

# CASE STUDY OF FAMILY SUPPORT IN PREVENTING HYPOGLYCEMIA AMONG PATIENTS WITH DIABETES MELLITUS AT WONOKUSUMO HEALTH CENTER SURABAYA

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**Abstract.** The lack of support for people with diabetes mellitus risks them with hypoglycemia. The high incidence of hypoglycemia is partly due to the lack of special attention from families who do not know the prevention and treatment of hypoglycemia, especially blood sugar instability. The purpose of this study is to identify family support in preventing hypoglycemia in patients with diabetes mellitus. This is a descriptive study. The population in this study were patients with diabetes mellitus who were controlled at the Wonokusumo Health Center totaling 105 patients. Consecutive sampling chose 42 patients as the samples. Data collection uses a questionnaire. The study variable is family support in the prevention of hypoglycemia. The results showed that most patients have adequate family support as many as 24 patients (57%), almost half of the patients lacked emotional support as many as 19 patients (45%), most patients lacked instrumental support as many as 22 patients (52%), most patients had enough informational support as many as 24 patients (57%), and most patients had enough assessment/appreciation support as many as 22 patients (52%). It can be interpreted that patients get enough informational family support and assessment/appreciation but less emotional and instrumental family support. It is suggested that families need to provide more support to their family members with diabetes mellitus patients in preventing hypoglycemia.

**Keywords:** family support, prevention of hypoglycemia, patients with diabetes mellitus.

## 1 INTRODUCTION

Diabetes Mellitus sufferers will face a dilemmatic situation in preventing hypoglycemia complications. Hypoglycemia sufferers face fear and worry about the side effects of therapy which can cause complications, namely blood sugar levels below normal because treatment is difficult and more life threatening (Wu et al., 2011 in Jon et al, 2016; Thenmozhi et al., 2017). Hypoglycemia in sufferers often occurs due to inappropriate medication dosage, delaying eating after administering insulin and excessive activity (Latifah, 2017; Muche et al., 2020; Kahsay et al., 2019). In research, Choirunnisa (2018) stated that support for DM sufferers was still low and caused an increase in hypoglycemia rates. One of the reasons for the high incidence of hypoglycemia is the lack of special attention from families who do not know how to prevent and treat hypoglycemia.

The International Diabetes Federation (IDF) estimates that the number of diabetics in Indonesia will reach 28.57 million in 2045. In 2021 there will be 19.47 diabetics, this number is 47% greater than in 2045. East Java Province is ranked first in terms of the number 844,018 sufferers (Ministry of Health RI, 2019). In the city of Surabaya, based on Surabaya's health profile in 2014-2016 the prevalence of Diabetes Mellitus has increased from 3.34% to 10.43%. Based on the results of research in Kedundung Village, Magersari District, Mojokerto City, the incidence of hypoglycemia in cases of type 2 diabetes mellitus reached 10% in 24 people during insulin therapy (Pigawati

Risma, 2021; Mphasha et al., 2021). Hypoglycemia in DM patients is an acute complication of DM which can occur repeatedly and can exacerbate DM disease and even be at risk of experiencing long-term complications, decreased quality of life until death (Sutawardana, 2016; Mphasha et al., 2022; Pesantes et al., 2018).

If hypoglycemia is not resolved quickly, the symptoms and complaints will be progressive, starting from mild and atypical symptoms such as blurred vision, decreased concentration, feeling weak, dizziness and headaches, sweating to convulsions, decreased consciousness, stroke, cardiovascular disease. and even death (Mansyur, 2018; Ravi et al., 2018). Hypoglycemia in people with diabetes can be caused by several things, including: giving excessive insulin doses, calculating insulin doses that do not match food intake, using oral sulfonylurea-type hypoglycemia drugs as drugs to stimulate the body's insulin production, eating too little or missing meals, and excessive physical activity. Psychologically, hypoglycemia also has a negative impact, fear and worry about the side effects of therapy which can cause complications of hypoglycemia (Wu et al, 2011; Busetto et al., 2020; Wulandari et al., 2021) which is quoted as saying (Jon, et al, 2016). The impact caused by hypoglycemia is very fatal, 2% to 4% of deaths are caused by hypoglycemia (Lestari & Sunaryo, 2016).

