

## Relationship between psychological characteristics and self-efficacy in continuing self-management by adult type 2 diabetes patients

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### ABSTRACT

**Purpose:** The purpose of this study was to analyze the psychological characteristics and self-efficacy involved in continuing self-management by type 2 diabetes patients, to obtain suggestions for nursing these patients.

**Method:** Literature on self-management by adult type 2 diabetes patients published in Japan from 1998 to 2013 was analyzed to extract data on psychological characteristics and self-efficacy. The data was categorized by referencing Berelson's methods of content analysis.

**Results:** We found that patients perform self-management while harboring the negative emotions of anger, sadness, distress, and anxiety, and the positive emotion of delight. The following categories were extracted for self-efficacy: accumulating successful experiences, exchanges with fellow patients, support from others that suited the patient's needs, accepting diabetes, and reducing negative emotions such as feeling burdened and anxiety.

**Discussion:** We found that adults with type 2 diabetes experience many emotions as they continue self-management. This suggests it is important for nurses to support patients by focusing on psychological characteristics that are a mix of negative and positive emotions. In addition, self-efficacy changes depending on the patient and the circumstances he or she is involved in. Still, incorporating therapies into patients' lives in suitable ways can increase self-efficacy. This suggests that if nurses can increase patients' self-efficacy, they can support them in continuing with self-management, without any interruptions or backsliding.

Key words: literature study, self-efficacy, psychology, Type 2 diabetes

### Introduction

There are an estimated 20.5 million type 2 diabetes patients in Japan, including people who are strongly suspected to have diabetes and may have diabetes. This figure is expected to increase.[1]

The increase in type 2 diabetes is deeply related to aging and lifestyle habits. Lifestyle in particular has a major influence on disease control. Currently, the basic treatments for type 2 diabetes are diet therapy, exercise therapy, and drug therapy.

Since diet and exercise are closely related to daily life, and are characterized by patients self-managing their own diseases. Self-management needs to be in-

corporated into daily life, but doing so requires patients to improve their lifestyle habits to prevent diabetes from worsening or maintain their condition. It is not easy to change habits that have existed for many years or stick with self-management. For adult type 2 diabetes patients in particular, work, family, and other roles can make it difficult to perform and continue self-management. Fujita et al. [2] reported that being employed was a factor that hindered self-management. In addition, Ito et al. [3] reported that self-management is affected by societal roles and life events. This suggests it can be difficult for adult type 2 diabetes patients to continue self-management while fulfilling their societal roles.

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Yamamoto et al. [4] found that patients' thoughts about being diagnosed with diabetes could be understood as a process of acceptance, which can impact their acceptance of the need for self-management. This indicates that performing and continuing self-management is closely related to patient psychology, so it is important to study the connection between self-management and psychology.

Much recent research on self-management in Japan has focused on the relationship between self-management and self-efficacy. Self-efficacy is the belief in one's ability to effectively execute the behavior required by the circumstances at hand, and is a key concept in behavior modification for predicting actual behavior (Bandura). [5] As such, we inferred that the psychological characteristics involved in performing and continuing self-management by adult type 2 diabetes patients would be related to self-efficacy. However, agreement has not been reached on how specifically to support the performance and continuation of self-efficacy. Therefore, the purpose of this study was to analyze the psychological characteristics and self-efficacy involved in continuing self-management by adult type 2 diabetes patients, to obtain suggestions for diabetes nurses.

### Research objective

We analyzed the psychological characteristics patients need to continue self-management and the factors involved in increasing self-efficacy, to obtain suggestions for nursing interventions.

### Research methods

#### 1. Subject literature

We searched the literature over the last 15 years using the Japan Medical Abstracts Society's online resource. For keywords, we used "type 2 diabetes," "self-efficacy," "psychology," "emotions," "self-management," and "adult." After excluding articles on patients with severe complications and elderly subjects, we obtained 91 hits. Next, we performed a handsearch to select (1) scientific articles published in nursing journals, (2) articles that fit this study's purpose, and (3) articles that followed a research format. This left us with 44 subject articles.

