

The effect of *Su Jok* therapy to reduce the severity scale of physical complaints in diabetes mellitus patients: case reports



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ABSTRACT

Introduction: Diabetes mellitus is a chronic disease in the form of a metabolic disorder characterized by blood sugar levels that exceed normal limits. Diabetes mellitus patients may have physical complaints of pain, stiffness, numbness, and tingling that are usually related to the symptoms of diabetic neuropathy. This article aims to report the effect of *Su Jok* therapy on the severity scale of physical complaints in diabetes mellitus patients.

Methods: This case report involved 15 respondents, and the data were collected in May 2023 at a public health center in Yogyakarta. *Su Jok* therapy was conducted by massaging with a probe for 5-10 minutes on the pain point found on the hands, and then followed by putting the fenugreek seeds with the sticky tape. Wilcoxon signed-rank tests were used for statistical analysis.

Result: The report showed 13 respondents were female (86.7%) and 2 respondents were male (13.3%), with the largest number in the age range of 51-55 years and the age range of 61-65 years, as many as 5 respondents each (33.3%). A total of 19 types of physical complaints were found, with the most complaints being pain in both knees (26.67%). On a Likert scale of 1 to 5, where 1 represents no complaints and 5 represents extremely severe complaints, the average severity of physical complaints was 3.16 prior to therapy and 2.05 following therapy.

Conclusion: Before and after *Su Jok* therapy, individuals with diabetes mellitus saw a substantial decrease in the severity scale of physical complaints ($p=0.001$, $p<0.05$). It may be stated that *Su Jok* combined with massage and fenugreek seeds, is a therapeutic approach that can help individuals with diabetes mellitus experience less severe physical problems.

Keywords: *Su Jok* therapy; physical complaints; diabetes mellitus; neuropathy.

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INTRODUCTION

Diabetes mellitus is a chronic disease in the form of a metabolic disorder characterized by blood sugar levels that exceed normal limits, which is a global health problem, especially in low and middle-income countries.¹ According to the International Diabetes Federation (IDF), at least 463 million people worldwide, or 9.3% of the population between the ages of 20 and 79, have diabetes. 537 million individuals are estimated to develop diabetes in 2021; by 2030 and 2045, that figure is expected to rise to 643 million and 783 million, respectively. China, India, and the United States had 116.4 million, 77 million, and 31 million persons with diabetes mellitus in 2019, making them the top 10 countries

in the world. With 10.7 million people with diabetes mellitus, Indonesia is rated seventh and is the only nation in Southeast Asia on the list.²

According to the *Riset Kesehatan Dasar (Riskesdas)* in 2018, the prevalence of diabetes mellitus in Indonesia, as determined by a doctor's diagnosis at the age of 15 or older, was 2%. The figure indicates an increase from the 1.5% prevalence of diabetes mellitus in the population 15 years of age and older in the 2013 *Riskesdas* results. However, the prevalence of diabetes mellitus, as indicated by blood glucose test results, rose from 6.9% in 2013 to 8.5% in 2018. This data demonstrates that only approximately 25% of persons with diabetes mellitus are

aware of their condition. In 2013 and 2018, nearly all provinces reported an increase in prevalence. The four provinces with the highest prevalence—DKI Jakarta, DI Yogyakarta, East Kalimantan, and North Sulawesi—have diabetes mellitus patient prevalence rates of 3.4%, 3.1%, 3.1%, and 2.6%, respectively, according to a doctor's diagnosis.³

Prolonged poorly controlled diabetes mellitus can cause nerve damage. Tingling and numbness in the hands and feet, along with burning pain or swelling, are signs that the nerves are being damaged by diabetes.⁴ If these symptoms are not treated quickly, the impact can increase the risk of complications such as foot injuries and ulceration, which can lead

to gangrene wounds, so that the further impact is at risk of amputation of the lower extremities.⁵ This will have an impact on the patient's quality of life, financial losses due to lower limb amputation, an increase in the global disability burden, and an increase in mortality.^{6,7} According to Graciella & Prabawati, more than 50% of diabetes mellitus patients in the world experience sensory diabetic neuropathy.⁵

