PROFESIONAL HEALTH JOURNAL
Volume 6, No. 2, December 2024 (Hal. 551-562)
Available Online at https://www.ojsstikesbanyuwangi.com
E-ISSN 2715-6249

A Relationship Between Self Efficacy And Self Regulation In Diabetes Mellitus Patients

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ARTICLE INFORMATION

Article history
Received (25 November 2024)
Revised (1 December 2024)
Accepted (3 December)

Keywords
Diabetes Mellitus, Self Efficacy, Self Regulation

ABSTRACT

Diabetes Mellitus is an incurable disease that affects aspects of life and increases the risk of complications that can cause death. Complications can be minimized if the patient has compliance, knowledge, and ability to perform self-care . The motivation for someone to perform self-care is to have good self-efficacy , while compliance in operate maintenance self influenced by self regulation Where impact on control blood sugar control , diet, and style life . Purpose study for know connection self efficacy with self-regulation in patients with Diabetes Mellitus. The method used quantitative with approach cross sectional . Population in the study This Diabetes Mellitus sufferers at Dr. Loekmono Hadi Kudus Regional Hospital recorded in 2023 were 113 people and determined sample as many as 88 respondents. ***Results*** *study using the spearman rank test obtained p value of 0.002 (<0.05) which has meaning there is significant relationship between self efficacy with self-regulation in patients with Diabetes Mellitus with mark coefficient correlation of 0.332. Conclusion there is connection between self efficacy with self regulation in patients with Diabetes Mellitus.*

Introduction

Diabetes Mellitus is a disease characterized by high blood sugar levels or hyperglycemia caused by the inability of the pancreas to produce insulin. (Tjok & Made, 2020). Diabetes Mellitus is an incurable disease that affects all aspects of a person's life and increases the risk of complications that can lead to death. This phenomenon exists in several health services, officers admit that they have not provided maximum information, this makes sufferers experience a lack of understanding regarding complications in Diabetes Mellitus. This lack of understanding can result in minimal *self-care* in Diabetes which results in people with Diabetes Mellitus having a higher risk of experiencing complications (Rahmasari et al., 2020). In the 21st century, Diabetes Mellitus is one of the sources of non-communicable pandemic diseases and one of the biggest global health threats (WHO, 2018).

The World Health Organization (WHO) in 2018 noted that Diabetes Mellitus is the cause of death of all ages in the world, the number of sufferers in 2018 is estimated to reach more than 422 million people worldwide. *The International Diabetes Federation* (IDF) in 2021 the prevalence of Diabetes Mellitus sufferers is 537 million worldwide, it is

estimated that this number will reach 783 million in 2045. According to data from *institute for health metrics and evaluation* that Diabetes Mellitus is disease reason death highest 3rd in Indonesia in 2019, namely around 57.42 deaths per 100,000 population . Indonesia is ranked fifth in the world in 2021 with 19.47 million people with Diabetes Mellitus (IDF, 2021). It is estimated that this number will increase to 28.6 million sufferers in 2045 (IDF, 2021).

In Central Java Province in 2018, Diabetes Mellitus was a non-communicable disease with the second highest incidence of 20.57% or around 7 million sufferers, this has increased from 2017 by 19.22% or around 6 million sufferers (Central Java Provincial Health Office, 2019). Based on the prevalence of Diabetes Mellitus in Kudus Regency in 2023, there were 16,592 sufferers. Data from the Kudus Regency Health Service in 2023, the highest cases of Diabetes Mellitus were in the Kaliwungu area, which was 1,570 sufferers. Cases at the dr. Loekmono Hadi Kudus Regional Hospital , based on data from Rekamedis , showed that in January-December 2023 Diabetes Mellitus as many as 1,257 sufferers. Data in January 2024 there were 113 sufferers.

The increasing prevalence of DM sufferers every year is caused by an unhealthy lifestyle (diet and physical activity) and the inability to manage the disease independently (Himmah, et al, 2020). Diabetes that is not managed properly can cause various complications, which are generally divided into two, namely microvascular complications and macrovascular complications (*American Diabetes Association* (ADA), 2014). Complications experienced by Diabetes sufferers can be minimized if Diabetes sufferers have compliance, knowledge, and ability to manage the disease through self-care (Gaol, 2019). According to Kusnawati (2011), in Sari (2018), that a person's motivation to carry out self-care is to have self-confidence regarding the effectiveness of Diabetes management .