Family support has an important influence on the implementation of treatment and the mental health of family members, if the patient gets special support from his family and the patient is able to take good care of himself, then the complications of hypoglycemia will be anticipated (Imam, 2017; Ngubane et al., 2021). The management of patients with diabetes mellitus is known as 4 important pillars in controlling the course of the disease and complications. The four pillars are education, nutritional therapy, physical activity and pharmacology (Wayan, et al, 2016). Nurse efforts that are very important in providing nursing care include providing counseling about the causes, prevention, and treatment of hypoglycemia. such as avoiding causative factors and risk factors (wrong diet, taking drugs that can increase blood glucose levels, stress) and lifestyle changes such as setting the time you need to eat, frequently monitoring blood sugar, avoiding alcoholic beverages and doing sports regularly routine to maintain a healthy weight Sudoyo.A (2013 in Mansyur, 2018). Good and appropriate health education can increase awareness of DM sufferers to want to change behavior in undergoing the program (Santoso & Setyowati, 2020).

## **2 METHOD**

The research design used in this research is descriptive with a case study approach. This study describes the prevention of hypoglycaemia by using a descriptive research design where this research will be describes family support in prevention Hypoglycemia in clients who have a history of diabetes at the Community Health Center Wonokusumo Surabaya.

The population in this study was 105 Diabetes clients people in the last 3 months. According to Groofe, the sample in this research provides took a sample of 20%-40% of the total population, namely 42 sufferers. On This research uses consecutive sampling.

The variable in this research is family support in prevention hypoglycemia. Definition Operational in this research is family functioning as a giver information, where family explain about giving suggestions, suggestions, information that can be used disclose a problem, with a questionnaire measuring instrument, an ordinal measuring scale with categories and criteria Good = 78 - 100%, Enough = 56 - 77%, Less= <56%.

Technique Data collection in this research was carried out by re searchersprovide a questionnaire sheet via hard copy to be filled in by respondents. During filling out the questionnaire if the respondent ca not the researcher will help you understand how to fill out the questionnaire. Questions on this test are answered using answer choices closed where respondents are directed to answer according to what they say felt by selecting a predetermined answer option, namely often, sometimes and never. Respondents gave enough tick marks with the help of stationery on the considered answers as an answer choice that suits him. Questionnaire sheet that have been filled in by respondents can be collected to researchers.

Data collection tools that will be used during research This uses a questionnaire. To carry out data processing, including editing, coding, scoring, tabulating, cleaning. Place This research was carried out at the Wonokusumo Community Health Center, Surabaya. Time This research was carried out in January – February 2023

### 3 RESULT

#### General Data

**Table 1.** Characteristics Based on Age

Age	Frequency	Percent(%)
30-40	1	2
41-50	1	2
51-60	19	46
61-70	18	43
71-80	3	7
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 1, it shows that almost all 37 sufferers (89%) suffer from diabetes mellitus aged 51-70 years.

**Table 2.** Characteristics Based on Gender

Gender	Frequency	Percent(%)
Male	11	26
Female	31	74
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 2, data were obtained from 42 people with Diabetes Mellitus, 11 people (26%) were male, while the majority were women, 31 people (74%).

**Table 3.** Characteristics Based on Education Level

<b>Level of education</b>	<b>Frequency</b>	<b>Percent(%)</b>
SD	22	52
SMP	7	17
SMA	7	17
SMK	2	5
S1	4	9
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 3, it showed that the level of education of people with Diabetes Mellitus at the Wonokusumo Health Center 22 people (52%) mostly had an elementary school level of education.

**Table 4.** Characteristics based on length of suffering

<b>Long suffering</b>	<b>Frequency</b>	<b>Percent (%)</b>
1,5	3	7
2	3	7
3	9	22
5	17	41
6	1	2
7	1	2
8	4	10
10	2	5
12	1	2
17	1	2
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 4, it shows that of the 42 people suffering from Diabetes Mellitus at the Wonokusumo Community Health Center, almost half of them have suffered from Diabetes Mellitus for 5 years, 17 people with a percentage of (41%).

**Table 5.** Characteristics based on living together

<b>Live together</b>	<b>Frequency</b>	<b>Percent (%)</b>
Husband	22	36
Wife	14	23
Child	21	34
Son-in-law	3	5
Grandchild	2	2
<b>Total</b>	<b>61</b>	<b>100</b>

Based on Table 5, research shows that most sufferers live at home with their husbands / children as many as 43 people (70%).

**Table 6.** Characteristics based on the highest education in the family

Highest education in the family	Frequency	Percent (%)
SD	5	12
SMP	9	21
SMA	11	27
SMK	8	19
S1	9	21
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 6, it shows that the highest level of education in the sufferer's family is almost half of them had a vocational school education, 11 people (27%).