Diabetes mellitus management can be done pharmacologically and non-pharmacologically. Pharmacological management uses drugs, while non-pharmacological management is a complementary therapy that can be done by diabetes mellitus patients who are at risk of experiencing physical complaints, namely complementary treatment. One of the complementary alternative therapies that is thought to alleviate physical complaints of people with diabetes mellitus is by providing *Su Jok* therapy. The results of previous studies in Indonesia found that *Su Jok* therapy with energy therapy methods, correspondence therapy, and combination therapy (energy therapy and correspondence) are effective in reducing pain.⁸

Prof. Park Jae Woo created the *Su Jok* treatment in 1987 after a thorough investigation of the human body's connection system revealed parallels between the hand and foot regions overall.⁹ *Su Jok* therapeutic techniques include massage, putting color to the skin, and positioning fenugreek seeds, magnets, needles, and other items at specific locations. *Su Jok* therapy's therapeutic approach is predicated on the idea that the human body is an essential organ that is impacted by a variety of circumstances and has a causal relationship with all of the universe's energies. The universal law of mutual interaction governs all changes in the human body; therefore, an individual's health is influenced by both personal characteristics and environmental factors.⁸ Researchers discovered that individuals with diabetes mellitus who have a variety of physical symptoms can receive *Su Jok* therapy based on the literature mentioned above. The purpose of this case study was to ascertain how *Su Jok* therapy affected the severity scale of diabetic mellitus patients at a Yogyakarta public health center.

METHOD

This study involved 15 respondents diagnosed with diabetes mellitus with physical complaints. Data collection was carried out in May 2023 at a public health center in Yogyakarta. Before the researchers provide therapy, they explain and provide informed consent to prospective respondents. If the respondent agrees to participate, the researchers will complete their demographic information and use a Likert scale (1–5, where 1 represents no complaints, 2 represents mild complaints, 3 represents moderate complaints, 4 represents severe complaints, and 5 represents very severe complaints) to rate their physical complaints. Then the researchers look for pain points on the hand that match the complaints felt by the respondent, by pressing using a probe according to the pain area on the map, *Su Jok* correspondence area on the hand. After finding the pain point, a massage was carried out using a probe for 5-10 minutes at the pain point, then continued with the attachment of fenugreek seeds, according to the needs of the respondents (Figure 1). Furthermore, the researchers reassessed the physical complaints felt by respondents after being given therapy. The frequency distribution of respondents' demographics, the average severity scale of physical complaints prior to and following

Su Jok therapy, and the average severity scale of physical complaints following *Su Jok* therapy were all examined univariately. The Wilcoxon signed rank test was used in bivariate analysis to investigate the impact of *Su Jok* therapy on decreasing the severity scale of physical complaints.

RESULT

As many as 15 respondents were involved in this case report, with 13 respondents being female (86.7%) and 2 respondents being male (13.3%). The most age in age range is 51-55 years, and the age range 61-65 years has as many with 5 respondents each (33.3%). Table 1 below shows the frequency distribution of respondents' characteristics, namely gender and age. Meanwhile, physical complaints, the severity scale of physical complaints, and the *Su Jok* therapy protocol can be seen in Table 2. A total of 19 physical complaints were found, with the most complaints of pain in both knees (26.67%). Physical complaints had a mean severity scale of 3.16 with a standard deviation of 0.602 prior to therapy and a mean severity scale of 2.05 with a standard deviation of 0.405 following treatment. The Wilcoxon signed-rank test was used to compare the severity scale of physical complaints before and after therapy. The analysis results showed a p-value of 0.001 ($p < 0.05$), indicating that

