



RESEARCH ARTICLE

The Effect Of Education On Self-Confidence And Self-Care In Type Ii Diabetes Mellitus Patients In The Working Area Of The Batujaya Karawang Community Health Center

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Abstract

Diabetes Mellitus (DM) is a chronic disease that requires long-term management through lifestyle modification and adherence to therapy. Health education is an essential intervention to improve patients' self-efficacy and self-care in supporting lifelong treatment. Good self-efficacy enhances patients' confidence in managing their condition, while optimal self-care contributes to improved quality of life. This study aimed to determine the effect of education on self-efficacy and self-care among patients with Type 2 Diabetes Mellitus in the working area of Batujaya Primary Health Center, Karawang. This research employed a quantitative approach with a quasi-experimental method using a one-group pretest-posttest design. The sampling technique used was proportional purposive sampling, involving 32 respondents. The instruments used were the Diabetes Management Self-Efficacy Scale (DMSES) and the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire. Data were analyzed using the paired t-test. The results showed an improvement in self-efficacy and self-care after the educational intervention. Statistical analysis revealed a p-value of 0.000 for self-efficacy and 0.000 for self-care ($p < 0.05$), indicating a significant effect of education on self-efficacy and self-care among patients with Type 2 Diabetes Mellitus. It is recommended that primary health centers optimize continuous health education, counseling, and health promotion programs to enhance patients' ability to manage their condition and improve their quality of life.

Keyword: Education, Self-Efficacy, Self-Care, Type 2 Diabetes Mellitus.

Introduction

Diabetes Mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia due to impaired insulin secretion, insulin action, or both. Long-term hyperglycemia can cause damage to various organs, such as the heart, kidneys, eyes, nerves, and blood vessels. Therefore, DM requires long-term management and active patient involvement in self-care to prevent complications and improve quality of life (Smeltzer et al., 2013; Brunner & Suddarth, 2017). According to the International Diabetes Federation, DM consists of several types: type 1, type 2, gestational diabetes, and other specific types. Type 2 DM is the most common type, accounting for over 90% of diabetes cases worldwide. This disease occurs due to insulin resistance and impaired insulin secretion, leading to elevated blood glucose levels. It is closely related to lifestyle choices such as obesity, physical inactivity, and unhealthy diet (ADA, 2018; IDF, 2021).

Globally, DM is a growing health problem. The World Health Organization (IDF) states that diabetes is one of the fastest-growing non-communicable diseases in the world. The IDF reports that in 2021, approximately 537 million adults were living with diabetes, and this number is expected to increase to 783 million by 2045. Indonesia ranks fifth in the world with approximately 19.47 million sufferers, making diabetes a major challenge for the national health system (IDF, 2021). In Indonesia, the prevalence of diabetes mellitus (DM) is also increasing. Basic Health Research (Riskesdas) data shows that the prevalence of diabetes increased from 6.9% in 2013 to 8.5% in 2018. In West Java Province, the prevalence of diabetes reached approximately 1.7%, while in Karawang Regency, cases of diabetes, both diagnosed and symptomatic, are still found. This