### Special Data

**Table 7.** Emotional Support in the prevention of Hypoglycemia

Emotional Support	Frequency	Percent(%)
Good	4	10
Enough	19	45
Deficient	19	45
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 7, research on family emotional support in preventing hypoglycemia in Diabetes Mellitus sufferers at the Wonokusumo Community Health Center, Surabaya, it was found that almost half of the Emotional Support was in the adequate category, 19 sufferers (45%), almost half was in the insufficient category, 19 sufferers (45%).

**Table 8.** Instrumental Support in the prevention of Hypoglycemia

Instrumental Support	Frequency	Percent (%)
Good	6	14
Enough	14	34
Deficient	22	52
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 8, research on family instrumental support in preventing hypoglycemia in diabetes mellitus sufferers at the Wonokusumo Community Health Center, Surabaya, it was found that the majority were in the poor category, 22 sufferers (52%).

**Table 9.** Informational Support in the prevention of Hypoglycemia

Informational Support	Frequency	Percent (%)
Good	8	19
Enough	24	57
Deficient	10	24

<b>Total</b>	<b>42</b>	<b>100</b>
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Based on Table 9, research on family informational support in preventing hypoglycemia in patients with Diabetes Mellitus at the Wonokusumo Health Center in Surabaya, it was found that most of them were in the sufficient category, 24 patients (57%).

**Table 10.** Assessment/Reward Support in preventing Hypoglycemia

<b>Assessment / Award Support</b>	<b>Frequency</b>	<b>Percent (%)</b>
Good	9	22
Enough	22	52
Deficient	11	26
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 10, research on family support/appreciation in the prevention of hypoglycemia in patients with Diabetes Mellitus at the Wonokusumo Health Center in Surabaya, it was found that most of them were in the sufficient category, 22 patients (52%).

**Table 11.** Family support in preventing hypoglycemia

<b>Family Support</b>	<b>Frequency</b>	<b>Percent (%)</b>
Good	3	7
Enough	24	57
Deficient	15	36
<b>Total</b>	<b>42</b>	<b>100</b>

Based on Table 11, research on family support in preventing hypoglycemia in patients with Diabetes Mellitus, it was found that a small proportion were in the good category, 3 people (7%), most were in the sufficient category, 24 people (57%), and almost half were in the less category, 15 people (36%).

## **4 DISCUSSION**

This chapter presents a discussion of the results set out in the previous chapter. The results of the research conducted on 42 respondents in January 2023 concerning Family Support Efforts in the Prevention of Hypoglycemia in Diabetes Mellitus sufferers will be discussed in detail, where this discussion links research results, theories, and researchers' opinions.

### **Emotional Support in the prevention of Hypoglycemia**

The results of this study indicate that a small proportion of family emotional support is in the good category (10%). This is because most sufferers live at home with family members. Families can help reduce the indifference caused by certain illnesses and they can remove temptations to disobedience and can often be a support group for achieving adherence. This is in line with Bertalina's research (2018) Long-term treatment will most likely make diabetics feel bored and hopeless, therefore the role of the family is very important to continue to motivate and support family members and carry out the recommended medication and diet and help someone get through the – the hard times.

Lack of family emotional support was found in 19 patients (45%). This can happen because the sufferer has suffered for 5 years. Patients who have suffered for a long time tend to feel bored and hopeless, coupled with families who are already fed up to remind sufferers of treatment, so that health decline can occur and cause non-adherence in undergoing treatment. This is in line with Heny's research (2018) which states that family support in the form of emotional support is an important factor in helping a person get through difficult times and be compliant in treatment.

### **Instrumental Support in the prevention of Hypoglycemia**

Based on this research, it shows that a small proportion of family Instrumental Support is in the good category, as many as 6 sufferers (14%). This is because almost all sufferers live with their families. Families can help sick family members in providing medicines and financing. In line with Nonok's (2018) research, the family can lighten the burden for individuals suffering from health problems and the family can fulfill this, so that the family is a practical and concrete source of help which includes support or assistance such as money, equipment, time, and environmental modifications.

Lack of family instrumental support was found in 22 patients (52%). This can be attributed to the low family education. In this study, it was found that there were still 5 families (12%) whose last education was elementary school. Families with low education will find it difficult to understand information about diabetes treatment, so they are unable to provide insulin or medicines as recommended. This is in line with the research of Jon, et al (2018) which states that a low level of education will make it difficult to perceive positive external influences objectively and be open to various information including health information.

