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An action research study to explore techniques for self-awareness of psychological distance from family members in type 2 diabetics

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Abstract

Aim: For people with type 2 diabetes, experiencing psychological distance from family members is important for continued self-management. However, people with type 2 diabetes are unaware of this. This study aimed to explore techniques for people with type 2 diabetes to become aware of the phenomenon of psychological distance from their family members.

Method: The study consisted of two designs. In Design 1, the authors employed an action research technique with a collaborative team of four diabetics and nine medical staff to explore the techniques of being aware of psychological distance. In Design 2, the authors interviewed 13 diabetics and analyzed their responses through qualitative descriptive analysis to confirm the usefulness of the techniques.

Results: In Design 1, the authors determined evaluation items for psychological distance awareness, decided on a specific method to promote awareness of psychological distance, re-examined the implementation method, and implemented and modified the plan to promote awareness. Thus, techniques were developed for recognizing psychological distance. In Design 2, the usefulness of the techniques was confirmed by interviewing different people with diabetes. The results indicated that all the respondents recalled the five evaluation items, corroborating that the techniques effectively induced awareness of psychological distance.

Conclusion: The search for techniques related to the awareness of psychological distance was completed following a process involving six actions, and the usefulness of the techniques was confirmed for new patients. Based on the techniques created in this study, diabetes educators are able to understand the feelings of people with diabetes and support their family relationships.

KEY WORDS

action research, family, nursing, psychological distance, type 2 diabetes

Introduction

Approximately 433 million adults worldwide are diagnosed with diabetes, and the number is expected to rise to 700 million by 2045[1)]. To prevent the aggravation of the disease, people with diabetes are required to manage their lifestyle[2)].

Social support has a positive impact on disease management. This study focused on how patients receive support from their families. Previous studies have suggested that family support is associated with improved glycemic control, adherence to self-care, and increased quality of life for people with diabetes[3-10)].

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However, it has also been pointed out that people with diabetes feel that family support has a negative influence[11]. In a similar vein, family support may lead to strong dietary restrictions on people with diabetes, reduce their quality of life, and act as a barrier to self-management[12-14]. Therefore, it was suspected that the patient wanted to maintain a psychological distance from his family, and the importance of maintaining psychological distance between the patient and the family to successfully manage the disease[15] was realized. Ikemoto et al.[15] determined that people with diabetes who experienced a moderate psychological distance from their families were able to focus their attention on their condition and engage in medical treatment. In addition, the inability to face diabetes has been seen as an impediment to continued self-management[16]. In other words, psychological distance between the patient and the family has been shown to have a positive impact on diabetes self-management.

Nevertheless, it was discovered that people with diabetes were unaware of the psychological distance from their family; they spoke about psychological distance only when researchers posed questions on the topic[15]. This discovery was a new and under-researched perspective in the field of diabetic care. Therefore, the purpose of this study was to create self-awareness in people with diabetes regarding psychological distance. For this purpose, the author considered the importance of outlining the process of action research as it progressed.

Definition of terms

In this study, the concept of psychological distance is defined as an ontological dimension of the experience of a "gap of existence" that persons with type 2 diabetes actively feel toward their families. This definition was set based on the previous research by Yamane (2011).[17]

Methods

The present research was conducted between September 2015 and March 2020 in two core regional hospitals (hospital A and B) in a prefecture in Japan. The two hospitals in this study were standard hospitals with diabetes classrooms and patient guidance programs.

1. Design and research progress

1) Design 1

The authors adopted the action research method, which focuses on a specific event occurring at a specific site. The action research method is aimed to change the situation by exploring solutions to problems lurking in the field with people on the site[18]. In this study, the authors presumed that the people in the field who deal with problems were medical staff and patients, based on the fact that they were aware of the problems in diabetes management when performed with patients' families, but could not solve them. This necessitates finding a way to problematize the potential issue. In addition, the authors adopted this method because it was important to consider the opinions of people with diabetes to investigate the family members with whom they have an intimate relationship. The goal was to make people with diabetes aware of their psychological distance from their family, which they do not usually notice. The research progress was based on the action research method and repeated until data saturation was reached and the research aim was achieved.