demonstrates the need for effective promotive and preventive interventions, one of which is through health education for diabetes patients (Ministry of Health of the Republic of Indonesia, 2018; West Java Health Office, 2020). DM management is highly dependent on the patient's ability to self-manage. One important psychological factor is self-efficacy, which is an individual's belief in their ability to perform certain actions. The concept of self-efficacy was developed by Albert Bandura within social cognitive theory. Self-efficacy influences how a person thinks, motivates themselves, and acts when engaging in health behaviors such as diet, exercise, and medication adherence (Bandura, 1997; Damayanti, 2017). Ady Pranata's (2021) study, "The Relationship Between Self-Efficacy and Blood Sugar Control in Type 2 Diabetes Mellitus Patients at the Gamping 2 Community Health Center, Sleman, Yogyakarta," demonstrated a significant relationship between self-efficacy and patient glycemic control ($p < 0.001$). The results of this study indicate that higher self-efficacy, better blood sugar control in type 2 diabetes patients (Pranata, 2021). Firmansyah's (2017) study, "The Relationship between Self-Efficacy and Blood Sugar Levels in Diabetes Mellitus Patients at the 7 Ulu Community Health Center in Palembang," also found a significant relationship between self-efficacy and blood sugar levels ($p = 0.002$). This indicates that self-efficacy is a crucial factor in successful diabetes self-management (Firmansyah, 2017). Nyunt et al.'s (2010) study, "Self-Efficacy, Self-Care Behaviors, and Glycemic Control among Type 2 Diabetes Patients Attending Two Private Clinics in Yangon, Myanmar," showed that patients with high self-efficacy were 5.29 times more likely to achieve good glycemic control than those with low self-efficacy. This study confirms that self-efficacy is a strong predictor of self-care behaviors in type 2 diabetes patients (Nyunt et al., 2010). In addition to self-efficacy, diabetes self-care is a key component of disease management. Self-care includes diet management, physical activity, medication adherence, blood sugar monitoring, and foot care. Good self-care skills can prevent complications and improve patients' quality of life (Luthfa & Fadhilah, 2019). Research conducted by Mulyani (2016), entitled "The Relationship between Self-Care and Blood Glucose Levels in Type 2 Diabetes Mellitus Patients," showed that patients with good

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self-care had better controlled blood glucose levels than those with poor self-care. Research by Asnaniar and Safruddin (2019), entitled "Self-Care Ability in Diabetes Mellitus Patients with Coping Mechanisms," also found that good self-care improves patients' coping abilities and confidence in their health. Health education is an important intervention in improving self-efficacy and self-care in DM patients. Education aims to increase patients' knowledge, skills, and motivation so they can manage their disease independently. PERKENI (Indonesian Diabetes Association) places education as one of the five pillars of diabetes management, alongside diet, physical activity, monitoring, and pharmacological therapy (PERKENI, 2019). A study by Laili (2018), entitled "Education with a Self-Care Approach to Diet Compliance in Type 2 Diabetes Mellitus Patients," showed that education provided in a gradual and continuous manner can improve patient dietary compliance. Education also provides opportunities for patients to discuss, share experiences, and increase motivation to practice self-care (Laili, 2018). A study by Funnell et al. (2012), entitled "National Standards for Diabetes Self-Management Education and Support," showed that a patient empowerment-based education program significantly improved self-efficacy and self-care skills in diabetes patients. Education helps patients understand their disease and increases confidence in managing their chronic condition (Funnell et al., 2012). A study by Chrvala et al. (2016) study, "Diabetes Self-Management Education for Adults with Type 2 Diabetes Mellitus," showed that diabetes education programs significantly improved patients' self-care behaviors, knowledge, and glycemic control. Educational programs have also been shown to increase patients' confidence in making healthy lifestyle changes (Chrvala et al., 2016). Research by Norris et al. (2002), "Self-Management Education for Adults with Type 2 Diabetes," found that community-based diabetes education significantly reduced HbA1c levels and improved adherence to therapy. Research by Steinsbekk et al. (2012), "Group-Based Diabetes Self-Management Education Compared with Routine Treatment," also showed that group education improved self-efficacy, knowledge, and self-care behaviors in patients with type 2 diabetes. Nurses play a crucial role as educators in diabetes management. Orem's self-care theory states that individuals can care for themselves if they have adequate knowledge and skills. Nurses play a role in providing education, motivation, and support so that patients can optimally perform self-care and prevent complications (Allgood, 2014). Data on outpatient visits to the Batujaya Community Health Center (Puskesmas) from January to December 2025 showed 736 visits. Meanwhile, from January to June 2023, there were 186 visits from existing patients and 88 new patients, comprising 22 men and 64 women. Batujaya Community Health Center is a primary healthcare facility that has implemented a chronic disease management program through Prolanis (Chronic Disease Management Program). This program is aimed at patients with chronic diseases, including type 2 diabetes mellitus, with the goal of improving quality of life through health monitoring and ongoing education. Patients recorded generally experienced the classic triad of diabetes symptoms, such as polyuria, polydipsia, and polyphagia. However, some patients exhibited no typical symptoms and were diagnosed through routine health screening. Based on this phenomenon and supported by various previous research results, health education is suspected to have a significant influence on increasing self-efficacy and self-care in type 2 DM patients. Therefore, researchers are interested in conducting research with the title "The effect of education on self-efficacy and self-care in type II Diabetes Mellitus patients in the Batujaya Karawang Community Health Center Work Area."