#### 2. Analytical methods

The items for analysis were psychological characteristics and self-efficacy. We created a review sheet that included these items. For psychological characteristics, we used "Munakata's Guidelines on Emotions". For self-efficacy, in addition to the 4 information sources that affect self-efficacy (Bandura, 1977) [5],

we added locus of control related to health and attributes. We referenced Berelson's content analysis methods for the analysis. The item "locus of control" was added based on a finding by Kin et al. [6] that high self-efficacy effectively suppressed the appearance of depression and anxiety.

#### 3. Ensuring reliability

Working together, the researchers repeatedly examined the analysis to ensure reliability.

### Results

#### 1. Psychological characteristics

Based on Munakata's guidelines on emotions, the data was placed into 5 categories: anger, sadness, distress, anxiety, and delight. There were 41 pieces of data (13.4%) in the anger category, 46 pieces (15.0%) in the sadness category, 58 pieces (18.9%) in the distress category, 82 pieces (26.7%) in the anxiety category, and 80 pieces (26.1%) in the delight category. Anger included "feeling inferior for being unable to self-manage." Sadness included "feeling forced to endure things." Distress included "feeling burdened by self-management and diabetes." Anxiety included "being anxious about continuing self-management and diabetes getting worse." Delight included "feeling confident about self-management."

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### 2. Self-efficacy

In addition to Bandura's 4 information sources that influence self-efficacy, we added items for the patients' attributes and feelings of control based on Kin's "feelings of control related to health." Thus, the data was placed into 6 categories: experiencing success at executing behavior, vicarious experience, verbal persuasion, physiological and emotional condition, feelings of control, and attributes.

After categorizing the self-efficacy items, there were 10 pieces of data (5.9%) in the "experiencing success at executing behavior" category, 9 pieces (5.3%) in the "vicarious experience" category, 56 pieces (32.9%) in the "verbal persuasion" category, 42 pieces (24.7%) in the "physiological and emotional condition" category, 39 pieces (22.9%) in the "feelings of control" category, and 14 pieces (8.2%) in the "attributes" category. Five codes, including "successful experiences," were extracted for experiencing success at executing behavior; 4 codes, including "exchanges with fellow patients," for vicarious experience; 17 codes, including "cooperation from friends and family," for verbal persuasion; 15 codes, including "experiencing effects," for physiological and emotional condition; 13 codes, including "modifying and executing diet therapy," for feelings of control; and 10 codes, including "disease duration," for attributes.

## Discussion

### 1. Psychological characteristics

The results of this study showed that type 2 diabetes patients live with the negative emotions of anger, sadness, distress, and anxiety, and the positive emotion of delight.

Anger toward diabetes self-management is thought to manifest as feelings of rejection or dislike

because the difficulty of self-management causes patients to neglect their societal roles and other parts of their lives. It has been found that some patients put off self-management to prioritize work and other societal roles, which hinders the execution of self-management. [7] In addition, Taru et al. [8] found that negative images of behavior modification and treatment, and an inability to face diabetes are connected to a desire to continue existing lifestyle habits, which inhibits behavior modification that would allow patients to incorporate self-management into their lives. Since self-management demands a great deal of self-control from patients, behavior modification fails to satisfy their desires and generates feelings of resistance. When patients feel rejection, dislike, or resistance toward self-management, they cannot perform it effectively. This in turn could lead to feelings of inferiority or regret for causing problems for their families, which further hinders the ability to perform self-management.

Sadness in the context of self-management can arise when patients cannot eat the foods they want due to diet therapy, or manifest as feelings of self-contempt when other people comment on their diabetes. [9] We surmise that patients feel miserable about being forced to suppress their desires. They may also feel despondent if they cannot perform self-management effectively, or if they do not get the results they expect despite proper execution. The ability to continue self-management requires the understanding and cooperation of others. Not receiving this understanding can lead to feelings of isolation. Depression may also arise when difficult situations are encountered in self-management and solutions cannot be found or there is anxiety about being able to incorporate self-management into one's life.

