

TELANG TEA EFFECTIVE REDUCE LEVELS BLOOD SUGAR IN ELDERLY

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Abstract

Increased blood sugar levels can increase the risk of prediabetes, especially in the elderly due to aging, so susceptible to diabetes mellitus. This can be prevented non-pharmacologically, namely telang flower tea which can reduce blood sugar levels and is safe for consumption due to natural products. Objective the research to find out the effectiveness of telang flowers against blood sugar levels in the elderly at Posyandu Padukuhan Malangrejo, Wedomartani, Ngemplak, Sleman, Yogyakarta. Method: This type of research is quasi experiment with the design of the pre test and post test control group. This research was conducted on April 13-30 2019 with a sample size of 24 respondents. The sampling technique uses simple random sampling and data analysis using the Wilcoxon test, Paired T-Test, and Mann-Whitney test. Results: Respondents in the telang group had mean GDS pre test 137.8 mg / dl and post test 125.6 mg / dl. The control group had a median GDS pre test 118.5 mg / dl and post test 124.5 mg / dl. The control group Wilcoxon test results $p = 0.346$, while the results of the Paired T-Test telang group are $p = 0.002$. The results of the Mann-Whitney test were control group with $p = 0.371$ Conclusion: There are differences in GDS pre-test levels with post-test on telang flower tea administration.

Keywords: blood sugar levels, elderly, telang tea

1. INTRODUCTION

Elderly is defined as someone who is aged 60 years and over (1). According to the Social Security Administration, the elderly are classified as young (65-74), middle age (75-84), and very old (85 years and above) [1]. The number of elderly in Indonesia in 2017 is around 23.66 million people (99.03%), while in the Special Region of Yogyakarta the population is 13.81% [2,3]. Elderly people are very susceptible to health problems, one of which is diabetes mellitus (DM), which is a group of disorders caused by an increase in high blood sugar levels [4]. DM data prevalence in Indonesia is 1.3% in 2013 and increased in 2018 which is equal to 2.0% and in Yogyakarta the prevalence of DM in 2018 is 3.1% [5]. DM can cause various complications when blood sugar levels remain high. Blood sugar levels in someone with DM can be controlled with diabetes management both conventionally (medically), alternative & complementary therapies [6].

Alternative and complementary therapies, namely therapy using herbs such as telang flower tea [7]. The antiglycation and antioxidant content in telang flowers can increase the regeneration of pancreatic beta cells so as to reduce blood sugar levels [8,9]. From the results of a preliminary study conducted in Padukuhan Malangrejo, it was found that 6 out of 9 elderly people had GDS between 110-199 mg / dl classified as prediabetes. This study aims to determine the effectiveness of telang flower tea on GDS levels in the elderly.

2. METHODS

This type of research is quasi experiment with the design of the pre test and post test control group. The sampling technique used was simple random sampling with an elderly population of 70 people and a sample size of 24 respondents divided into 2 groups namely the

telang group and the control group. The data analysis techniques used were the Wilcoxon test, Paired T-Test, and Mann-Whitney test. The research was conducted at Padukuhan Malangrejo, Wedomartani, Ngemplak, Sleman, Yogyakarta on April 13-30 2019

3. RESULTS AND DISCUSSION

Based on Table 1, all respondents, as many as 24 people (100%) belong to the category of young elderly. In terms of gender, the majority of respondents were female as many as 10 people (83.8%). Judging from exercise habits, the majority of all groups exercised were as many as 9 people (75%) each in the control group and the telang group. Judging from the frequency of sports conducted by respondents, the majority were 1x a week in the control group and the telang group was mostly 1x a week, as many as 7 people (58.3%). Judging from the duration of exercise, most of the sports with a duration of ≤ 30 minutes in the control group were 6 people (50%), and the telang group were 5 people (41.7%).