2) Design 2

In Design 2, new participants with diabetes were added to examine the usefulness of the technique created in Design 1. The contents of Design 2 were analyzed qualitatively and descriptively based on interview recordings and observation notes.

2. Research participants

Research participants consisted of people with diabetes and medical staff, according to their purpose for each action in the research methodology. The inclusion criteria were as follows: people with diabetes under the age of 70 years, who have been diagnosed with type 2 diabetes for more than six months and are married. The exclusion criteria included people with diabetes with severe complications, gestational diabetes, cognitive impairments, and difficulty in communicating orally. Participants also included researchers and healthcare professionals who were familiar with diabetes research: diabetic specialists and nurses certified in diabetic nursing. Data on basic characteristics of the participants were collected. Information of patients with type 2 diabetes was collected from medical records regarding age, gender, family structure, complications, treatment

details, HbA1c, BMI, diabetes history, and symptoms at the time of participation in the study. For medical professionals, information on gender and occupation was collected from the individuals themselves.

3. Ethical considerations

This study was conducted with the approval of the [*blinded for review*] Medical Ethics Review Committee (approval number: 633-2). Once the purpose of the research was explained, healthcare professionals consented to participate in the research in writing and verbally at the research cooperation facility. In addition, the authors obtained written informed consent from the individuals with diabetes and explained the efforts the authors would make to protect their privacy and personal information. The research was conducted following the ICMJE Recommendations and according to the World Medical Association Declaration of Helsinki.

Results

1. Design 1

The following are the results of the action research method that led to the creation of techniques for people with diabetes to enhance their awareness of the phenomenon of psychological distance from their family members.

1) Participant characteristics

In Design 1, the authors selected the participants as considered necessary to achieve the set goals for each action. A total of 13 participants were selected, including 3 patients with type 2 diabetes, 7 researchers, who were qualified in nursing and were familiar with diabetes care, 1 outpatient doctor at Hospital A, and 1 nurse. Table 1 reports the participant characteristics.

Table 1: Sociodemographic and clinical characteristics of the participants in Design 1 (N=13)

Medical staff (N = 9)

Characteristics	**Category**	
Gender (N)	Male	2
	Female	7
Occupation (N)	Doctor	1
	Nurse	8

People with diabetes (N=4)

Research participants (ID No.) / Category	1	2	3	4
Gender (Male/Female)	Female	Female	Male	Male
Age	68	48	57	65
HbA1c (%)	7.9	8.2	6.3	8.3
Disease duration (years)	33	25	4	33
Medicine use (Yes/No)	Yes	Yes	Yes	Yes
Insulin use (Yes/No)	No	No	No	Yes
Living together	Husband/ Mother	Husband/ Father/ Daughter	Wife	Wife
BMI	26.3	28.1	18.7	28.1
Subjective symptoms	-	-	-	-
Complications (Nephropathy)	□	□	□	□
Complications (Retinopathy)	+	+	−	+
Complications (Neurosis)	+	−	−	−
Hospital (A or B)	a	a	a	a

Note:

2) Creating techniques related to the awareness of psychological distance

The techniques related to the awareness of psychological distance were created by following six actions. Figure 1 illustrates this process.