Self-efficacy is a key idea of social cognitive theory *developed* by Albert Bandura 1997 quoted in Damayanti 2017, defining *self - efficacy* also can be defined as an person's belief in their ability to achieve and perform certain assignment needed to obtain the spesific aims. *Self-efficacy* is an important factor defined as the patient's belief in maintaining and improving their medical condition, low *self-efficacy* has an impact on the low success of self-care for Diabetes Mellitus sufferers (Widyanata, 2018). The impact of *self-efficacy* on Diabetes Mellitus sufferers can be seen from changes in behavior by influencing how a person thinks, motivates themselves, and acts in carrying out independent care (Rahman, et al, 2017). Where the results of research conducted by Basri et al, (2021) stated an increase in self-confidence and motivation Individuals will influence self-care management compliance in Diabetes Mellitus sufferers. According to Yeni (2016), Diabetes sufferers who have poor self *-care management are influenced by* regulation self *(self regulation)* which is not good. In line with the results of research conducted by Putri (2017), where the results of the study showed that the compliance of diabetes sufferers in carrying out *self care management* is influenced by *self regulation* .

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Self-regulation is a person's ability to regulate themselves. (Sari & Simanjuntak, 2020). *Self-regulation in people with* diabetes has an impact on controlling blood sugar control, dietary behavior, and lifestyle which are the keys to controlling Diabetes Mellitus. Research conducted by Tavakolizadeh, Moghadas and Ashraf (2014) regarding *the effect of self-regulation training on management of type 2 diabetes* (the effect of self-regulation training on the management of type 2 diabetes) shows an impact on decreasing blood sugar levels, dietary behavior and increasing physical activity after being given *self-regulation training*. *The* impact of low *self-regulation* can interfere with healthy living behavior in individuals, namely physical activity, consuming healthy foods, and following treatment programs (Arissandi et al., 2019). If *self-regulation* is not good, it will interfere with individuals in behaving in a healthy way including doing physical activity, consuming healthy foods, and complying with medical care (Miller al., 2020). If the patient experiences low *self-regulation* , the patient will not be able to manage Diabetes Mellitus well.

Based on the phenomena that occur in the field, there are still many Diabetes Mellitus sufferers who often or do not comply with doctor's recommendations such as regulating diet, taking medication regularly, exercising, checking blood glucose levels regularly and foot care. Sufferers feel that if their bodies feel healthy, they no longer need to take medication and check their blood glucose levels. This indicates the low confidence of Diabetes sufferers in self-control to maintain the behavior needed to manage self-care. So it is important to carry out this research as an effort to prevent complications and improve the quality of life in DM patients. Based on a preliminary study conducted at the dr. Loekmono Hadi Kudus Hospital based on data from November 2023-January 2024, the average number was 117 sufferers. Based on the results of interviews conducted by researchers in February 2024 in the Cempaka 2 room, it was found that the ability to manage their disease was lacking, 5 out of 10 sufferers said that sufferers rarely exercise, 7 out of 10 sufferers said they rarely check their blood sugar, 8 out of 10 sufferers said they did not follow the recommended diet, 7 out of 10 sufferers said they did not take medication regularly or according to recommendations. Based on the study introduction and phenomena in the field , and Not yet existence study previous about *self efficacy* which are related with *self-regulation* in patients with Diabetes Mellitus. Therefore That researcher interested For do study about "The Relationship Between *Self Efficacy* and *Self Regulation* in Diabetes Mellitus Patients ".

Methods

Study this including quantitative descriptive research with a *cross-sectional approach* where this type of research emphasizes time measurement or observation of independent variable data *(self efficacy)* and dependent *(self regulation)* only one time at a time, the aim is to find out the relationship between variables where the independent variables and dependent variables are identified at one time unit (Priadana, 2021). Population study This Diabetes Mellitus sufferers who are treated hospitalization at dr. Loekmono Hadi Kudus Regional Hospital in 2024 was 113 people. The sampling technique sample in research. This use technique *purposive sampling.* Sampling sample

counted with formula slovin and got amount sample in research This as many as 88 respondents. The inclusion criteria in this study are : clients who are willing to become respondents, the client is conscious and cooperative, clients aged 23-65 years, the client has suffered from diabetes mellitus for 2 years, clients with a high school/vocational school-university education level, clients with moderate-high family support. The exclusion criteria in this study are : patients with decreased hemodynamic status, DM sufferers who experience communication disorders such as: mute, deaf, sufferers who experience impaired consciousness. Data collection tools in study this in the form of questionnaire *Diabetes Management Self Efficacy Scale* (DMSES) for measure *self efficacy, Treatment Self Regulation Questionnaire* (TSRQ) for measure *self regulation.* Research data collected by researchers after questionnaire filled and researcher using the enumerator that has been done apperception in data retrieval. Data analysis using SPSS with the *Spearman rank* test , which was previously all data is summarized moreover formerly using Excel.

