

Self-Management Behaviors of Diabetes Control Among Diabetic Patients in Indonesia

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Abstract

Aims: This study was conducted to explore the behaviors of self-management of Indonesian diabetes patients on Diabetes (DM) control and health promotion.

Methods: Grounded theory was applied to explore the health self-management, by used In-depth interview.

Results: The study takes place in the community and health care center, by interviewed 20 respondents, to explain the health self-management behaviors. We found out 5 main themes including: Self-regularly take medication to control DM; Manage daily exercise activity in controlling DM; Manage my food and diet intake is necessary; Monitor blood sugar is the important part of DM control and; Monitor the hypo/hyperglycemia symptoms.

Conclusion: The healthy self-management behaviors need to be improved to enhance the motivation and self-care skills among diabetic patients. Although, the disease management of DM patients may be affected by the environment, culture, and life experience. The results revealed that diabetic patients have multiple DM self-management unique attitudes and behaviors towards diabetes disease.

Keywords: self-management behavior, diabetes control, diabetic (DM) patients

1. Introduction

Diabetes type 2 is always on the topmost common non-communicable disease since the year 2000 in Indonesia. The number of Diabetes Mellitus (DM) sufferers is about 285 million adults worldwide. The prevalence number will increase to over 439 million by the year 2030. International Diabetes Federation (IDF) estimated that 8.2% of adults aged 20–79 (387 million people) is living with diabetes since 2014 and the number of people with DM estimated will increase beyond 592 million over the world in 2035 (Guariguata et al., 2014).

People who live with chronic illnesses, such as DM, need to learn and understand their condition comprehensively or do self-management to aid them. The standard of DM cares in Indonesia is visiting the health center once a month and also attending health promotion. Good DM self-management is rated by evaluation of checking the blood sugar level and HbA1c every time they visit the health center. Still, the number of uncontrolled blood sugars is high and their awareness to visit the health center was moderate in several areas of Indonesia (Kementerian Kesehatan RI, 2013). It also becomes the trigger of the increasing number of DM complications year by year. Likewise, it can be a sign of inconsistency of self-management behavior and self-control among DM patients in the community.

Self-management ability will make the DM patients gain the skills to do DM-control, make suitable decisions for their conditions, and manage or change their lifestyle on their living habit of surviving living with their chronic illness (Kanfer & Gaelick, 1975). DM-control will increase their awareness of illness management, and health promotion has the aim of providing information to the public regarding living with DM and preventing any complications. Exploring and understand the real-life in handling their disease would be part of the way to find out their ability to manage their health problems (Ratanawongsa et al., 2012).

Health promotion involves the collaboration between patients and health care providers and also engaging family patients to adapting special skills behaviors to avoid the predisposition factor or complication of chronic illness (Sae-Sia et al., 2013). The elements of the self-management concept adopted from self-monitor, self-control, and

self-efficacy, and which usually appear in chronic illness patients' health care behaviors, such as DM patients (Sassen, 2017). The outcome of self-management is the patient can decide to select their own strategies in problem-solving to control the disease. DM self-management will enhance the individuals and families to achieve more positive outcomes in the DM control (Ryan & Sawin, 2009).

In the rural and suburban communities, the patients understand about DM medications and how to control their disease. However, it does not represent all of the DM patients' self-management, since several of them were more likely to defend their traditional self-care strategies, such as they like to use complementary medicine, or even they will not follow the medication administration. On the other side, their self-awareness of controlling the disease was possibly not just because of the health literacy and their strong belief on the tradition but could be from the other reason that we need to explore, which still become the challenges among health personnel and community health service.

2. Methods

2.1 Research Design

The qualitative grounded theory was applied to explore a concept that was the major concern of the population in the substantive area and how that issue was resolved or processed. This design was used to understand the concepts of the social processes in people's lives with DM in Indonesia. This method was developed by two famous theorist Barney Glaser and Anselm Strauss in 1967, as an alternative study to verify a concept.

2.2 Participants

Participation was entirely voluntary. The age of the participants is over 18 years old, with any duration of diagnosed with diabetes, abled to articulate their feelings and experiences of diabetes type 2, and who did not have dominant coexisting health conditions which might detract from the focus of the study.