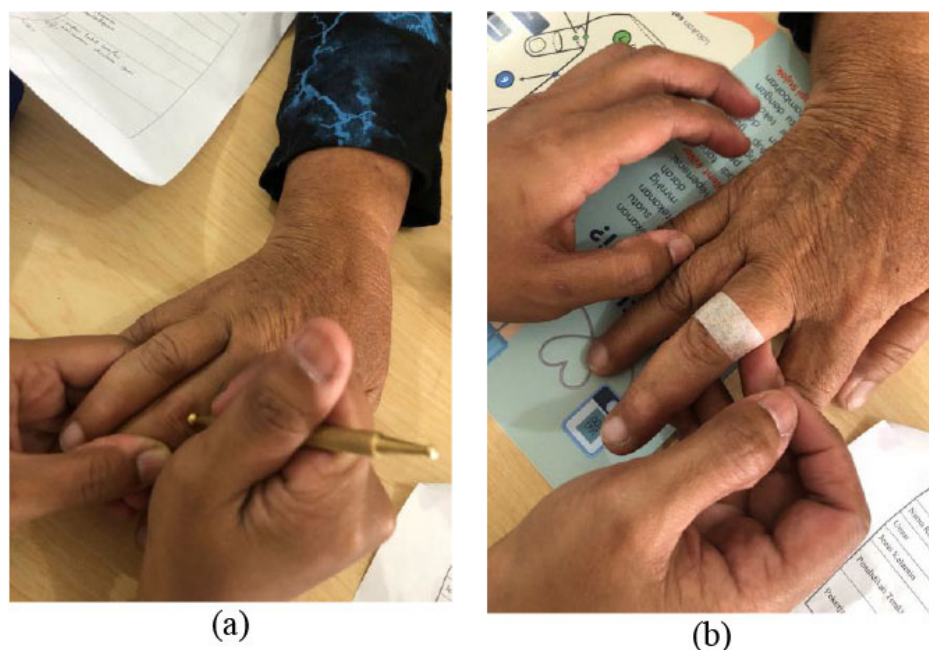


Figure 1. *Su Jok* therapy procedure. (a) Massage using the probe. (b) Fenugreek seeds attachment.

Table 1. Characteristics respondents

Characteristics	Frequency	Percentage
Gender		
Male	2	13,3
Female	13	86,7
Age (year)		
51-55	5	33,3
55-60	4	26,7
61-65	5	33,3
66-70	1	6,7

Su Jok therapy has a significant impact on decreasing the severity scale of physical complaints in patients with diabetes mellitus (Table 3).

DISCUSSION

According to the findings of a case study involving 15 respondents who had been diagnosed with diabetes mellitus, bodily

Table 2. Physical complaints, the severity scale of physical complaints, and the therapy protocol

Responden	Physical Complaints	The severity scale of Physical Complaints		<i>Su Jok</i> Therapy Protocols (Figure 2)
		Before	After	
1	Pain in both knees	3	2	Fenugreek seeds are applied after a massage using a probe to treat the basic system in the knee.
2	Stiffness in both shoulders	3	2	Therapy on the basic system in the shoulder of correspondents with a massage using a probe, and then attached fenugreek seeds
3	Pain in the upper back	3	2	Therapy on the basic system in the back of the correspondents with a massage using a probe, and then attaching fenugreek seeds
4	Stiffness in the fingers of both hands	3	2	Therapy on the basic system in the fingers corresponds with a massage using a probe, followed by the application of fenugreek seeds.
5	Pain in the right waist	3	2	Therapy on the basic system in the right waist of correspondents with a massage using a probe, and then attaching fenugreek seeds
6	Numbness in the fingers of both hands	3	2	Therapy on the basic system in the fingers of the hand corresponds with a massage using a probe, followed by the application of fenugreek seeds.
	Pain in the right waist	4	3	Therapy on the basic system in the right waist corresponds with a massage using a probe, followed by the application of fenugreek seeds.
7	Frontal head pain	3	2	Therapy on the basic system at the correspondents points of the front head with a massage using a probe, and then attached fenugreek seeds
8	Lower abdominal pain	5	3	Therapy is done on the basic system in the lower abdomen area. A massage is performed using a probe, and then fenugreek seeds are attached.
9	Numbness in the fingers of both feet	3	2	Therapy on the basic system in the toes involves a massage using a probe, followed by the application of fenugreek seeds.
10	Pain in both knees	3	2	Therapy on the basic system in the knee of correspondents with a massage using a probe, and then attaching fenugreek seeds
11	Pain in both shoulders	3	2	Therapy for the shoulder basic system is like a massage with a probe, followed by the application of fenugreek seeds.
	Pain in both knees	3	2	Therapy for the knee basic system is like a massage with a probe, followed by the application of fenugreek seeds.
12	Pain in both knees	4	2	Therapy on the basic system in the knee of correspondents with a massage using a probe, and then attaching fenugreek seeds
13	Pain in the upper back	3	2	Therapy on the basic system in the back is like a massage using a probe, and then fenugreek seeds are attached.
14	Tingling in the fingers of both feet	2	1	Therapy on the basic system in the toes of correspondents with a massage using a probe, and then attaching fenugreek seeds
	Tingling in the fingers of both hands	3	2	Therapy on the basic system in the correspondent fingers with a massage using a probe, and then attaching fenugreek seeds