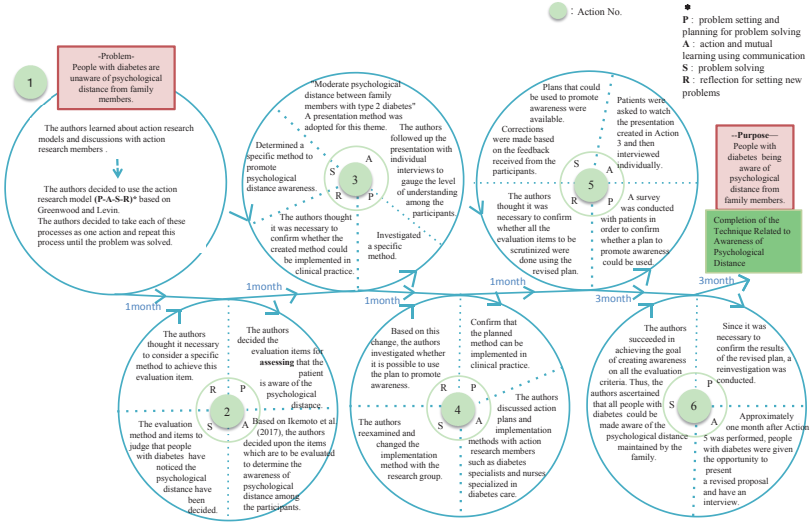

Figure 1. Overview of the action research process.

Action 1: The action research method.

Participants in this action were researchers who were qualified as nurses and familiar with diabetes care. The authors learned about action research models from literature reviews and books, and set specific models. The authors decided to use the action research model advanced by Greenwood and Levin[19] based on discussions with other researchers. This model works on problem setting and planning for problem solving (Plan), action and mutual learning using communication (Action), problem solving (Solve), and reflection for addressing new problems (Reflection). The authors decided to take each of these processes as one action and repeat it until the problem was solved. New problems can be identified and solved in an interactive process through researchers' reflection among themselves. The problem in this study was that people with diabetes were unaware of their psychological distance from their family.

Therefore, from Action 2, the authors describe the results of these four viewpoints.

Action 2: Determine evaluation items for psychological distance awareness.

Based on the results obtained in Action 1, it was necessary to clarify the evaluation method to ensure that the technique created by the authors can solve the final goal of "people with diabetes being aware of their psychological distance from family members." Participants in this action were researchers who were qualified as nurses and familiar with diabetes care.

The authors decided upon the items to be evaluated to determine the awareness of psychological distance that people with diabetes have with their families, based on a previous research by Ikemoto et al.[15] The extent of awareness of the psychological distance achieved by the people with diabetes was evaluated through a qualitative analysis of the following five abilities: looking back on their life and their diabetes management; thinking about their role as a family member and as a patient diagnosed with diabetes; thinking about the complicated feelings that arose due to their diagnosis; thinking about psychological distance objectively; and thinking about psychological distance subjectively.

Next, the authors thought it necessary to consider a specific technique to promote awareness of psychological distance, giving rise to Action 3.

Action 3: Decide on a specific technique to promote awareness of psychological distance.

The participants in this action were researchers who were qualified as nurses and familiar with diabetes care. Based on literature review, clinical practice experience, and research, the authors devised a method to promote awareness of psychological distance. In addition, the authors examined that the method satisfied the evaluation items determined in Action 2.

A presentation method was adopted to promote awareness of psychological distance between the people with diabetes and their family. It consisted of nine slides under the theme "Moderate psychological distance between family members with type 2 diabetes." The content included the results of the research conducted by Ikemoto et al.[15] and the elements necessary for creating awareness of psychological distance. Psychological distance between the people with diabetes and their family was explained using stories heard from the people with diabetes. The presentation was intended to help the people with diabetes find a suitable psychological distance with their families while communicating with the researcher. The authors followed up the presentation with individual interviews to gauge the level of understanding among the participants.

The authors then confirmed whether the created technique could be implemented in clinical practice using Action 4.

Action 4: Reexamination of the implemented method.

The participants in this action were researchers, diabetes specialists, and nurses familiar with diabetes care and research. The authors discussed action plans and implementation methods. It was assessed that it was difficult to conduct group discussion due to scheduling problems. In addition, there were concerns about asking the participants to speak about their family members and about their mental burden relating to the use of the term "psychological distance" when considering personal relationships. Thus, it was decided that it was difficult to conduct group discussion.