2.3 Data Collection

Grounded theory is an inductive process used to generate concepts or theories from the individual level, which could then be generalized and applied to nursing practice (Lawrence & Tar, 2013). The researcher visited all of the participants at home by appointment and did a face-to-face interview. The researcher made a phone call before visiting participants' homes to confirm their willingness and time availability. Informed consent was signed after the researcher informs all of the research content and information, the interview was taken approximately 60 minutes. This method can assist the nurses to understand how individuals and families move through major life events, such as chronic illness is facing critical events. On the other side, this method enables researchers to develop explanations about concepts derived from empirical data. The semi-structured interview guidelines that the researcher used as below (Table 1).

Table 1. Semi-structured interview guideline

1. Could you elaborate on the DM symptoms that possibly happen daily?
2. In the past 3 months, How/what do changes did you notice of the DM symptom or your DM disease?
3. Could you describe your daily activity in managing DM symptoms or conditions?
4. Could you share with me how to control your DM conditions?
5. How did you change your living habits after getting the DM health care information from health providers (nurses or physicians)?
6. How did you overcome your obstacles when you are facing the changing life habits for controlling DM?
7. What is the most helpful resource for controlling your blood sugar?
8. Are there any other sharing issues that you need to talk with me about the DM controlled?

2.4 The Rigor of Qualitative Research

The rigor of the study was governed by the Lincoln and Guba criteria for trustworthiness. The rigors consist of: Credibility, which was one notable limitation of data collection through interviews, which is the questions were answered by a recall, and the respondent may not have accurate representations of what occurred, need to always focus the purpose of this study was to explore the living experience of DM patient and to explore their

self-management behavior in controlling DM from the patient’s perspective. Then transferability is guiding the findings to be applied to other contexts and settings or with other groups. Dependability was the meaning that the findings are consistent and could be repeated if the inquiry occurred within the same cohort of respondents, coders, and context (Cresswell, 2013). Last but not least was, conformability also known as the degree of neutrality or the extent to which the findings of a study are shaped by the DM respondents and not researcher bias, motivation, or interest in the exploring of the living experience and self-management among DM patient (Streubert & Carpenter, 2011).

2.5 Ethical Consideration

This study was obtained approval by the National Ethics Committee review of Kesbangpol Indonesia (No: 070/KSB/1873/2019). The researcher informed the participants about the aim of the study, potential risks and benefits, issues of confidentiality, and the length of the interview, the researcher obtained signed consent forms from the interviewees.

3. Results

The participants included 9 men and 11 women, with the majority (55%) age of populations is 40 to 60 years. For educational level, there were 55% of the participants coming from high school or above. Generally, or 60% of the population is coming from a family history with DM, which possibly coming from the father or mother side (see Table 2). The participants living in a rural area, which commonly only has one health care center. All of the respondents were usually visiting the health care center once a month.

Table 2. Participants characteristics

Variables	N	%
Gender		
Male	9	45%
Female	11	55%
Age		
Below 40	3	15%
40 ~ 60	11	55%
Above 60	6	30%
Education		
Diploma or above	9	45%
High School or below	11	55%
Family history with DM		
Have family history	12	60%
Non- family history	8	40%

The research was found 5 main themes that addressing the behavior of DM self-management and DM control. The thematic analysis was classified by the researcher and the research supervisor based on the common views and coding of the research findings (see Table3).

Table 3. Themes of self-management behaviors in diabetes control of DM patients

Theme	Subthemes
3.1 Self-regularly take medication to control DM	3.1.1 Be aware of the importance of taking medication for disease control
	3.1.2 Understand how to take medicine regularly and can follow the doctor's instructions to take medicine
	3.1.3 I don't think it's necessary to take medicine regularly

3.2 Manage daily exercise activity in controlling DM	3.2.1 I understand how important to do exercise in my daily activity
	3.2.2 I will arrange a schedule doing my exercise activity in daily life
	3.2.3 I will do exercise in my daily life
3.3 Manage my food and diet intake is necessary	3.3.1 Reduce the carbohydrate or calory as the part of main diet
	3.3.2 I will arrange my DM diet every day
	3.3.3 I can control to perform DM diet
3.4 Monitor blood sugar is the important part of DM control	3.4.1 I check my blood sugar regularly
	3.4.2 I check the blood sugar level once a month in the health center
3.5 Monitor the hypo/hyper-glycemia symptoms	3.5.1 I felt the signs of hyper-glycemia
	3.5.2 I felt the signs of hypo-glycemia

3.1 Theme 1: Self-Regularly Take Medication to Control DM

Problems of DM patients were on the difficulty to follow instructions of DM control because mostly they want to defend their belief or confidence on the medication, experiences or cultural value that they think is helpful for them (Fontaine et al., 2016). Even though the participants' taken health promotion frequently. It has several attitudes among DM patients that can be reflecting their self-awareness on handling their health care demand.