Responden	Physical Complaints	The severity scale of Physical Complaints		Su Jok Therapy Protocols (Figure 2)
		Before	After	
15	Tingling in the fingers of both feet	3	2	Therapy on the basic system in the toes involves a massage using a probe and then applying fenugreek seeds.
	Tingling in the fingers of both hands	3	2	Therapy on the basic system in the fingers of correspondents with a massage using a probe and then attaching fenugreek seeds

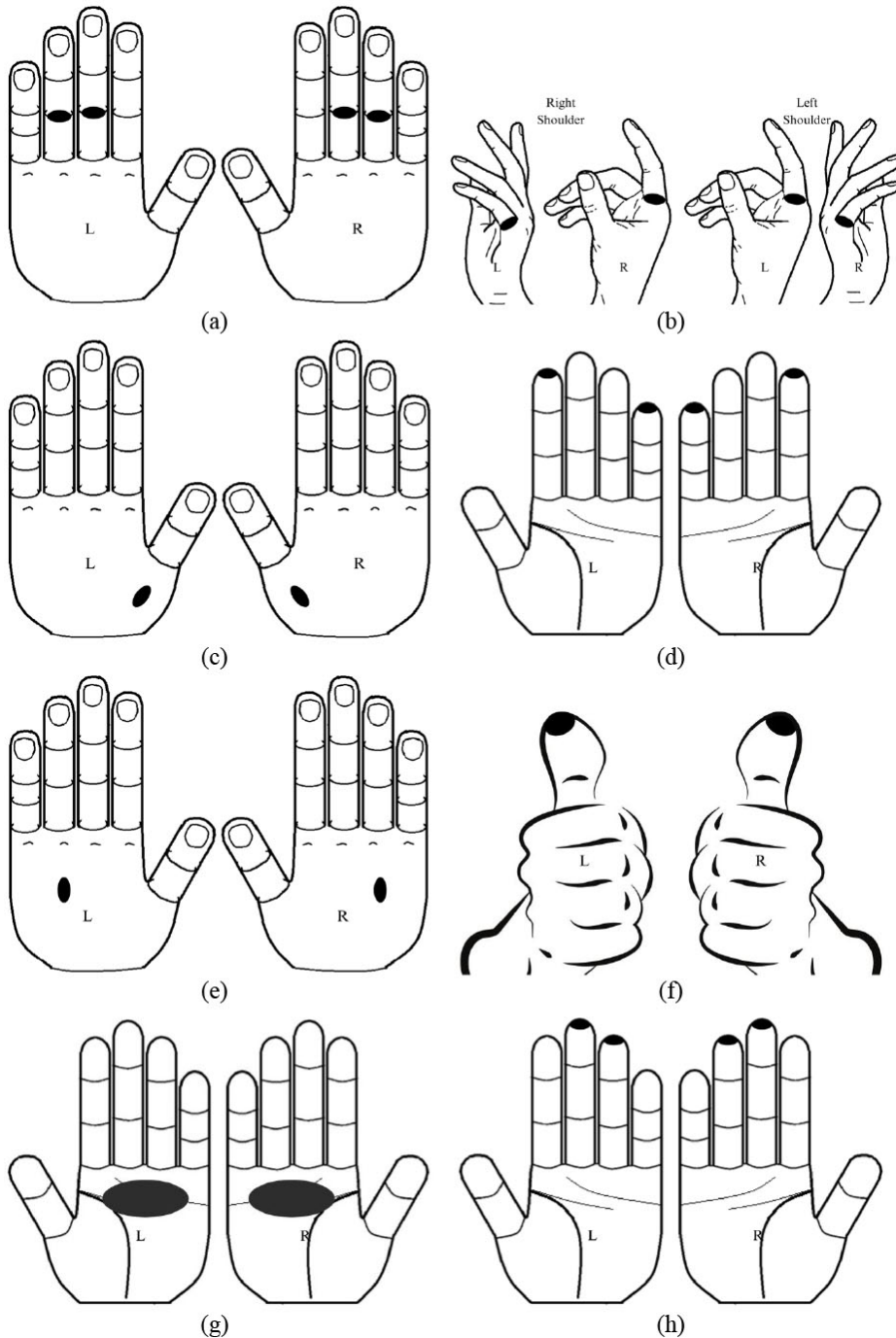


Figure 2. Su Jok therapy protocols. (a) knee correspondents. (b) shoulder correspondents. (c) upper back correspondents. (d) hand fingers correspondents. (e) right waist correspondent. (f) front head correspondents. (g) lower abdominal correspondents. (h) toe correspondents.

complaints included tingling, discomfort, stiffness, and numbness. Patients with diabetes mellitus who have sensory diabetic neuropathy often have similar problems. This is similar to a study conducted by Rahmi, which states that symptoms of sensory diabetic neuropathy are physical complaints, namely paresthasias (tingling, burning, and stabbing), pain, and numbness.¹⁰

As many as 86.7% of respondents were female, and 13.3% of respondents were male. A study showed that females experience sensory diabetic neuropathy more than males.