Distress can manifest as a feeling that diet and exercise therapy are troublesome. If therapy does not lead to the expected results, patients may feel that continuing self-management is overly strenuous. Further, as described above, if patients prioritize work or economic concerns and self-management is deferred in favor of societal roles, this can hinder the execution of self-management. [6] [7] Experiences like this that cause patients to feel self-management is troublesome or strenuous can increase feelings of being burdened or fatigued by having to perform both work and family roles while carrying out appropriate self-management. Moreover, even if the support offered by others is effective, if the sup-

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ported person's psychological state is not properly understood, this support may be perceived as intrusive and increase feelings of being burdened. [10] If other people offer excessive encouragement, patients could feel pressured to perform self-management and achieve results that meet these expectations.

Anxiety, manifested as fear of complications, is a characteristic emotion among people who have diabetes. [11] Since their disease can progress from an asymptomatic state to serious complications, patients live with anxiety, fear, worry, and concern about their disease, whether it will progress, and its complications. Patients who give themselves insulin shots could be scared of the act of injection, or feel anxiety, worry, or concern about dealing with unexpected events such as hypoglycemia or having to take sick days. These emotions relate to the extent to which therapeutic behaviors encroach on daily life, and whether a balance can be struck between treatment and one's desires. Such emotions may cause patients to feel that continuing self-management while living their lives is difficult, and also bring about anxiety or worry.

Delight is felt when patients see performing self-management not just as a form of self-control or endurance, but enjoy making changes to incorporate it into their lives. The experience of effective self-management can create self-confidence. Ameme et al. [12] reported that the ability to predict whether one can cope with life changes and being able to deal with these independently leads to self-confidence during self-evaluations. This self-confidence could help patients perform effective self-management and generate expectations that it will help maintain good blood glucose levels. Patients feel satisfied when they achieve the effects they expect, which generates positive feelings toward treatment and a desire to do their best.

Mitsuki et al. [11] reported that patients who live with diabetes harbor many feelings about their disease and therapeutic behaviors, which is consistent with the wide variety of emotions found by the present study. Many of these emotions were negative, including anger, sadness, distress, and anxiety. However, there was also the positive emotion of delight. This suggests that adult type 2 diabetes patients feel a variety of emotions, depending on how much they accept the need for self-management and how well they actually perform the behavior. Therefore, it is important to support patients psychologically to help them regulate this mix of negative and positive emotions.

## 2. Self-efficacy

Self-management has been reported to be related to self-efficacy. [13] That is, high self-efficacy may promote the self-management of diabetes. Here, we discuss how self-efficacy may influence the execution of self-management.

Experiencing success at executing behavior comprised "experiencing a decrease in blood glucose levels after exercise," "experiencing insulin injections in the early stages and feeling the effects," and "feeling satisfied about successful control." Murakami et al. [14] reported that having targets that encourage self-management and feeling the effects of what was learned when hospitalized for educational purposes promoted self-management. When patients experience the effects of self-management, they feel self-confident and satisfied. Moreover, accumulating successful experiences and avoiding unsuccessful ones is seen as important for patients to gain self-confidence and satisfaction. This can increase patients' desire to carry out self-management and motivate them to approach it with a positive attitude.

Vicarious experiences comprised "listening to nurses talk about example patients," "receiving support for effective modeling," "having exchanges with fellow patients," and "pursuing interactions with others through group work and exercise." When medical professionals or other patients provide examples of self-management methods, patients learn how to make adjustments during therapy. Patients may also be stimulated by learning about other patients' efforts, which could encourage them to work toward keeping themselves in good condition and give them a positive attitude about self-management. All this encourages patients to be proactive about self-management. In addition, through exchanges with fellow patients, they can encourage each other to continue striving. Nakamura et al. [7] reported that exchanges with other patients can generate self-awareness, and hearing about a variety of experiences creates an awareness of the need for self-management. Therefore, opportunities to learn about the experiences of fellow patients and have exchanges with them could effectively promote self-management.