### **Informational Support in the prevention of Hypoglycemia**

Based on this research, it shows that a small number of family informational support is in the good category, as many as 8 sufferers (19%). This happened because there were several family members with bachelor's degrees in 9 families (21%). Families who have higher education will have good knowledge, because information apart from being obtained from formal education can also be obtained from non-formal education, or information obtained from mass media or electronic media. This is in line with Bertalina's (2018) research, namely that education is a process that will result in

changes in a person's behavior in the form of increased cognitive, affective and psychomotor abilities.

Lack of family informational support was found in 10 patients (24%). This is due to the low level of education in the family, in which 5 families (12%) had elementary school education, making it difficult to receive information. Families with low education tend to be less able to provide optimal information to sufferers. This is in line with Purwansyah's research (2019) that education has a very important role in living everyday life. Education is the learning of one's knowledge, skills, and habits through teaching, research and training one gets. The lower the level of education, the more difficult it is for someone to understand and understand information about the disease and how to treat it.

### **Assessment/Reward Support in the prevention of Hypoglycemia**

Based on this study, it shows that a small proportion of family support/appreciation is in the good category of 9 sufferers (22%). This can happen because most sufferers live at home with their husband/wife. The role of the family is very important to continue to motivate and support family members to continue treating and preventing hypoglycemia. Diabetes Mellitus sufferers tend to depend on family members for sources of diabetes care. Research by Dawan (2018) shows that one of the factors that influence the level of family support is the family relationship with sufferers. The role of husband or wife is as a motivator to provide encouragement or support to awaken, build quality, shape and achieve better life goals.

Lack of family appraisal/appreciation support was found in 11 patients (26%). This can happen because most sufferers live at home but the sufferer's family does not provide support for evaluation/award, where the family acts as a feedback guide, guides and mediates problem solving, as a source and validator of the identity of family members, including providing support, appreciation, and attention. The role of the family is very much needed to supervise and remind people with diabetes not to violate the rules of eating even though they want it. Family support is defined as assistance provided by other family members so that it can provide physical and psychological comfort to people who are expected in stressful situations. This is in line with Uswatul's research (2019) that family support can ease the burden of suffering for people with diabetes and can provide a solution or way out in dealing with the problems they face regarding their illness.

### **Family Support in the prevention of Hypoglycemia**

Based on this research, it shows that a small proportion of Family Support is in the good category, namely 3 sufferers (7%). This is because the patient suffered for 5 years. The majority of families who have family members who have long suffered from Diabetes Mellitus will accompany them during treatment, so they know things about the



treatment and prevention of hypoglycemia. This is in line with Bertalina's research (2018) Family members who already understand and understand the situation that befall their family members will take good care of members who suffer from Diabetes Mellitus.

Based on this study, it shows that almost half of family support is in the less category as many as 15 sufferers (36%). This is because the sufferer has been suffering for 5 years. The family assumes that the sufferer understands and is able to undergo treatment independently so that the family does not care about the treatment that the sufferer is undergoing. In line with Heri's (2020) research, the family has a role as a companion when clients take medication or undergo insulin injection therapy. Lack of help from family members when the patient is taking oral Diabetes Mellitus medication and insulin injections is a predictor for mild hypoglycaemia (Sajja et al., 2019; Iloh et al., 2018).

The results showed that family support in preventing hypoglycemia in patients with Diabetes Mellitus was mostly in the sufficient category, so that one of the efforts that nurses could make was to increase self-efficacy for people with Diabetes Mellitus who had fear of repeated hypoglycemia attacks. Promotive efforts such as health education should also be given as early as possible or from the first time a patient is diagnosed with diabetes mellitus so that people with Diabetes Mellitus have a good understanding related to blood glucose monitoring, acute and chronic complications, management of increases and decreases in blood glucose (Jon et al., 2016; Van et al., 2019; Shiferaw et al., 2020). Families can provide support in the form of informational, assessment, instrumental and emotional support. Family is an important motivating factor for diabetes sufferers to continue treatment. Informational support can be provided to families in the form of providing advice or information needed by diabetes sufferers. Appraisal support in the form of appreciation, praise, hope, and positive expressions will increase the self-confidence of clients with Diabetes Mellitus. Awards given to people with Diabetes Mellitus have a positive impact on the risk of emotional disturbances that are often experienced by people with chronic diseases. Instrumental support is related to providing the infrastructure needed by patients in the process of treating diabetes sufferers.

## **5 CONCLUSION**

Based on the results of the study, it can be concluded that family support in preventing hypoglycemia in diabetes mellitus clients in the Wonokusumo Health Center, Surabaya, is mostly in the sufficient category.

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