^{11,12} This is maybe because of high levels of estrogen in women that can interfere with the absorption of iodine, which plays a role in the formation of nerve myelin, so that it can cause sensory diabetic neuropathy.^{13,14} Around 33.3% of respondents were between the ages of 51 and 55 and 61 and 65, respectively. In contrast, other research indicates that 69.2% of respondents were between the ages of 46 and 55.¹¹ Along with the aging process, the nervous system is increasingly vulnerable to metabolic stress that occurs continuously due to degenerative processes.¹⁵ Increasing age will also increase the accumulation of cellular and molecular damage that occurs over time, and this is caused by chronic hyperglycaemia, such as axonal damage or nerve demyelination, which can lead to increased development of sensory diabetic neuropathy.^{13,16,17}

Discomfort in both knees was the most frequent physical complaint reported by respondents (26.67%), followed by discomfort in the head, back, waist, and lower abdomen. This is comparable to a prior study that found that the head, face, back, and lower extremities experienced the most pain.¹⁸ This research, however the study targets the population on the general population, not diabetes mellitus patients.

The findings demonstrated that Su

Table 3. Effect of *Su Jok* therapy on symptoms of diabetes mellitus

	Mean ± SD	p-value
Complaint Scale before therapy	3,16 ± 0,602 ^a	0,001
Complaint Scale after therapy	2,05 ± 0,405 ^a	

Significant ($p < 0.05$).