Verbal persuasion comprised "cooperation from friends, family, and others." Uchihori et al. [15] reported that the ability to maintain stable blood glucose control was affected by family support, social resources, and the involvement of others. This indicates that having an understanding of diabetes so support from family members and others meets pa-

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tients' needs, and providing the appropriate social resources can support self-management.

This category also comprised "setting specific numerical targets" and "assessing changes in objective data." Setting specific targets encourages appropriate assessments, and appropriate assessments can be stimulating for patients, which promotes independent self-management.

Physiological and emotional condition comprised "having opportunities to reduce psychological burdens and relieve stress" and "understanding the need for self-management." In addition to incorporating self-management into their lives based on an understanding of the need for treatment, being able to cope with the burdens of self-management can ease any psychological burdens. Yasuda et al. [16] reported that people with high stress-coping abilities tend to have high self-efficacy. Therefore, being able to cope with the stress of self-management will help patients continue self-management. Moreover, by experiencing the effects of incorporating self-management into their lives, patients can be encouraged by the results of their own efforts, ease their sense of burden, and increase their satisfaction, all of which will help them perform self-management with a positive attitude.

This category also included "wanting to keep complications from occurring or progressing by maintaining good blood glucose levels." Having an attitude of dealing with things proactively, even when feeling anxious, can help motivate patients to carry out their treatments.

Feelings of control comprised "dealing with factors that hinder self-management." When patients prioritize their societal roles at work and in the family, it affects the performance of self-management, such as by making them unable to adhere to diet therapy or take time for exercise. Patients need feelings of control so they can coordinate their societal roles with the lifestyle that is required of them and continue self-management.

This category also comprised "adjusting and carrying out diet therapy," "engaging in self-management that suits oneself," "incorporating treatment into one's life," and "making use of one's experiences." Murakami et al. [14] reported that acquiring behavior patterns that are suitable to one's life circumstances and having one's own coping methods were factors involved in promoting self-management. As such, patients need to foster an ability to make decisions about their behavior so they can make adjustments when performing

self-management and effectively cope with difficulties encountered in self-management.

Attributes comprised "presence of family," "low BMI," and "good HbA1c levels." These increase self-efficacy by providing methods for objectively evaluating whether one is successfully performing self-management, and at the same time are markers that patients can use to experience the effects of self-management. The presence of family provides patients with both psychological and behavioral support, which could give them the strength to continue self-management.

This study found that self-efficacy was linked to the ability to continue self-management, which is consistent with previous studies. Self-efficacy changes depending on the patient and the conditions they are involved in. Still, we found that self-efficacy can be increased through accumulating successful experiences, exchanges with fellow patients, support from others that matches one's needs, accepting one's diabetes, reducing negative emotions such as feeling burdened and anxiety, and incorporating treatment into one's life in a suitable way. Therefore, if nurses can increase self-efficacy based on an understanding of a patient's situation, it can help them effectively perform self-management, without any interruptions or backsliding.

## Conclusions

This study analyzed past research with a focus on psychological characteristics and self-efficacy. We obtained the following conclusions.

- i. For psychological characteristics, we found that diabetes patients harbor a wide variety of emotions. Many of these were negative emotions, including anger, sadness, distress, and anxiety.
- ii. For self-efficacy, accumulating successful experiences, exchanges with fellow patients, support from others that matches one's needs, accepting one's diabetes, reducing negative emotions such as feeling burdened and anxiety, and incorporating treatment into one's life in a suitable way are thought to increase self-efficacy. All of these help patients continue self-management.
- iii. From the standpoint of these psychological characteristics and self-efficacy, understanding patients' backgrounds is important when helping them continue self-management. In the future, causal relationships between psychological characteristics and self-efficacy needs to be

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investigated.

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