Results

1. Univariate Analysis

a. Age

Table 1
Distribution Frequency Respondents Based on Characteristics Age
At Dr. Loekmono Regional Hospital Holy Gift of May 2024
(n=88)

Age	***f***	***(%)***
(26-35 years)	7	8.0
(36-45 years)	27	30.7 37.5
(46-55 years)	33	23.9
(56-65 years)	21	
Total	**88**	**100.0**

Based on table 4.1 distribution frequency characteristics respondent based on age data was obtained that majority Respondent that is aged elderly early (46-55 years) a total of 33 respondents (37.5%).

b. Sex

Table 2
Distribution Frequency Respondents Based on Characteristics Type Sex
At Dr. Loekmono Regional Hospital Holy Gift of May 2024
(n=88)

Type Sex	***f***	***(%)***
Male Female	41 47	46.6 53.4
Total	**88**	**100.0**

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Based on table 4.2 distribution frequency characteristics respondent based on type sex obtained that majority Respondent own type sex Woman a total of 47 respondents (53.4%).

2. Bivariate Analysis

a. Self Efficacy in Diabetes Mellitus Patients

Table 1
Self Efficacy in Diabetes Mellitus Patients
at Dr. Loekmono Hadi Hospital, Kudus

Self Efficacy	***f***	***%***
Good	61	69.3
Enough	27	30.7
Total	**88**	**100.0**

Based on table 1 shows data that majority respondent own good *self* efficacy a total of 61 respondents (69.3%).

b. Self Regulation in Patients with Diabetes Mellitus

Table 2
Self Regulation In Diabetes Mellitus Patients
at Dr. Loekmono Hadi Hospital, Kudus

Self Regulation	***f***	***%***
Good	54	69.3
Not good	34	30.7
Total	**88**	**100.0**

Based on table 2 shows data that majority Respondent own *self regulation* Good a total of 54 respondents (61.4%).

c. Relationship between Self Efficacy and Self Regulation in Diabetes Mellitus

Table 3
Relationship between Self Efficacy and Self Regulation
in Sufferers Diabetes Mellitus Patients
at Dr. Loekmonohadi Hospital, Kudus

Self Efficacy	***Self Regulation***							
	Good		Not good		Total		*p value*	r
	f	%	*f*	%	*f*	%		
Good	44	72.1	17	27.9	61	100.0	0.002	0.332
Enough	10	37.0	17	36.0	27	100.0		
Total	54	61.4	34	38.6	88	100.0		

Based on Table 3 shows that of the 88 respondents with Diabetes Mellitus who had *self efficacy* Good with *self regulation* Good as many as 44 people (72.1%), respondents who have *self efficacy* Good.

Discussion

A. Univariate Analysis

1. Age

Analysis results age grouped based on Ministry of Health Where Respondent in study This majority aged elderly early (46-55 years) with amount as many as 32 respondents (36.4%). Factors age cause the decline system Work body , including system endocrine . Increased age can influence insulin resistance which has an impact against blood sugar that is not stable , so that matter This is one of reason from Diabetes Mellitus incident at degenerative age (Isnaini and Ratnasari , 2018). Somebody with age ≥45 years five times more risk For affected by Diabetes Mellitus compared to with people aged <45 years , this the because of change insulin release and metabolism carbohydrates that inhibit release sugar levels that enter to in cell body (Desi, Wilia , &Rd, 2018). Age own connection close with increase the amount of blood sugar , the more increase age so risk For experiencing DM will the more high (Smeltzer & Bare, 2014). The aging process can result in changes in anatomical , physiological and biochemical systems the wrong body the impact is improvement insulin resistance (Haryono & Oktia , 2021). Research result This in line with research conducted Susilawati and Rista (2019) stated that that most respondents in category elderly early (≥45 years) a total of 127 respondents (62.3 %), someone aged ≥45 years own improvement risk to the occurrence of DM and intolerance glucose Because factor degenerative or the decline function body For metabolism glucose . Another study conducted by Pahlawati and Purwo (2019) obtained data on the majority Respondent with DM aged ≥45 years a total of 37 respondents (33.3%) said This Because 45 years old to on more risk tall for suffering from Diabetes Mellitus.

