

FAMILY LITERACY-BASED APPROACH TO STRENGTHENING SELF-CARE MANAGEMENT COMPLIANCE IN DIABETES MELLITUS PATIENTS: INSIGHTS FROM A HOSPITAL STUDY

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ABSTRACT

Self care. management in patients with diabetes mellitus, which is an effort that can be made by patients with diabetes mellitus to be able to manage themselves which is influenced by family support and health literacy. This study was conducted to determine the Relationship between Family Support and Health Literacy with Self care. management Compliance in Patients with Diabetes Mellitus in the Edelweis Room of X Batam Hospital in 2024. This study used a quantitative method with 30 respondents of Patients with Diabetes Mellitus in the Edelweis Room of X Batam Hospital using consecutive sampling techniques. Data were processed using the Chi Square test. The results of the study obtained the largest respondent support in the poor category as many as 18 respondents (60%), the largest respondent Health literacy in the inadequate category as many as 20 respondents (66.7%), Self Care Management of the largest respondents in the poor category as many as 16 respondents (53.3%), There is a Relationship between Family Support and Self Care Management in Diabetic Mellitus Patients with a p value of 0.02, There is a Relationship between Health literacy and Self Care Management in Diabetic Mellitus Patients with a p value of 0.019. This study can provide better knowledge to patients about the importance of family support, health literacy, and DM self care management to improve health levels.

Keywords: Family Support, Health Literacy, Self Care Management, Diabetes Mellitus.

INTRODUCTION

A. Background

Diabetes Mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia caused by defects in insulin secretion, insulin action, or both. Globally, DM is a serious health problem, with an estimated 463 million people living with the disease in 2019, and Indonesia ranks 7th in the world for the highest number of DM patients. DM is often known as a silent killer because it often goes unnoticed and causes acute (such as diabetic ketoacidosis) and chronic (such as nephropathy, retinopathy, and coronary heart disease) complications that negatively impact patients' quality of life.

DM management requires optimal self-care management (SCM), including diet, physical activity/exercise, blood sugar monitoring, medication adherence, and foot care. Improperly implemented SCM can lead to serious complications and even death.

Factors influencing SCM adherence include:

1. Family Support: Family support (emotional, informational, instrumental, and esteem) is a crucial aspect of attitudes, actions, and acceptance that provides comfort, care, and motivation for people

with diabetes. A preliminary study at X Hospital in Batam showed that 40% of patients reported a lack of family support.

2. **Health Literacy:** This refers to a patient's ability to read, understand, and utilize health information to make informed decisions about treatment. Poor health literacy is often caused by a lack of health literacy. A preliminary study showed that 80% of patients were unaware of the importance of SCM and its components.

B. Problem Formulation

The formulation of the problem in this research is "Is there a relationship between family support and health literacy with self-care management compliance in diabetes mellitus patients in the Edelweiss Room, X Batam Hospital in 2024?"

C. Research Objectives

1. General Objective

To determine the relationship between family support and health literacy with self-care management adherence in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.

2. Specific Objectives

The specific objectives of this study are:

- a. To determine family support in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.
- b. To determine health literacy in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.
- c. To determine self-care management adherence in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.
- d. To analyze the relationship between family support and self-care management adherence in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.
- e. To analyze the relationship between health literacy and self-care management adherence in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024.

D. Research Benefits

1. For Hospital X Batam

The results of this study are expected to provide input and considerations to the hospital as a basis for nursing services, particularly regarding self-care management in patients with diabetes mellitus.

2. For Awal Bros University

The results of this study are expected to enrich the literature, serve as useful reading material, and provide additional data, particularly on self-care management in patients with diabetes mellitus.

3. For Future Researchers

The results of this study are expected to serve as reference material to broaden the horizons and knowledge of self-care management in patients with diabetes mellitus and to inform further research.

4. For Respondents

The results of this study are expected to provide information to patients regarding the importance of self-care management in patients with diabetes mellitus.

MATERIALS AND METHODS

A. Research Design

The research design used in the research thesis uses an analytical observational research method to try to find the relationship between 2 variables, namely the independent variable (family support and health literacy) and the dependent variable (Self care management). In this study using a cross-sectional research design, this study aims to determine the Relationship between Family Support and Health literacy with Self-care management Compliance in Diabetes Mellitus Patients in the Edelweis Room at X Batam Hospital in 2024 (Notoatmodjo, 2023).

B. Research Population and Sample

1. Population

A population is a generalized area consisting of objects or subjects with certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn (Sugiyono, 2022). The population in this study was all diabetes mellitus patients treated in the Edelweiss Ward at X Hospital, Batam. The population in this study was the average number of patients treated in the Edelweiss Ward at X Hospital, Batam, with a diagnosis of DM per month, namely 30 patients during 2024.