Jok therapy could considerably lessen the intensity of physical complaints in people with diabetes mellitus. *Su Jok* therapy performed here involves using massage and seed therapy on the basic correspondence target. According to Prof. Park Jae Woo, correspondence therapy is therapy related to certain areas of the body that are projected on the hands (Su) and feet (Jok), and if there are problems in these areas, then providing stimulation to these areas will activate autoregulation to restore the body to a healthy condition.⁸

Another study using music therapy was also conducted to reduce pain complaints in diabetes mellitus who experience neuropathic pain. The severity of moderate pain decreased to mild discomfort at minute 30 of the 60-minute treatment intervention.²² Additionally, a study was conducted on patients with diabetes mellitus who complained of pain. The intervention involved performing foot exercises 12 times over the course of 4 weeks, three times a week, for a period of 20 to 30 minutes. The study's findings demonstrated that foot workouts had an impact on lowering pain intensity.²³

Compared to *Su Jok* therapy conducted in this study, where the time required for only 3-5 minutes can reduce the severity scale of physical complaints. Based on the results of previous studies and compared with the study using *Su Jok* therapy, there are differences in time and effort made, whereas in earlier studies, it took a long period and required a lot of effort to reduce pain in diabetes mellitus patients.

In this research, a probe and seed attachment are used to massage and stimulate the corresponding area as needed. Physical complaints can be classified as either hyperactivity or hypoactivity of a body part or organ. While hypoactivity has to be enhanced (using the tonification method of therapy), hyperactivity needs to be reduced (using the sedation method of treatment). Sedation and tonification can be done by massaging the targeted correspondence

area in a counterclockwise direction or the opposite direction to the anatomy or function of the organ.⁸ In addition to massage using a probe, sticking seeds on the corresponding area is aimed to provide effective results in reducing the severity scale of physical complaints in diabetes mellitus patients. According to Prof. Park Jae Woo, human health can be improved by seeds placed in the target area of therapy, this is because seeds have power in a latent form. The process of treatment through seeds is when the seed energy waves are transmitted to the corresponding area or vice versa, in which the seeds can absorb negative energy through the area as well.⁸

Fenugreek (*Trigonella foenum-graecum* L.), a herbaceous annual plant in the *Leguminosae* family, is grown in India and Mediterranean nations, according to Sauvaire. Its seeds have traditionally been used to cure a variety of illnesses as a herbal remedy. The seed itself, its extracts, or its purified components have been found to have glucose and lipid-lowering qualities in a number of pharmacological and clinical investigations.¹⁹

The pharmacological characteristics of *Trigonella Foenum Graecum* were investigated, and the findings indicated that the seeds and their corresponding extracts had phytoestrogenic activity. The US Food and Drug Administration states that the fenugreek herb is nontoxic and a safe medicine as it possesses broad medicinal applications to treat various ailments.²⁰ Fenugreek seeds are processed in different ways, like dabbling, sprouting, and roasting, to increase the total phenolic components and antioxidant potential of fenugreek seeds in comparison to non-processed seeds.²¹ In this study, fenugreek can be considered to be very safe as the patient does not need to consume it by just putting those on the skin.

Su Jok therapy with a massage using probes and fenugreek seeds can reduce the severity scale of physical complaints in diabetes mellitus patients. This study suggests that medical professionals can

assist individuals with diabetes mellitus in lowering the severity scale of physical symptoms by using *Su Jok* treatment as an alternative therapy. Additionally, it is anticipated that health professional education will incorporate *Su Jok* therapy. The small number of respondents is another study constraint that could have an impact on the study's efficacy.

CONCLUSION

Su Jok therapy is a complementary approach that can be applied to decrease the severity scale of physical complaints in patients with diabetes mellitus, according to the case report's findings. Further study needs to be carried out with a more rigorous methodology, for example, with a larger sample or using a quasi-experiment or RCT study design. In addition, further study needs to be carried out with specific criteria in diabetes mellitus patients with sensory diabetic neuropathy.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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AUTHOR CONTRIBUTION

Recruitment and data collection were done by TO, RT, and APS. Statistical analysis was done by APS. The manuscript was written by TO, RT, and APS. The manuscript was checked by IN before it was submitted for publication. All authors read and approved the final manuscript.

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