

ACUPRESSURE AS A STABILITY OF BLOOD SUGAR IN PATIENTS WITH TYPE II DIABETES MELLITUS: A LITERATURE REVIEW



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ABSTRACT

Introduction: Diabetes Mellitus (DM) is a chronic disease that is sweeping the world. More than 300 million people in the world suffer from this disease and the number is increasing rapidly. Management and treatment of diabetes involves both pharmacological and non-pharmacological methods. One of the non pharmacological methods is acupressure. **Purpose:** to find out the benefits of acupressure therapy in health practice and it is hoped that this study can be an illustration of alternative therapies to overcome health problems such as type II diabetes mellitus. **Methods:** This systematic review was carried out in accordance with the PICO model. The database or database search in this literature review was carried out in April 2022. The database used was Google. A total of 5 articles were used as research samples that met the inclusion and exclusion criteria. **Results:** 4 out of 5 articles analyzed stated that acupressure was considered to help lower blood glucose levels. Meanwhile, in one article, it was stated that there was no significant difference between the mean glucose levels of the three groups before and after the intervention. **Discussion:** Self-acupressure at 4 points LIV 3, ST36 SP6 and KD 3 under controlled conditions can increase insulin levels. Acupressure therapy was carried out routinely at ST 36 points and Suzana's feet 3 times on the 6th day, 12th day and 18th day. Emphasis on points ST-36 and SP-6 can restore the balance of Yin and Yang and improve insulin secretory function in patients with non-insulin dependent diabetes mellitus. **Conclusion:** Acupressure therapy can reduce blood glucose levels in type II DM patients. Acupressure therapy must be carried out according to the correct and regular procedure to avoid failure in acupressure therapy.

Keywords: Acupressure therapy, alternative therapy, type II diabetes mellitus

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INTRODUCTION

Diabetes Mellitus (DM) is a chronic disease that is sweeping the world. More than 300 million people in the world suffer from this disease and the number continues to increase rapidly. The World Health Organization (WHO) has defined diabetes mellitus (DM) as a chronic disease caused by inherited and/or acquired deficiency of insulin production by the pancreas, or by the ineffectiveness of the insulin produced.

Diabetes is categorized into two types, namely insulin dependent (type 1) and insulin independent (type 2). Type 1 diabetes (insulin dependent) is caused by the failure of the pancreas to produce insulin. Therefore, patients suffering from this are completely dependent on exogenous sources

of insulin. While type 2 diabetes (insulin independent) results from insulin disorders in the body. In addition, this type of diabetes cannot respond to insulin and can be treated with dietary changes, exercise, and medication. Generally, the management and treatment of diabetes involves both pharmacological and non pharmacological methods.

Non pharmacological methods include diet, exercise, and consultation with respect to complementary and alternative medicine including acupuncture, massage therapy, biofeedback, yoga, and herbal medicines, which play an important role in lowering blood glucose levels. Acupressure is a traditional Chinese therapy that is believed to improve the healing process and is

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derived from acupuncture. Acupressure is the term used to provide stimulation to acupuncture points using the hands or fingers with technical or mechanical pressure. Emphasis is done to replace acupuncture needles with the aim of improving blood and energy (Qi) circulation throughout the body.

The purpose of this literature review study is to find out the benefits of acupressure therapy in health practice and it is hoped that this study can serve as an overview of alternative therapy to overcome health problems such as type II diabetes mellitus.

METHOD

This systematic review was carried out in accordance with the PICO model. PICO is an acronym for the clinical information search method which consists of 4 components: P (patient, population, problem), I (intervention, prognostic factor, exposure), C (comparison, control), and O (outcome). (Liberati, et al, 2009). The components of PICO in this literature review are P: Type II DM patients, I: Acupressure diabetes mellitus, C: articles reviewed using control or comparison groups, O: stable blood sugar in Type II DM patients. Keywords are short words that are able to describe the contents of an article or document (Figueroa, et al. 2014). The keywords in the evidence based research in this literature review are "Acupressure", "diabetes mellitus". The database or database search in this literature review is carried out in April 2022. The database used is Google. Explanation more details related to search engines can be seen in the following table:

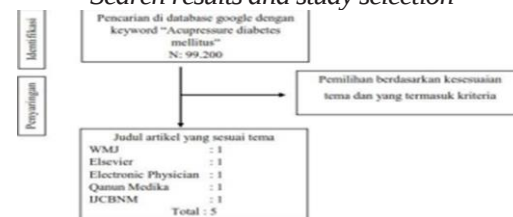
Table 1. Data search

Pencarian data	Sumber data	Tahun	Jumlah artikel	Total
24-04- 2022	WMJ	2018	1	5
24-04- 2022	Elsevier	2021	1	
24-04- 2022	Electronic Physician	2018	1	
24-04- 2022	Qanun Medika	2021	1	
24-04- 2022	IJCBNM	2021	1	

The inclusion criteria used in the selection of articles include research journals in the last 5 years, free full text, and topics according to the

theme. While the exclusion criteria (beyond the inclusion criteria) in this literature review are the selection of articles related to acupressure not in type II diabetes patients. In addition, the article used is a literature review / meta analysis / systematic review.

Search results and study selection



This research is a systematic review study by collecting articles relevant to the theme "acupressure as an effort to stabilize blood sugar in patients with type II diabetes mellitus". The research was conducted by reviewing articles from 2018 to 2022. with the keywords "Acupressure", "Diabetes Mellitus". List of search results articles A total of 5 articles used as samples for this study were identified and presented in the following table 2.

RESULT

First article conducted by Anung Putri and Hean Safira et al (2021) with the title "effect of acupressure therapy period toward blood sugar level in type 2 diabetes mellitus patients at Lumajang acupressure clinic" was conducted on 36 respondents, with the characteristics of respondents including gender, age, regular exercise, duration of T2DM patients and adherence to diet, which were analyzed descriptively. Performed at the Lumajang Acupressure Clinic which is dominated by men, dominated by >40 years of age. This study states that there is an effect on blood sugar levels after acupressure therapy in the group, namely the 8-week therapy group and the 3-week group, with the results of the 8-week therapy group having an average difference from the 3-week therapy group.

This study stated that there was a significant difference between the average difference in blood sugar levels in the 3-week and 8-week acupressure groups. so it can be concluded that acupressure. The longer the therapy is carried out, the better the effect will be. but this study also said that the decrease in blood sugar levels in this study was not only caused by acupressure but because the mechanism of insulin resistance and regulation of blood sugar levels depended on the intervention given, acupoints. target

population and respondent's lifestyle.

The second article conducted by Asieh Zarvasi et al (2018) with the title "Effect of self-acupressure on fasting blood sugar (FBS) and insulin level in type diabetes patients: a randomized clinical trial" in this study, a total of 314 patients with diabetes were selected. randomized from 5,713 patients enrolled in the clinic. In this randomized clinical trial, in all, 60 patients were randomly assigned to the intervention and control groups according to age and sex categories. The results of this study indicate that self-acupressure at 4 points LIV3, ST36 SP6 and KD3 under controlled conditions can increase insulin levels in the phase after the intervention in the intervention group, in a comparison between groups, the intervention can reduce FBS (Fasting Blood Sugar) in the intervention group after the intervention phase.

Third article conducted by Musmuliadin et al (2018) with the title "The influence of acupressure therapy against blood glucose levels in patients of type 2 diabetes mellitus the prolanis program (A study a health in ambalawi)" was conducted on 34 patients with type 2 diabetes. who have followed the prolanis program using purposive sampling method. participants were divided into 2 groups, namely the experimental group and the controlled group. in this study there was significant effectiveness of both the acupressure therapy and the prolanis program. Acupressure therapy was carried out to respondents regularly at ST36 points and Suzanii's feet 3 times on the 6th day, 12th day and 18th day. It can be concluded that this study showed a decrease in blood glucose levels in the group intervention of type 2 DM patients after being given acupressure therapy integrated with the polanis program with a significant value of $p < 0.005$. The average decrease in blood glucose levels in the experimental group was better than the control group with an average value of 140.00. This means that it is able to reach the limit of normal blood glucose levels.