The author then reexamined the implementation method with researchers, diabetes specialists, and nurse's familiar with diabetes care and research. It was

decided that interviews and presentations be conducted individually, instead of in groups, with one nurse and licensed researcher and one patient. The authors also clarified the risk of using the term "psychological distance" and the measures that could be taken to prevent any adverse impact from its use.

Based on this change, the authors investigated whether it was possible to implement the plan to promote psychological distance awareness.

Action 5: Implementing and modifying the plan to promote awareness of psychological distance.

The participants were researchers who were qualified as nurses and familiar with diabetes care, people with diabetes, and nurses working in Hospital A. The authors conducted a design with people with diabetes to confirm whether a plan to promote awareness could be used. A doctor or nurse introduced the target person, explained the research, obtained consent in writing, and conducted the design. Four people with diabetes were asked to watch the presentation created in Action 3 after which they were interviewed individually. The researchers confirmed that the participants could understand the content correctly in the conversation. People with diabetes and researchers gave their opinions on the improvements made.

The interviews were recorded and transcribed verbatim, and an analysis was performed to examine if the research successfully achieved its purpose. For those evaluative criteria that could not be achieved, the authors changed the content of the presentation after a discussion among the research personnel. Furthermore, the authors made corrections based on the feedback received from the participants. The modified contents were as follows. As the perception of distance was assessed as inadequate among the participants, it was necessary to make changes and improve the image. In addition, as the patients did not have the idea of having their family members cooperate, a change was necessary in that respect. The authors thought that it was necessary to investigate whether all the evaluation items could be achieved using the revised plan.

Action 6: Completion of the Technique Related to the Awareness of Psychological Distance. Participants were researchers, people with diabetes, and seven nurses familiar with diabetes research. One month after the first interview, the same procedure was applied for investigation and re-evaluation. The authors succeeded in achieving the goal of creating awareness on all the evaluative criteria. For example, the perception of distance improved. The participants were able to discuss comfortably about their experience of psychological distance with their families. In addition, the participants became more conscious of help from their families in their lives. Thus, the authors concluded that all individuals with diabetes could be made aware of the psychological distance maintained with the family. The technique related to promoting awareness of psychological distance is outlined in Table 2.

Table 2: Overview of the technique related to the awareness of psychological distance

Slide No.	Summary
1	Show the title of what the presenter shall talk about from now on. Title: "Moderate psychological distance between family members with type 2 diabetes"
2	Desirable forms of support for people with diabetes and their families. The family is a support system for people with diabetes.
3	The voice of a real patient who does not accept the desired form.
4	Existence of psychological distance between people with diabetes and their family and the importance of psychological distance.
5	Difficulties related to psychological distance and the fear of living without feelings of psychological distance. A suggestion to find a moderate level of psychological distance with their family.
6	Ask the individuals with diabetes to imagine a moderate level psychological distance between them and their family (Based on actual patient voice 1).
7	Ask the individuals with diabetes to imagine a moderate level of psychological distance between them and their family (Based on actual patient voice 2).
8	Merit of achieving a moderate psychological distance.
9	Close up. Encourage patients to speak of their impressions of the presentation.

2. Design 2

The authors confirmed the usefulness of the technique created in Design 1 for making people with diabetes to be aware of the phenomenon of psychological distance.

1) Participants' overview

An overview of the 13 participants is shown in Table 3. All participants were outpatients.

2) Examining the usefulness of the technique related to the awareness of psychological distance

The 13 new participants were introduced by the

doctors and nurses. After providing verbal explanations, written informed consent was collected from them. As a result of the analysis, all the participants experienced distance from their families and were able to talk concretely about each evaluation item. The specific number of narrations for each participant is shown in Table 4. The table shows how much the participants were able to speak using symbols.