3.1.1 Be Aware of the Importance of Taking Medication for Disease Control

Respondents generally understand the risks of not being able to continue to take medications. Patients with long-term DM usually understand the importance of adherence medication for diabetes control and recognize that diabetes complications should be avoided. These knowledges come from their learning process, or from their experiences. These experiences become the cornerstone of continued medication behaviour. Such as respondent 7 below, that said:

The medication is important for me, I never skip it, since I know the compensation of not adherent with the medication, such as stroke and heart failure, I afraid of it (R7)

3.1.2 Understand How to Take Medicine Regularly and Can Follow the Doctor's Instructions to Take Medicine

When patients suffer from the problems caused by the DM, they may change the strategies in DM control. Patients may have experienced uncontrollable blood sugar and comorbid conditions, these experiences will also prompt them to take healthy self-management strategies to control diabetes.

If my blood sugar is high, as if I had experienced severe symptoms, I would go to visit the doctor, but since I have been taking medicine regularly, I have not had such a severe experience again (R5)

Research also revealed that patients often have difficulty knowing how and when to take their medicines, especially if their regimes are complex, patients with limited health literacy tend to have particular difficulty taking medicines accurately, even though they understand that they need it. A family support aiding the patients in comprehends and reminds that they need to keep on their responsibility on the medication adherence.

I taking the medication regularly, sometimes I need my husband to remind me to take it (R15)

3.1.3 I Don't Think It's Necessary to Take Medicine Regularly

The most common reasons for patients' non-compliance with the doctor's orders are including: having past bad experience on medication, fear of adverse side effects, lack of confidence in medication, or positive believe in certain traditions herbs. For example, a patient living near a health center explained why he chose to disobey his medication:

This treatment seems to be incompatible with my body, so I prefer to drink traditional herbs. I still take medication regularly, but if I get dizzy, sometimes I don't take it (R11)

My wife almost every day reminds me to take the medication, but, sometimes I don't take it because I like to just drink the jamu (traditional herbs), due to sometimes I have a sleeping problem when I taking it, I have ever discussed with the doctor, but doctor just reduce the dosages, actually I think I'm not suitable with the medication pills, I expect to have other medication (R20)

3.2 Theme 2: Manage Daily Exercise Activity in Controlling DM

Keeping the blood sugar value within the normal range recommends by the doctor is challenging for both patients and health personnel. That's because many things make the blood sugar levels change, sometimes unexpectedly. One of the examples of controlling blood sugar levels within normal is by regularly doing exercise. Body movement or exercise therapy is essential for the management of diabetes. Several patients show up the importance of doing physical activity, and their understanding of managing their DM by doing exercise.

3.2.1 I Understand How Important to Do Exercise in My Daily Activity

A patient, concerns about their health by switching their habit ongoing to work with riding a bicycle or jogging. Cycling on average burns as many calories as jogging, with considerably fewer negative impacts on the joints. Cycling and jogging also improve cardiovascular and aerobic fitness, controlled blood pressure, boost energy, builds muscle, and improves coordination among the respondents.

I usually spent exercise every Saturday and Sunday...however I go to work sometimes ride a bicycle it's also an exercise right ? I need it to maintain my DM condition (She ride a bike to work) (R1)

I struggle to do it every day, since I know that is important, I always wake up early, then I go jogging around 1 hour before I go to work (R4)

3.2.2 I Will Arrange a Schedule Doing My Exercise Activity in Daily Life

The respondents still responsibly arrange their exercise, since they were very busy with their daily activity.

I rarely exercise routinely, because in the morning usually I have to go to school very early, so I always plan to do an exercise on my off-day (R6).

I usually plan it on the weekend, I spent my time on Saturday and Sunday riding my bicycle (R15)

3.2.3 I Will Do Exercise in My Daily Life

The respondent strictly does exercise although they have a full daily activity on daily basis.

I need to do it everyday i doing exercise with my husband, jogging from my home to the concat park (R9).