2. Sex

Analysis results type sex show that majority type sex Respondent in study This is Woman with amount as many as 46 respondents (52.3%). The incidence of Diabetes Mellitus is high happens to women compared to man , thing the Because the occurrence decline Estrogen levels caused by menopause. The hormone own function guard balance blood sugar levels as well as increase fat reserves . In addition hormone the progesteron own function For normalize blood sugar levels and uses fat as energy , because during menopause women experience decline production on both hormone the so that cells body experience disturbance in respond to insulin (Prasetyani & Martiningsih , 2019). Besides matter the women also have opportunity big improvement body mass index and the presence of difference level hormone sexual with men . Fat tissue in the body Woman more Lots compared to with man the result Woman will experience disturbance sensitivity body fat distribution become accumulates in the abdomen and results in increased fatty acids , conditions this is what causes insulin resistance (Melita et al, 2021, Pardede , Rosdiana , & Christianto, 2017).

Research result This is supported by research that is in line from Rita (2018), which was conducted in Surau Gadang Subdistrict , from 78 respondents there is 37

respondents various sex women suffering from Diabetes Mellitus (80.4%), mostly The elderly are lazy to exercise and prefer to sit in front House rather than following the gymnastics carried out by the cadres health . Research similar from Usmanet al, (2020) showed that Respondent Woman is type gender that has presentation 69.8 % were affected by type 2 Diabetes Mellitus compared to Respondent men (40.4 %), things This due to Because pattern eat something that is not Healthy like often consume fatty and containing foods glucose tall .

B. Bivariate Analysis

1. Self Efficacy in Diabetes Mellitus Patients

Based on the results of research on *the self-efficacy* of Diabetes Mellitus patients at Dr. Loekmono Hadi Kudus Hospital, the results showed that most of them had good *self-efficacy* categories of 61 respondents (69.3%), the self-confidence of DM patients was good enough in controlling their disease optimally including controlling food and diet, exercise/sports programs, and medication (Nugroho, 2020). *Self-efficacy* is an individual's belief in their ability to achieve certain goals according to expectations (Ningsih, Bayhakki, & Woferst, 2017). *Self-efficacy* in DM patients focuses on the DM sufferer's belief in behaving in a way that supports improvement of their disease (Ngurah & Sukmayanti, 2014).

Self-efficacy or self-confidence plays an important role in implementing a DM diet where respondents who have *self-efficacy* for implementing a DM diet that will be carried out according to the recommendations of health workers can maintain blood glucose levels within normal limits (Sriwahyuni et al, 2021). *Self-efficacy* develops with age, with increasing experience and expanding social circles. According to Potter and Perry, the age of 40-60 years is referred to as the success stage, which is the time for maximum influence, guidance, and self-assessment, so that patients have good *self-efficacy . Other factors that influence self-efficacy* are gender in women will be higher than men, women's *self-efficacy* in managing their roles is higher than men because women tend to be more interested in a subject besides that DM patients with higher education find it easier to access information related to their disease. So they are more confident in carrying out self-care to prevent complications caused by DM (Ngurah & Sukmayanti, 2014). The length of time suffering from Diabetes Mellitus also affects *self-efficacy,* where Diabetes Mellitus sufferers who suffer from it for a longer time will have experience and can learn good things for treating their disease (Diani, 2013).

Someone who has strong *self-efficacy* will be able to achieve achievements and solve problems and obstacles in various ways, conversely if someone has low *self-efficacy then the obstacles they will face will be greater (* Salim, 2017). Diabetes sufferers who

have good *self-efficacy* in their ability to regulate or carry out healthy lifestyle behaviors (Manuntung, 2020). This is supported by research conducted by Basri et al, (2021) the focus of *self-efficacy* in DM patients is the patient's confidence in being able to carry out behaviors that support the improvement of their disease and improve their self-care management such as diet, physical exercise, medication, controlling blood glucose and general Diabetes Mellitus care. The high or low *self-efficacy* of a person will determine a person's ability to feel something, think, be motivated, and behave (Paun, 2016). This is supported by Yusuf & Nurihsan (2011) who explain that high *self-efficacy* can create self-confidence in responding to certain things in obtaining *reinforcement*.