In terms of their ability to look back on the life lived and the management of the disease, participants made a few concrete statements about their diet and blood glucose levels. Regarding their ability to think about their role as a family member and as a patient diagnosed with the disease, there were four to eight responses on situations in which one is aware of diabetes. As for participants' ability to think about the complicated feelings that arose due to their diagnosis, there were between five and seven stories in which the patient understood that the management of the disease was largely their responsibility. In thinking of psychological distance objectively, people with diabetes spoke of their feelings about the future; they thought about cases such as complications. Regarding diabetes patients' ability to think about psychological distance subjectively, they mentioned two to seven instances of their current psychological distance and relationships with their families. All participants were able to talk about at least one of the evaluation items.

We pieced together a concrete story in the interview using the story by ID 103. ID 103 is a 42-year-old man, living with his wife and young children. He thought about his current family relationships and looked back on his own way of treating diabetes and his wife's cooperation in the management of the disease. He found it difficult to get support from his wife because they had a small child. He felt that with sufficient support, he might have managed his diabetes. He also felt that the support might be available in the next few years. ID 103, was managing his diabetes while playing the role of a father and additionally thinking about when to tell his wishes to his family.

To summarize, even for new participants, all the items could be evaluated by using the techniques related to the awareness of psychological distance.

Table 3: Sociodemographic and clinical characteristics of the participants in Design 2 (N=13)

Characteristics	Category	n
Gender (n)		
	Male	7
	Female	6
Age (Mean ± standard deviation)		55.6±10.4
HbA1c (Mean ± standard deviation)		7.5±1.0 %
Disease duration year (Mean ± standard deviation)		15.3±10.4
Insulin use (n)		
	Yes	6
	No	7
Hospital (n)	A	4
	B	9

Table 4: Number of specific narrations of evaluation items for each target person

ID No.	The ability of the patients to look back on the life lived and the management of the disease	The ability of the patients to think about their role as a family member and as a patient who suffers from the disease	The ability of the patients to think about the complicated feelings which arise due to diabetes	The ability of the patients to think about psychological distance objectively	The ability of the patients to think about psychological distance subjectively
101	3	4	7	1	4
102	3	6	6	3	6
103	3	8	6	3	6
104	3	8	4	6	6
105	3	2	6	2	6
106	2	7	6	5	5
107	2	7	6	5	6
108	2	4	7	2	2
109	3	5	5	2	7
110	2	4	4	2	6
111	3	5	4	4	9
112	2	5	4	3	4
113	2	3	5	2	4

Therefore, this technique is useful and can be used in the future.

Discussion

1. The self-awareness technique of psychological distance

Previous studies have noted that family support has a negative impact on the self-management of diabetes[11,13,14]. This might be due to people with diabetes themselves not knowing how they want their family to assist them in diabetes management.

Through the technique developed in this study, people with diabetes were able to notice various feelings and thoughts related to the role of their family in diabetes management, and the level of support that they received from their family. This helped the people with diabetes clarify their feelings and what they needed from their family. Through this technique, people with diabetes may be able to ask their family members for the help that they require. Effective and adequate support from the family will be of great significance to people with diabetes in the self-management of diabetes.

But this study focuses on psychological distance from the perspective of people with type 2 diabetes, which may differ from the perception of the family. This topic could be addressed in future studies.

The authors presented the techniques in the form of a presentation for the people with diabetes to understand the phenomenon of psychological distance, of which they were not aware. The goal was to make the content simple and easy to understand and see. In PowerPoint presentations, it is important that the message being conveyed is easy to understand[19]. Adopting the presentation method was deemed useful to overcome the aforementioned issues. As shown in Table 4, the number of narration items was smaller than the other items in the evaluative criteria "Looking back on medical treatment" and "Thinking about psychological distance objectively." We believe that this resulted from us not making direct reference to the evaluative criteria. However, the people with diabetes could answer to all the items through communication. In general, it is our opinion that the developed technique was improved through repeated elaboration as well as incorporating and modifying the ideas of the participants.