Table 1. Distribution of Frequency Characteristics of Respondents Based on Age, Sex, and Sports Habits in the Elderly at Padukuhan Malangrejo, May 2019 (n = 24)

Characteristics of Respondents	Control group		Telang group	
	f	%	f	%
Age				
Young Elderly	12	100	12	100
Gender				
Male	2	16,7	2	16,7
Female	10	83,3	10	83,3
Exercise				
Exercise	9	75	9	75
Not Exercise	3	25	3	25
Exercise Frequency				
Not exercise	3	25	3	25
Once a week	9	75	7	58,3
Twice a week	-	-	1	8,3
Three times a week	-	-	1	8,3
Exercise duration				
Not Exercise	3	25	3	25
≤ 30 minute	6	50	5	41,7
> 30 minute	9	25	4	33,3

Based on Table 2, it is known that the median values of the control group pre test and post test were 118.5 mg / dl and 124.5 mg / dl, in the telang group the mean pre test and post test values were 137.8 mg / dl and 125.6 mg / dl.

Table 2. Frequency Distribution of Blood Sugar Levels Before and Set of Telang Flower Tea in the Elderly at Padukuhan Malangrejo, May 2019 (n = 24).

Blood Sugar Levels	Min-Maks (mg/dL)	Mean/ Median (mg/dL)	SD (mg/dL)
Control group			
Pre Test	113-176	118,5	18,6
Post Test	108-198	124,5	26,5
Telang group			
Pre Test	111-184	137,8	21,9
Post Test	103-165	125,6	19,8

Based on Table 3 above the Paired T-Test test results obtained a mean value of 137.8 mg / dl before the intervention was given and 125.6 mg / dl after the intervention was given with $p = 0.002$ ($p < 0.05$) which statistically showed a difference which was significant between before and after the intervention of telang tea.

Table 3. Differences in GDS Pre Test and Post Test Levels in the Telang Group

Blood level	Mean (SD)	(SD)	p value
Pre Test	137,8 (21,9)**	12,25 (10)**	0,002*
Post Test	125,6 (19,8)**		

A person's age can affect blood sugar levels. Based on Table 1, 24 respondents who had blood sugar levels classified as prediabetes in this study (100%) were in the age category of young adults with an age range from 60 to 75 years [1,3]. This is in accordance with previous studies with the results of the relationship between age and the incidence of type 2 diabetes with a value of $p = 0.035$. In the study stated that the majority of respondents were over 60 years old, which were 89.4% (10). Other studies have also shown an association between age and the incidence of type 2 diabetes mellitus ($p = 0,000$) where the age of ≥ 45 years is at greater risk [11]. The results of previous studies showed that there was a relationship between sex and the incidence of type 2 diabetes mellitus in which women were more at risk of developing type 2 DM than men with a value of $p = 0.044$ [10]. Another reason that women are more at risk than men is because this is related to pregnancy which is a risk factor for diabetes mellitus, especially women with a history of having gestational diabetes mellitus or giving birth to babies weighing more than 4 kg [12].

Exercise affects blood sugar levels because it can increase insulin sensitivity which can increase glucose uptake as an energy source, which can reduce blood sugar levels [16]. This is also supported by the results of previous studies which stated that there was a significant relationship between physical activity and blood sugar levels with $p = 0.001$ [17]. Other research results also say that good exercise habits reduce the risk of diabetes mellitus with a value of $p = 0.002$ [18].

Based on Table 3 the results of blood sugar levels during the pre test and post test have a p value of 0.002. This value indicates a significant difference between before and after the intervention of telang flower tea for 14 days. The decrease in blood sugar levels was due to telang flower tea which contained phenolic acid compounds, flavonoids, anthocyanins, and other phenolic components by reducing or inhibiting gluconeogenic enzyme activity and glucose-6-phosphatase and can help increase serum insulin [23].

The results of other studies said that after giving telang extract at a dose of 400 mg / kg for 14 days showed a decrease in blood sugar levels with a value of $p = 0.001$ [24]. This decrease was also supported by research that had been done previously showing after giving telang flower extract orally to blood sugar levels, with a value of $p = 0.001$ a significant decrease in serum glucose [25]. Another study also stated that after giving metang extract of telang flowers for 12 days at a dose of 300 mg / kgBB there was a significant decrease in blood sugar levels with a value of $p = 0.001$. The results of the study are likely because telang extract stimulates cells to produce and release insulin which has an impact on cell metabolism [9].

4. CONCLUSION

There is a significant difference between before and after the intervention of telang flower tea with a mean value of blood sugar levels before and after administration of intervention in the telang flower tea intervention group namely 137.8 mg / dl and 125.6 mg / dl.

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