A person with high *self-efficacy* can practice self-care effectively. This is in line with research (Sarwanah, 2016) which found a correlation between *self-efficacy* and *self-care* in people with Diabetes Mellitus (p = 0.002 (0.05)) based on chi-square test findings. Patients who have high levels of *self-efficacy* are highly motivated to practice self-care to reduce the likelihood of problems arising. Ningsih (2018: 216) explains that individuals who have high *self-efficacy* will tend to choose to be directly involved in carrying out a task, even if the task is a difficult task.

Self efficacy plays an important role in self-care for people with Diabetes Mellitus , low self efficacy can result in the patient's inability to carry out therapy which results in the risk of complications. *If self efficacy is* low , a person will be anxious and unable to respond. A person with low self efficacy will result in indifference in carrying out self-care. A person who has low *self efficacy will* experience stress and avoid difficult tasks because they are considered a threat so that it can have an impact on their health and immune system (Friedman in Pertiwi, 2008: 10). When DM sufferers have good *self-efficacy , it can encourage someone to behave positively in living their lives. Self-efficacy* can make sufferers able to carry out behaviors that can support the improvement of their disease and improve their self-care management such as diet, physical exercise, glucose control, and general DM care so that they can maintain their health status.

2. Self Regulation in Patients with Diabetes Mellitus
   Based on results Research on *self-regulation of* Diabetes Mellitus sufferers at Dr. Loekmono Hadi Kudus Regional Hospital was obtained results part big own *self regulation* category Good with the number of respondents 54 respondents (61.4%). The results of the study This in line with study previously conducted by (Sari & Simanjuntak, 2020) which showed that high *self regulation* that is as many as 41 people (55.41%), while the least that is is in the category low *self* regulation as many as 4 people (5.41%). *Self regulation* in DM sufferers it has an impact on control blood sugar control , behavior in diet, as well as style where to live is key from control DM disease . Impact This due to Because *self regulation* covers aspect cognitive , affective and also

behavior sufferer when operate handling carried out . In the research of Wang et al., (2018) stated that *self regulation* Diabetes Mellitus sufferers are affected to maintenance self specifically diet and activity behavior physical . In line with study the Estuningsih et al., (2019) stated that *self regulation* capable influence management maintenance self especially diet for diabetics so that give impact positive to quality of life.

Self-regulation is ability somebody For change his behavior . (Magfirah , 2016) stated tall low *self regulation* somebody impact on the behavior that arises because of That result in compliance DM management becomes disturbed . On the characteristics of people who are able do *self regulation* with Good that is depends on one of them is arrangement emotions , a process that is always inspect or also in a way on purpose change possible feelings leading to counterproductive behavior (Maghfirah , 2016). High self - *regulation* It means sufferer can set with Good standards and objectives For diet implementation , regulate his emotions , giving Instructions self , do self - monitoring , do evaluation and contingency related Diabetes Mellitus *treatment* . Impact If own good *self* regulation that is can lower level glucose in blood , good diet , and the occurrence of improvement physical activity (Sari & Simanjuntak, 2020). Self *regulation* impact large in DM patients.

In patients with low *self-regulation , patients still have difficulty in self-regulating* these aspects. In patients with Diabetes Mellitus, there is often an increase in unstable blood sugar due to poor control of diet and also not infrequently patients have low *self-regulation* , starting from the patient's health status to personal relevance (Arissandi et al., 2019). The impact of low *self-regulation* can also interfere with healthy living behavior in individuals, namely physical activity, consuming healthy foods, and following treatment programs (Arissandi et al., 2019). A person with poor *self-regulation* will cause poor medication compliance and sugar control, so that DM becomes long-term and increases the risk of microvascular and macrovascular complications. A person's success in implementing self-care depends on *self-regulation* . Good *self-regulation can have a positive impact on* self-care management so that the patient's quality of life will be good.

3. The Relationship Between Self Efficacy and Self Regulation in Diabetes Mellitus
   In the research this researcher analyze connection between *self efficacy* with *self-regulation* in diabetes mellitus patients at Dr. Loekmono Hadi Kudus Regional Hospital with use *Spearman rank statistical test .* Correlation results obtained mark *p value* 0.002 (<0.05) which means Ha is accepted that is There is significant relationship between *self efficacy* with *self-regulation* in patients with Diabetes Mellitus at Dr. Loekmono Hadi Hospital, Kudus, with strength relationship 0.332 is enough strong and have correlation positive with meaning if mark *self efficacy* tall so mark *self regulation* will also tall.