..... I just doing jogging after pray subuh, then I start to do it around 30-60 minutes... I struggle to do it every day (R.19)

3.3 Theme 3: Manage My Food and Diet Intake Is Necessary

Compose the daily intake is important for the respondents. Mostly they know that one of the main DM self-management is controlling their daily nutrition and food intake.

3.3.1 Reduce the Carbohydrate or Calory as the Part of Main Diet

The patients follow the rule of DM care, by cut down their daily portion of a meal.

I reduce or minimize eating all sugar products, rice, and instant noodle. I was avoiding eating much rice and sugar, I like to eat more fruit and vegetables, yeah, that's what I do to make myself healthier (R.10)

Now I only a plate of rice in the morning, and reduce to eat rice on my dinner (R.11)

3.3.2 I Will Arrange My DM Diet Every Day

The respondents change their daily meal pattern, by taking it at a certain time. They manage it, to be a habit on daily basis.

I also manage my food by only taking a cup of coffee with light sweet in the morning, and eat in the afternoon and evening, I never have breakfast in the morning since the doctor suggest me to limited eat sugar, rice, and sweet snacks (R.5)

...I eat more vegetables every day and I just eat a plate of rice in the afternoon (R.7)

3.3.3 I Can Control to Perform DM Diet

Respondents understand that their daily intake needs to supervise. Their awareness becomes the foundation for managing their DM diet.

To maintain my diet, I just eating rice for just one plate, sometimes I didn't finish it because I like eating more vegetables (R.13).

...I just eat vegetables and fruit, sometimes I calculate my meal needs especially in the evening (R20)

3.4 Theme 4: Monitor Blood Sugar Is the Important Part of DM Control

Maintaining a normal blood sugar level is crucial to avoiding long-term health problems in the future. The respondents mostly understand; however, they have various strategies and reasons for managing it.

3.4.1 I Check My Blood Sugar Regularly

The respondents understand what they need to do to manage their blood sugar levels.

For routine blood sugar checks, I do it myself before eating, thank God, so far, I have never had my blood sugar too high or low (R10).

I do it at least once a day, particularly before dinner (R16)

3.4.2 I Check the Blood Sugar Level Once a Month in the Health Center

The respondents decide to do the blood sugar check in the health center. They argue that is enough to maintain their health condition with DM.

Yes, I have the device for blood sugar measurement, but i never use it, I'm afraid of the needle that's one of the reasons I just want to do it when I go to the health center (R.17).

I think is important to check my blood sugar since I have DM, but I think once a month is enough to show a general condition (R20)

3.5 Theme 5: Monitor the Hypo/Hyperglycemia Symptoms

Hyperglycemia was caused by elevated blood sugar, while hypoglycemia was blood sugar under normal. Due to both can make a primary health issue for people with DM, it's necessary to keep blood sugar within a healthy range.

3.5.1 I Felt the Signs of Hyperglycemia

The participants understand that is one of the symptoms that happen after they are diagnosed with DM. They know that it needs management and control.

The recent symptom that I feel is I easily to lost my power work the mid-day... the doctor suggest me to limited work and activity (R.8)

3.5.2 I Felt the Signs of Hypoglycemia

The participants having an uncomfortable experience in daily activity. They know if it's caused by DM and they learn from everyday experience. They usually know how to solve their problems.

My complaints now are my legs got pins and needles,, and I often get a cold.

...Sometimes when work for a moment my body is already tired, then usually I will go home to sleep (R.4)

Symptoms that often appear now are, sometimes I get dizzy after taking medicine, then the body is also often feeling weak (fatigue) and... sometimes I also feel very thirsty in the afternoon, that I need to take a break (R14)

4. Discussion

Several themes of this exploration research were proved of the concept of self-management was interrelated with how the health promotion has given and how the patient learning to control their DM. The first theme that we found out is their self-administration of medication adherence for controlling DM situations. Medication counseling and knowledge sharing usually become to be the first step to do for new DM patients (Jamaluddin et al., 2018). It's necessary to know about what to do and don't, due all of them will lifetime living with this illness and they need to take medication every day to survive. However, patients who have DM for several years usually experienced many patterns of having medication which probably made some side effects or the uncomfortable feeling of taking it. Then they will decide to compliance with the medication or will not. From the research showing that the patients come up with their awareness about the importance of taking medication for disease control. Nevertheless, for the patients who have unsatisfied experience with the medication, they will particularly find another solution, to make them confident with their condition. A few of the respondents decide to mix the medication with traditional herbs. The results of this study also found out that the patients like to take both regular medication and traditional herbs, due to their experiences of the medication and their beliefs on traditional herbs, and also the influence by the social environment (Novo Nordisk, 2012). They like to use herbs and honey since they know several old people in the community can survive with the DM by just using it. Nonetheless, it has a negative and positive side on their attitude to taking the mixed medication. The negative things are, they have the opportunity to have a complication in the future and they have a chance to run away from their regular medication, which can make the incidence of mortality in Indonesia look more serious and complicated day by day (Novo Nordisk, 2012). Yet,