2. The action research method

In previous studies, psychological distance conjured up a bad image for the people with diabetes[15]. Additionally, in Action 3, the medical staff commented on the burden of using the term "psychological distance" on the people with diabetes. In advancing this study, we thought that approaching the relationship between family members from the perspective of psychological distance may impose a psychological burden on the patient. Therefore, it was necessary to proceed with the research carefully. Using the action research methodology, actions were repeated to solve the problem through an iterative method after which the researchers reflected upon the process. We believe that this method was able to deal with each of the challenges posed by this research and fully alleviate the privacy concerns of the patient.

In the medical field, the number of studies using the action research method has been increasing since 2011, but their methodologies are insufficiently pioneered, and the validity of their outcomes are cited as issues[21]. In this research, the action research model proposed by Greenwood and Levin[19] was used, and six actionable stages to solve the given problem were determined. Furthermore, to examine whether the created techniques were useful, a second design was conducted by adding new participants. The action research method can be buttressed with this additional step to make the findings more robust.

3. Implications of diabetes nursing

The impact of nursing and education on people with diabetes has been demonstrated by the effectiveness of nursing interventions[22-28]. Moreover, primary care nursing interventions can increase the satisfaction with care among people with diabetes[29]. However, the present intervention was concerned with knowledge of diabetes, self-control of blood glucose levels, diet, exercise, and drug management. This study was able to focus on the patient's thoughts. Patients and nurses can use this method to retrospectively analyze the experience of psychological distance with families. A nurse can understand the feelings of people with diabetes based on the techniques devised in this study, and support the relationship between people with diabetes and their families, thereby improving the quality of disease

management.

In diabetes education, the Diabetes Conversation Map™ program has become widespread, creating a place to share the experiences and knowledge experienced by people with diabetes. There are also studies on the impact of this program[30-32]. However, this program does not deal with the psychological distance between the patient and their family. The authors think that the recognition of the distance between the patient and their family should be used as a common recognition in the educational field in the future.

Conclusion

This study uses action research to help people with type 2 diabetes find a technique to recognize their psychological distance from their families. A process involving six actions, suggesting its usefulness, was implemented for this purpose.

Limitations

The research setting was a standard hospital with diabetes classrooms and patient guidance programs; however, there is no evidence that patient participation was sufficient to cover a variety of conditions. Moreover, this study was conducted among patients with type 2 diabetes in Japan. Therefore, it may not be possible to adapt it in a different culture or ethnicity.

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2 型糖尿病患者における家族との心理的距離についての自己認識を促す技術を探究するためのアクションリサーチ研究

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要　旨

目的：2 型糖尿病患者にとって，家族からの心理的な距離を経験することは，継続的な自己管理にとって重要である。しかし，2 型糖尿病患者は距離に気づいていない。この研究の目的は，2 型糖尿病患者が家族からの心理的距離という現象を認識するための技術を探求することである。

方法：研究は 2 つのデザインで構成された。デザイン 1 は著者と 4 人の糖尿病患者と 9 人の医療スタッフの共同チームで構成され，アクションリサーチ手法を採用し心理的距離を認識するための手法を探求した。デザイン 2 では，著者が 13 人の糖尿病患者にインタビュー調査を実施し，定性的記述分析を行った。これにより，デザイン 1 で探求した技術の有用性を確認した。

結果：デザイン 1 では，6 つのアクションを通じて心理的距離の認識の技術の探求を行った。まず著者は心理的距離認識の評価項目を決定し，心理的距離の認識を促進するための具体的な方法を決定した。その後実施方法を再検討しながら，計画の実施および修正を行った。デザイン 2 では，新たな糖尿病患者にインタビュー調査を行うことで，手法の有用性を確認した。結果，参加者全員が心理的距離認識の評価項目を想起し手法の有用性が示された。

結論：心理的距離の認識のための技術の探求は，6 つのアクションを含むプロセスの後に完了し，その後のインタビューによって，手法の有用性が確認された。医療者は，本研究で作成した手法に基づいて糖尿病患者の気持ちを理解し，糖尿病患者とその家族との関係を支援することができると考える。