Method

The population in this study was 186 DM patients. The sample in this study was 32 respondents using proportional purposive sampling technique. The sample criteria in this study were DM patients undergoing treatment who were willing to be respondents. The independent variable was education, the dependent variable was self-efficacy and self-care. The data collection tool used a questionnaire. Statistical analysis used a paired t-test.

Results and Discussion

Univariate Analysis

Table 1. Distribution of respondent characteristics in type II DM patients (32)

Variables	F	%
Age		
- < 39 years	12	37.5
- ≥ 40 years	30	62.5
Type Sex		
- Woman	23	71.9
- Man	9	28.1
Education		
- JUNIOR HIGH SCHOOL	8	18.8
- SENIOR HIGH SCHOOL	16	50.0
- Bachelor	10	11.2
Employment status		
- Work	13	40.6
- No Work	19	59.4
Long suffering		
- <4 years	17	53.1
- ≥5 years	15	46.9

Bivariate Analysis

Table 2. Analysis influence education to self-efficacy on Diabetes Mellitus patients Type II

	Mean	S. D	Min	Max	t value	P Value
Pre-test	54.44	3,627	48	62	0.8614	0.000
Post test	67.38	6,073	60	80		

Based on table on show results test obtained mark P value 0.000 (<0.05) , so Ho is rejected / Ha is accepted, meaning there is an influence of education on the self-efficacy of Diabetes Mellitus patients .

Table 3. Analysis influence education to self care on Diabetes Mellitus patients Type II

	Mean	S. D	Min	Max	t value	P Value
Pre-test	54.44	3,627	48	62	0.1150	0.000
Post test	66.47	4,958	60	80		

Based on table on show results test obtained mark P value 0.000 (< 0.05) , so Ho is rejected / Ha is accepted It means There is influence education to self care Diabetes Mellitus patients

The influence of education on self efficacy in patients with Type II Diabetes Mellitus

The results of this study showed a p-value of 0.000 (p < 0.05), thus rejecting Ho and accepting Ha. This indicates a significant effect of education on the self-efficacy of patients with Diabetes Mellitus. Statistically, this value indicates that educational interventions provide significant changes in increasing patients' self-efficacy scores after treatment compared to before education. Health education has been shown to strengthen patients' confidence in

performing self-care independently and consistently. The concept of *self-efficacy* originates from *Social Cognitive Theory* developed by Albert Bandura, explaining that *self-efficacy* is an individual's belief in their ability to organize and carry out certain actions to achieve desired outcomes. In patients with Diabetes Mellitus, *self-efficacy* is related to the ability to carry out self-care management such as diet management, physical activity, therapy compliance, and blood glucose monitoring (Bandura, 1997 in Damayanti, 2017).