2. Sample

The sample is the object of study and is considered representative of the entire population. In this study, specific methods or techniques were used to select the sample to be as representative as possible of the population (Notoatmodjo, 2023).

In this population, the sample was drawn from a portion of the population that met the criteria. The sampling used was non-probability sampling with 30 respondents using a consecutive sampling approach, a sample collection method that involves selecting all individuals encountered in the population who meet the requirements during a specific time period to achieve the required sample size. This study used the following inclusion and exclusion criteria:

a) Inclusion Criteria

1. Patients with type 2 diabetes mellitus.

b) Exclusion Criteria

1. Patients with sensory impairments.
2. Patients who were unwilling to participate.

C. Research Location and Time

The research was conducted in the Edelweiss Room of RS X Batam, which was implemented in February 2025.

D. Data Collection Tools

Research instruments are the tools used for data collection (Nursalam, 2020).

The tool used for data collection is a questionnaire. This is a data collection technique that involves providing a set of written questions or statements to respondents for them to answer. The questionnaires used were the Hensarling Diabetes Family Support Scale (HDFSS), the Health Literacy Questionnaire, and the Diabetes Self-Care Management Questionnaire (DSMQ).

E. Validity and Reability Testing

1. Validity Test

Validation is an index that indicates whether a measuring instrument actually measures what it is intended to measure. Respondents for validity testing are taken after selecting respondents to be included in the questionnaire. Respondents who have already been included in the validity test will not be included again in the research. If the calculated r value is greater than the table r value, the statement is declared valid (Nursalam, 2020). In this study, a reliability test was conducted by Hidayanti (2022), with an average calculated r value of 0.972, greater than the table r value of 0.444.

2. Reliability Test

Reliability is an index that indicates the extent to which a measuring instrument is trustworthy or reliable (Nursalam, 2020). An instrument is considered reliable if the alpha value is greater than the constant value (0.60). Since the Crohn's Alpha value is greater than the constant value (0.60), this research instrument can be considered reliable. In this study, a reliability test was conducted by Hidayanti's research (2022) with a Cronbach alpha result of 0.989.

F. Data Analysis

a) Univariate Analysis

Univariate analysis aims to explain or describe the characteristics of each research variable. The form of univariate testing depends on the type of data (Notoatmodjo, 2023). In this study, univariate analysis was conducted to describe respondent characteristics using categorical data, presented in the form of numbers and percentages.

b) Bivariate Analysis

Bivariate analysis was conducted on two variables suspected of being related or correlated (Notoatmodjo, 2023). Bivariate analysis was conducted to determine the relationship between family support and health literacy with self-care management adherence in diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam in 2024. Bivariate analysis was conducted to examine the relationship between the independent and dependent variables using the Chi-Square test. The Chi-Square test is used to examine two groups of data, both the independent and dependent variables being categorical.

G. Research Ethics

Ethical issues in research using human subjects are a central issue currently emerging. In nursing research, nearly 90% of the subjects used are human, therefore researchers must understand the principles of research ethics (Nursalam, 2020). All research involving human subjects must apply the following four basic principles of research ethics:

1. Respect for Persons

Respecting persons requires considering several factors, including:

- a) Researchers must carefully consider the potential harm and misuse of research.
- b) Research subjects who are vulnerable to research hazards require protection.

2. Beneficence

Research is expected to generate maximum benefits and minimize harm or risk to research subjects. Therefore, research design must consider the safety and health of research subjects.

3. Non-Maleficence

As previously explained, research must minimize harm or risk to research subjects. It is crucial for researchers to anticipate potential risks during the research to prevent any potential risks to the research subjects.

Furthermore, the implementation of this research adheres to the following ethical principles:

a) Informed Consent

This is a consent form provided to respondents who will be studied and meet the inclusion and exclusion criteria. If respondents agree to participate in the research, they must sign the consent form. If respondents do not agree to participate, the researcher cannot force them to do so and will respect their decision.

b) Anonymity

This is an ethical issue, as respondents' names are not identified on research instruments, but are identified only by a code that only the researcher understands.

c) Confidentiality

This is an ethical issue, ensuring the confidentiality of information provided by respondents. Researchers only report specific data sets.

d) Right to Self-Determination

Research respondents have the right to choose whether or not to participate without any penalty.

e) Fair Treatment

Every respondent receives equal treatment in the research.

RESULTS AND DISCUSSION

Data collection was conducted from January 25 to February 5, 2025. The study involved 30 respondents. The research data, in the form of univariate and bivariate analyses, were conducted at Hospital X, Batam City, in January 2025. The data are presented in tabular and narrative form.

1. Respondent Demographics

The research results on respondent demographic data are presented in the table.