the positive side is the people who taking traditional herbs, were mostly still visiting health center every month, so actually, the health center still can control their attitude by the monthly examination and doing health promotion or health mentoring.

Self-control a cognitive process that is necessary for regulating one's behavior to achieve specific goals (Bai et al., 2017). Chronic illnesses such as DM need an extensive treatment and continuously learning, self-control takes place on the first aspect that valuable for them. Their attitude of controlling DM connected with their activity to maintain it. It assured by the statement most of the patients continuously doing exercise and they explained how important to do it as a new living habit.

Almost all of the patients understand that they need to avoid high calories food, such as instant noodles or cookies. They informed, that we need to manage dietary intake by reduced the meal portion. It's in line with the health promotion program which is usually conducted in the health center, any time before they do health examination. The health center always emphasizes the importance of controlling their dietary intake by changing their food habit with more healthy food, such as eating more vegetables and changing their ordinary rice with red rice. Concisely, the goals of the health promotion about dietary or nutrition have been achieved.

Self-monitoring is behavioral with the demands of their existing social or health issue (Mamykina et al., 2017). Self-monitoring is fundamentals to attain self-management for DM patients. Most of the patients doing self-monitoring to their DM, by conducted blood sugar control anytime they go to the health center and almost none do it every day even though they have their device at home. Few of them informed if that is not necessary to do it regularly, they think to do it once every month is enough to monitor their condition with their illness. Actually, they know if their health condition can be changeable anytime which needs to monitor the blood sugar level every time. We can conclude that most of them were thinking if once a month is enough to do a blood sugar check in the health center to monitor their DM condition. It was the standard of the Indonesian government through the ministry of health that blood sugar check needs to apply to the DM patients at least once a month, or anytime they go to the health center, and that's is free of charge (Yusuf et al., 2016). As long as the policy enforcement to all the health center applied, the monthly blood sugar check becomes the benchmark of the patient's medication adherence evaluation in Indonesia (Ratanawongsa et al., 2018).

The other DM self-monitoring, were how they understand the physical symptom of hypoglycemia or hyperglycemia. What they need to do if the symptom appears, is one of the learning processes of their disease to monitor and control the disease (Mikhael et al., 2018). Such as the feeling of tiredness or the feeling of dizziness, they understood that it was the problem that they need to solve. Several of them, decided to just taking a rest or take medication. In certain patients they also inform that they need to regularly approach the professional help, if several symptoms coming. The learning process of symptom monitoring showing how was their self-management. The result depicting of how self-management behaviors among Indonesian DM patients, which start from monitoring their changeable symptoms, medication adherence, and controlling blood sugar and diet dealing with their health issues and improve their independence with DM self-management behavior (Sassen, 2017). However, it needed community participation and government engagement to strengthen the health self-management among the DM patients in Indonesia.

The study sums out that self-management in Indonesia is interrelated with how their DM-monitoring, DM-control, then finally they can achieve DM self-management through learning and experience. All factors were underlying their self-management, to always aware of living healthy with DM.

5. Conclusion

The study showed that people who live with chronic illness, such as DM in Indonesia, have learned and shaped self-management behaviors to help themselves in controlling DM. Self-management itself is composed of the skills to do self-monitor, make suitable decisions for their conditions, and manage or change their lifestyle on their living habit to be survive then living healthy with their DM. Self-management support in Indonesia is important which will optimally help them in rectify healthy behaviors by optimizing health promotion (Ogunrinu et al., 2017). The collaboration between patients and health care providers and also engaging family to aiding the patients is crucial. It's to avoid the predisposition factor or complication of DM which possibly come over and achieve a future good DM self-management. All of the aspects of DM-control and DM monitoring will build good DM self-management among Dm patients in Indonesia.

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