A study by Jauharotunisa (2019) entitled "Factors Affecting *Self-Efficacy* in Diabetes Mellitus Patients" showed a significant relationship between cultural factors, gender, social support, and health information with patients' *self-efficacy levels* ($p < 0.05$). Regression analysis in the study showed that information and successful experiences were the dominant factors influencing increased *self-efficacy*. This reinforces the role of education as a primary source of information in shaping patients' self-confidence. This study aligns with that conducted by Rahmi and Welly (2020) entitled "Structured Education to Reduce Diabetes Distress and Increase *Self-Efficacy* in Type II Diabetes Mellitus Patients," which showed a significant increase in *self-efficacy scores* after educational intervention with a p value of 0.000 ($p < 0.05$). Furthermore, diabetes distress scores also decreased significantly ($p < 0.05$). These findings indicate that education not only improves cognitive aspects but also improves patients' psychological well-being. Basri *et al.*'s (2021) study, entitled "*Motivation and Self-Efficacy in Self-Care Management in Type 2 Diabetes Mellitus Patients*," found a significant relationship between self-efficacy and self-care management, with a p -value of 0.001 ($p < 0.05$) and a positive correlation coefficient. This indicates that the higher a patient's *self-efficacy*, the better their self-care behaviors in controlling their disease. Rastipiati and Amelia's (2024) research entitled "The Relationship between Self-Care Management and Quality of Life in Diabetes Mellitus Patients" shows that there is a significant relationship between *self-efficacy and quality of life in diabetes mellitus patients. management and quality of life of patients* ($p < 0.05$). The results of the correlation test showed a positive relationship, meaning that improving self-management contributes to improving the quality of life of DM patients. Based on various previous studies, the results of this study can be concluded that the majority of statistical tests showed a significant value ($p < 0.05$), both through paired t -tests, correlations, and linear regressions. This proves that education has a significant impact on improving the *self-efficacy* of patients with diabetes mellitus. Increased *self-efficacy* has a direct impact on self-efficacy management behavior, blood glucose control, complication prevention, and overall improvement in patients' quality of life.

The influence of education on self-care in Type II Diabetes Mellitus patients

The results of the study showed a p -value of 0.000 ($p < 0.05$), so H_0 was rejected and H_a was accepted. This means there is a significant effect of education on *self-care* in Diabetes Mellitus patients. Statistically, this value indicates that educational interventions provide significant changes in patient self-care behavior after treatment compared to before education. Education has been proven to improve patients' ability to carry out diabetes self-management, including diet management, physical activity, medication adherence, blood glucose monitoring, and diabetic foot care. *Self-care* in diabetes patients is closely related to an individual's belief in their ability to perform self-care (*self-efficacy*). The concept of *self-efficacy* was proposed by Albert Bandura (1997) in Social Cognitive Theory, which explains that an individual's belief in their abilities will determine the success of an action. In the context of Diabetes Mellitus, *self-efficacy is the basis for the formation of consistent and sustainable self-care behavior*. Research by Huda *et al.* (2020) in a study entitled "The Effect of *Self-Efficacy* in Self-Care on Foot Care Behavior in Diabetes Mellitus Patients"