Table 4.1 Demographic Distribution

Gender	Amount	Percentage (%)
Male	13	43,3
Female	17	56,7
Total	30	100
Education	Amount	Percentage (%)
Primary (Elementary, Middle School)	2	6,7
Secondary (High School)	19	63,3
Higher (University)	9	30,0
Total	30	100

Table 4.1 shows that the majority of respondents were female (17 respondents (56.7%)), and 13 respondents (43.3%) were male. The majority of respondents had secondary education (high school) (19 respondents (63.3%)), higher education (college) (9 respondents (30%)), and primary education (2 respondents (6.7%)).

2. Univariate Analysis

a) Family Support

The research results regarding respondents' family support are presented in the table.

Table 4.2 Distribution of Family Support

Family Support	Amount	Percentage (%)
Not Enough	8	26.7
Enough	15	50.0
Good	7	23.3
Total	30	100

Table 4.2 shows that the greatest respondent support is in the sufficient category with 15 respondents (50%), while the lowest family support is in the good category with 8 respondents (23.3%).

b) Health literacy

The results of the study on respondents' health literacy are presented in the table.

Table 4.3 Distribution of Health Literacy

Health literacy	Amount	Percentage (%)
Inadequate	7	23.3
Sufficiency	17	56.7
Adequate	6	20.0
Total	30	100

Table 4.3 shows that the highest level of health literacy among respondents is in the adequate category, namely 17 respondents (56.7%), while the lowest level of health literacy is in the adequate category, namely 6 respondents (20%).

c) Self-Care Management

The research results regarding respondents' self-care management are presented in the table.

Table 4.4 Distribution of Self Care Management

<i>Self Care Management</i>	Amount	Persentase (%)
Bad	7	23.3
Enough	15	50.0
Good	8	26.7
Total	30	100

Table 4.4 shows that the Self Care Management of the largest respondents is in the sufficient category with 15 respondents (50%), while the lowest Self Care Management is in the poor category with 7 respondents (23.3%).

3. Bivariate Analysis

a) Relationship between Family Support and Self-Care Management Compliance

Table 4.5 Relationship between Family Support and Self Care Management

Family Support	<u>Management</u>						<i>P Value</i>
	Bad	%	Enough	%	Good	%	
Not Enough	6	75	2	25	0	0	0,01
Enough	1	6,7	13	86,7	1	6,7	
Good	0	0	0	0	7	100	

Based on Table 4.5, it shows a p value of 0.01, meaning that there is a relationship between family support and self-care management in diabetes mellitus patients in the E.de.lwe.is room at X Hospital, Batam in 2024.

b) Relationship between Health Literacy and Compliance with Self Care Management

Table 4.6 Relationship between Health Literacy and Self Care Management

<i>Health Literacy</i>	<u>Management</u>						<i>P Value</i>
	Bad	%	Enough	%	Good	%	
Inadequate	5	71,4	1	14,3	1	14,3	0,019
Sufficient	2	11,8	13	76,5	2	11,8	
Adequate	0	0	1	16,7	5	83,3	

Based on Table 4.6, it shows a p value of 0.19, meaning that there is a relationship between Health literacy and Self Care Management in Diabetes Mellitus Patients in the Edelweiss Room, X Batam Hospital in 2024.

DISSCUSION

Relationship between Family Support and Self-Care Management

The results of this study indicate a significant relationship between family support and self-care management adherence in DM patients (p-value 0.01). This finding aligns with other studies that suggest that good self-care is influenced by strong family support. Family support (in the form of attention, encouragement, and practical assistance) provides a sense of comfort and motivates patients to manage their disease. Because DM is a chronic disease that requires long-term management, consistent family support is crucial to preventing non-adherence to diet, exercise, and medication therapy.

The Relationship Between Health Literacy and Self-Care Management

This study also found a significant relationship between health literacy and SCM adherence in DM patients (p-value 0.019). This finding is consistent with the research of Gaffari et al. (2020), which stated that adequate health literacy leads to good SCM. Health literacy reflects a patient's ability to read, understand, and act on health information. With good health literacy, DM patients will have adequate knowledge about their disease and be able to make informed decisions about self-care behaviors that maintain physical and psychological health, thereby controlling the disease and preventing complications.

CONCLUSION

Based on the research results, it can be concluded that:

1. The level of family support and health literacy of diabetes mellitus patients in the Edelweiss Ward at X Hospital, Batam, is mostly in the Sufficient or Quite Adequate category.
2. There is a significant relationship between family support and self-care management adherence in diabetes patients (p-value = 0.01).
3. There is a significant relationship between health literacy and self-care management adherence in diabetes patients (p-value = 0.019).

Recommendations for hospitals and nurses: Improve the quality of nursing services, particularly through ongoing health education to improve patient health literacy and advocacy for families to increase their active role in providing support to diabetes patients.

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