   Impact *self efficacy* to DM patients are seen from change behavior with influence how somebody think , motivate yourself , and act in do maintenance in a way independent

(Rahman, et al, 2017). This supported results Rahman et al, (2017) research said individuals who have good *self* efficacy will always hold on firm to the purpose , and vice versa individuals who have low *self* efficacy Good will own low commitment to the purpose .

Self efficacy is trigger attitudes and behavior somebody for start the task at hand , the magnitude efforts made in operate tasks and duration time somebody the will fulfil his job (Damayanti et al, 2015). Action theory reasonable declare the process of taking decisions and existence reason from an action is influenced by attitude , things this can also it is said that interest For do something influenced by his attitude himself (Manuntung , 2020). One of the internal factors that can help success Treatment of diabetes mellitus is ability somebody in managing oneself. This ability leads to *self-regulation* .

One of Internal factors that can help the success of Diabetes Mellitus treatment are a person's ability to regulate themselves. This ability leads to *self-regulation* . *Self-regulation* is self-control or regulation that includes thoughts, feelings and actions that are adjusted using existing strategies or environments, in order to achieve certain goals or previously set goals (Prihambodo et al., 2020). Aspects of *self-regulation* , namely self-set standards and goals, emotional regulation, self-instruction, self-monitoring, self-evaluation and self-set contingencies. *Self-regulation* has an impact on glycemic control, dietary behavior and lifestyle which are the keys to treating type 2 diabetes mellitus. This impact arises because *self-regulation* includes cognitive, affective and behavioral aspects of patients when carrying out the treatment carried out (Sari & Simanjuntak, 2020).

Based on the statement above, Diabetes Mellitus sufferers who have good *self-efficacy , then self-regulation* will increase so that it will affect current physical and psychological health including preventing other complications. However, based on the results of the study, there are also sufferers who have *self-efficacy* in the good category but their *self-regulation* is not good as many as 17 respondents, this is due to the lack of supervision or support from those closest to them. Support from the external environment is social support from the family where this support can help form habits in sufferers to continue to control themselves (Sari & Simanjuntak, 2020), this the shown with support data family Where based on study there is as many as 6 respondents own support sufficient family . On the other hand, in patients who have sufficient *self-efficacy* but good *self-regulation* , there are 10 respondents, this is due to the fear of worsening conditions. The fear of sufferers in their inability to carry out self-care which results in the risk of complications (Sari & Firdaus, 2020), this is indicated by the characteristic data complications Where based on study there is As many as 51 respondents had Diabetes Mellitus complications .

Self efficacy very close its relationship with *self-regulation* including control in carrying out self- management, where the better *the self-efficacy* of the sufferer, the better their

self-regulation in healthy behavior (Munir & Solissa, 2021). Based on the results of this study, it was found that the level of *self-efficacy* in Diabetes Mellitus sufferers at Dr. Loekmono Hadi Kudus Hospital was classified as good with a percentage of 69% for the level of *self-regulation* classified as good with a percentage of 61%.

Conclusion

1. Based on the results of the study on identifying *self-efficacy* in diabetes mellitus sufferers, it is known that almost all respondents have good *self-efficacy , with a total of 61 respondents (69.3), respondents who have sufficient self-efficacy* number 27 respondents (69.3%).
2. Based on the results of the study on identifying *self-regulation* in diabetes mellitus sufferers, it is known that the majority of respondents have good *self-regulation, amounting to 54 respondents (61.4%), while respondents who have* poor *self-regulation amount to 34 respondents (38.6%).*
3. Based on the results of the statistical test research conducted to analyze the relationship between *self-efficacy* and *self-regulation , a p value of 0.002 (<0.05)* was obtained , which means that Ha is accepted, where there is a significant relationship between *self-efficacy* and *self-regulation* in diabetes mellitus patients at Dr. Loekmono Hadi Kudus Regional Hospital, where.
4. A strong correlation strength of 0.322 was obtained with a positive correlation direction, which means that if *self-efficacy* is high, it will be followed by an increase in *self-regulation.*

Ethics approval and consent to participate

Study this already get agreement committee ethics from Ngudi Waluyo University with number 272/KEP/EC/UNW/2024

Acknowledgments

There is no standard way to write acknowledgments. This section allows you to thank all the people who helped you with the project. You can take either formal.

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