reported a significant relationship between *self-efficacy* and foot care behavior ($p < 0.05$). These results indicate that strengthening *self-efficacy* through education can increase patient consistency in performing independent foot care. Dehghan *et al.*'s (2017) study, "*The Effect of Self-Efficacy on Self-Care Behaviors in Patients with Diabetes*," showed that self-efficacy significantly impacted the success of self-care in diabetes patients ($p < 0.05$). Patients with high self-efficacy were more active in controlling their diet, physical activity, and medication adherence than those with low *self-efficacy*. Manuntung's (2020) study, "*Self-Efficacy and Self-Care Behavior in Diabetes Mellitus Patients*," also confirmed that *self-efficacy* plays a role in increasing motivation and emotional stability, resulting in more consistent diabetes management. Kuzaimah's (2018) study, "*The Effect of Education on Improving Self-Efficacy in Diabetes Mellitus Patients*," reported a significant increase in self-efficacy after an educational intervention ($p < 0.05$). This increase in self-efficacy was followed by increased adherence to self-care, demonstrating that education indirectly impacts self-care by strengthening patient self-confidence. The results of a study by Karimy *et al.* (2018) entitled "*The Effect of Self-Efficacy on Self-Care in Patients with Type 2 Diabetes*" showed that self-efficacy has a significant influence on self-care behavior ($p < 0.05$). This study explains that the higher the patient's level of self-confidence, the better their compliance in carrying out treatment and self-care. In line with that, Wendling and Beadle (2015) in the study "*The Relationship between Self-Efficacy and Diabetic Foot Care*" found a significant relationship between self-efficacy and compliance with diabetic foot care ($p < 0.05$). Susilawati *et al.*'s (2021) study, "*The Relationship between Self-Efficacy and Adherence to Diabetes Mellitus Foot Care During the Pandemic*," reported that 90.9% of respondents with very high self-efficacy had excellent foot care adherence, with a p -value of 0.026 ($p < 0.05$). It was even stated that approximately 85% of diabetic foot injuries can be prevented by improving self-efficacy and foot care adherence. These results demonstrate that education focused on improving patient self-confidence has a significant impact on preventing complications. Research conducted by Sharoni *et al.* (2017) in the study "*The Effectiveness of a Self-Efficacy Enhancement Program on Foot Self-Care Behavior among Patients with Diabetes*" showed that *self-efficacy-based interventions* that included education, counseling, motivation, and periodic evaluations significantly increased self-efficacy scores and foot care behavior ($p < 0.05$). Kuzaimah's (2018) study entitled "The Effect of Education on Increasing Self-Efficacy in Diabetes Mellitus Patients" also showed an increase in self-efficacy after a knowledge-enhancing intervention with a p value < 0.05 . Prihatin *et al.*'s (2019) study, "*The Relationship Between Self-Efficacy and Self-Care Management in Diabetes Mellitus Patients*," found that low *self-efficacy* was significantly associated with low self-care adherence ($p < 0.05$). This confirms that education, as a source of information and strengthening self-confidence, is an important strategy in nursing practice to improve self-care behavior in Diabetes Mellitus patients. Based on various previous studies and the results of this study, it can be concluded that education has been shown to have a significant impact on improving self-care in patients with diabetes mellitus. Effective education not only increases knowledge but also strengthens patients' self-efficacy, motivation, and adherence to self-care. The more optimal the education provided, the better the patient's ability to perform self-care, thereby reducing the risk of complications and improving their quality of life.

Conclusions and Recommendations

1. Respondent characteristics on The most Type II DM patients were aged ≥ 40 years, 20 (62.5%), 23 (71.9%) female, 16 (50%) high school education, 19 (59.4%) employed, 17 (53.1%) respondents had suffered for < 4 years.
2. average body value of *self-efficacy* in diabetes mellitus patients *pre-test* was 54.44 with the mean *post test* value was 67.38 ,

which was 1.294, while n value of the difference in average *self-care scores* in patients with diabetes mellitus 54.44 with mark *post test* 66.47 is 12.03. This means distribution values *self-efficacy* And *self-care* on group *post test* more spread compared to with pre-test group

3. After conducting bivariate analysis, the p value was obtained. $value < 0.005$ can be concluded
 - a. There is a significant influence between education and *self-efficacy* in Diabetes Mellitus patients (P value $0.000 < \alpha$ 0.00)
 - b. There is a significant influence between education and *self-care* in Diabetes Mellitus patients (P value $0.000 < \alpha$ 0.00)

Recommendations

Based on these conclusions, the suggestions that the researcher proposes are as follows:

1. For Batujaya Community Health Center
It is expected to provide health services such as counseling or education on how to improve the quality of life of patients. Diabetes mellitus in an integrated manner and the need for family involvement in groups in improving *self-efficacy* And *self-care* in patients with diabetes mellitus
2. For educational institutions
Educational institutions can provide or add books related to the treatment of Diabetes Mellitus patients, especially in increasing *self-efficacy*. And *self-care* so that it can increase students' insight and knowledge as well as basic skills in creating and implementing nursing care, health promotion and the use of *Evidence Based Practice* (EBP) in nursing care.
3. For further researchers
Further research can measure the influence of education on *self-efficacy* and *self-care* in Diabetes Mellitus patients not only using questionnaires and observations but further research can be carried out using a qualitative method approach to obtain in-depth results about what influences *education* on *self-efficacy* and *self-care* in Diabetes Mellitus patients.

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