effective and ineffective.

Effective FB is where the members of the family provide different forms of support (informative, emotional, instrumental, and evaluative), which contributes to the fact that the PT2D develops favorable behavior to control the illness. Additionally, during ineffective FB, the members of the family sabotage or undermine the efforts of the people with T2D to perform their activities, planning and tempting the PT2D to consume unhealthy foods, to not engage in physical activities, etc. Supporting literature has reported that family support directly contributes (either positively or negatively) the PT2D to engage in coping mechanisms, self-management, and self-efficacy of the illness, and indirectly in the metabolic control of the illness[11,19,40].

Self-management of persons with type 2 diabetes

Self-management is the second major concept of this ST. It is described as the capacity of the PT2D, to perform actions that help to manage, control, and resolve the unique situations of the illness according to the recommendations of health care professionals (doctor, nurse, psychologist, dietitian, etc.). Some of the actions that have to be carried out by the person with T2D are: a) management of hypoglycemia and hyperglycemia, b) foot care, c) improvement of eating patterns, d) practice of physical activity, f) adherence to prescribed medication, g) abandonment of alcohol and tobacco consumption, h) stress management, and i) complications and their side effects.

It has been discovered that there are two important elements about the person to be able to achieve effective self-management. The first is self-efficacy; empirical evidence reports that it is an essential and important element for the PT2D to make continuous changes in behavior, according to the demands of the illness and be able to ensure metabolic control, both long and short term[15,19,20]. The second element centres on coping with the illness, which is of utmost importance to effect behavioral changes that favor metabolic control of the illness[9,12]. There is evidence that emotional coping contributes to the increase or decrease of self-management behavior[9,11]. Moreover, coping centered on the problem has contributed to the improvement of behavior to control the illness[9].

Glucose control

Glucose control is described as the result of the actions carried out to control the illness by both the person with T2D and that one's relative. This is reflected in the acceptable results of parameters such as glycosylated hemoglobin (HbA1C) and blood glucose control. Some studies report that persons who achieve an optimal glucose control are those who perform effective actions to modify their life patterns, and those that have effective family support[10,41].

Individual constraint agents

Individual constraint agents (ICA) are described as those individual agents that directly or indirectly contribute to engagement in family support behavior, self-management, and glucose control. Some of these factors include education level, socio-economic status, familiarity with the illness, quality of life, degree of depression, and stress levels. Some ICA that have been identified by relatives is the level of knowledge and ability of the relative to manage and control the illness of his T2D relative, the persuasion or pressure exerted by the relative when having a relationship as a couple, and the gender[20,40].

Identified ICAs in PT2D to be able to engage into self-management is the education level, unfamiliarity with the illness, lack of family support, acceptance of the illness, quality of life, stress levels and depression, presence of complications, treatment, gender, are part of a couple, and amount of drugs prescribed[9,12,42,43]. Figure 2 shows this information.

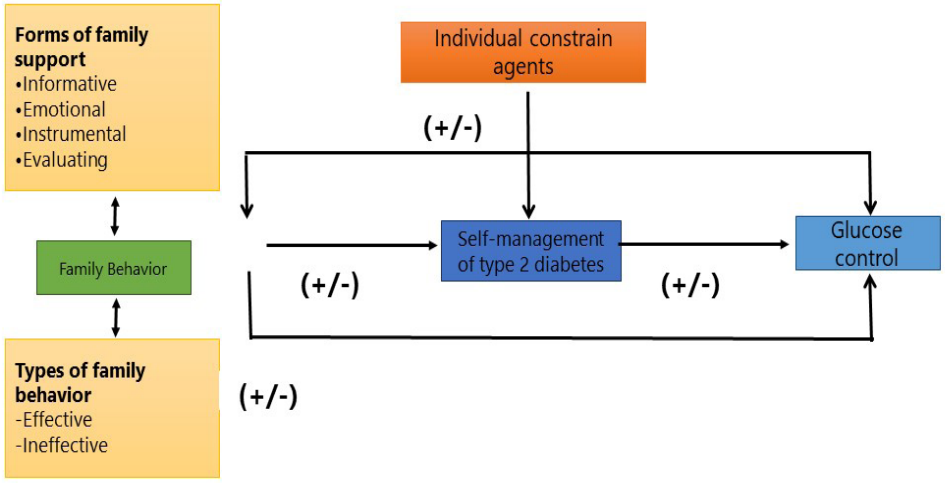
Implication in nursing practices

Based on what was analyzed and described previously regarding micro-theory, some implications for nursing practices and research will be provided. The nursing professional and the various health care providers must take into account family context, interaction, and functioning of the person with type 2 diabetes.

At the same time, the capacity to make decisions along with the self-confidence of people with diabetes must be valuated, since this conditions the person to engage in self-management of the illness. In relation to research, the concepts and their interrelation for intervention plans where self-management and glucose control are promoted will be incorporated, taking into account family context.

Better development and functional adaptation of the micro-theory should be proved and validated through

Figure 2. Model about the specific theory regarding family behavior for self-management and glucose control of people with type 2 diabetes.



a pilot or intervention study. Additionally, it must be validated within other age groups and in different environments since it was designed for a specific age group and social structure. Also, the development of specific empirical indicators for each established concept must be initiated.

CONCLUSIONS

This micro-theory provides a theoretical framework that explains the behavior of the family regarding self-management and glucose control of people with T2D, and the existence of agents that condition this interaction. This can be applied in the environment of clinical practice and nursing research, which provides a frame of reference for the development of interventions and education programs to achieve strict glucose control in people with diabetes.

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