Fourth article conducted by Sied Saeed et al (2021) entitled "The effect of acupressure on fasting blood glucose and glycosylated hemoglobin levels in diabetic patients: a randomized controlled trial" was conducted on 102 patients who were referred to the Motahari Shinaz Clinic during May- June 2018. Participants were selected based on simple random sampling and divided into three groups through permuted block randomization. Research participants were included in the study after signing a written consent form. the results

of this study showed no significant differences between the three groups with respect to the demographic variables of the participants. comparison of the three groups in terms of age ($P=0.79$) and duration of diabetes ($P=0.82$) showed that there was no statistically significant difference. The results showed that there was no significant difference between the average blood glucose levels of the three groups before ($P=0.89$) and after the intervention ($P=0.36$) acupressure points (ST36).

Fifth article conducted by Maryam Sakmani et al (2021) with the title "The effect of acupressure on fasting blood glucose, glycosylated hemoglobin and stress in patients with type 2 diabetes" was conducted on 60 diabetic patients who met the inclusion criteria randomly divided into groups. intervention and sham group. the acupressure intervention was applied to the xingjian (LR2) and HeGu (LI4) points, which were taught by the principal investigator to the participants in the intervention group in person and with practical exercises and video presentations. The Xingjian point (LR2) is on the instep, between feet 1 and 2, and the He Gu point (LI4) is located at the highest point of the adductor muscle when the thumb and index finger are brought together. the patients apply self-acupressure to the desired points for a month, 20 minutes per day. they put pressure on Xingjian (LR2) in the morning (9-10 am) and He Gu point (LI4) in the evening (5-6 pm) it was done to both groups the difference was in the false group in the application of acupressure it was requested to slightly touch (without applying pressure). The results showed that acupressure can reduce FBG and stress in patients with type 2 diabetes, researchers recommend that acupressure as a method that is safe, secure and easily accessible without the need for special equipment.

DISCUSSION

Diabetes mellitus cannot be cured, but blood sugar levels can be controlled through diet, exercise, and medication. To be able to prevent the occurrence of chronic complications, proper control of diabetes mellitus is needed (Firdausya & Amalia, 2020). Controlling diabetes mellitus neglects the role as well as team collaboration, has the aim of reducing incidence, preventing the risk of disease and other complications, and maintaining blood sugar levels within normal ranges for clients with diabetes mellitus. This control uses pharmacological and non-pharmacological therapy. There are several non-

pharmacological therapies that have been proven to control blood sugar levels such as acupressure. Acupressure is a form of physiotherapy by providing massage and stimulation to specific points on the body. Acupressure is a Traditional Chinese Medicine (TCM) technique that is believed to work on the principle of redistribution of Qi which is a form of life energy (Nasole et al, 2019). Acupressure has the same working principle as Acupuncture by stimulating the 14 meridian systems to balance the bio-energy in the body between yin, yang, and qi (chee). Acupressure therapy also aims to relax the body, balance hormones in the body, increase blood circulation and muscle mobility, Boost the immune system, reduce stress, and improve physical health.

Research conducted by Asieh Zarvasi et al (2018) shows that self-acupressure at 4 points LIV 3, ST36 SP6 and KD 3 under controlled conditions can increase insulin levels in the post-intervention phase in the intervention group, in a comparison between groups, the intervention can reduce FBS (Fasting Blood Sugar) in the intervention group after the intervention phase. In addition, research by Musmuliadin et al (2018) found a significant effectiveness of both acupressure therapy and the prolanis program. Acupressure therapy was carried out to respondents routinely at ST 36 points and Suzana's feet 3 times on the 6th day, 12th day and 18th day.

The ST 36 point where the Zusanli acupressure point (ST36) is an effective and convenient way to treat diabetic patients. Acupressure stimulates the release of neurotransmitters that carry signals along nerves or through glands. then activates the hypothalamus and then the pituitary adrenal axis to regulate endocrine gland function, acupuncture stimulation at the Zusanli point increases insulin secretory function in patients with non-insulin dependent diabetes mellitus and can significantly reduce sugar levels (Jumari, 2019).

This study is in line with previous research conducted by Fitrullah (2017) where emphasis on points ST-36 and SP-6 can reduce blood glucose levels in type 2 DM patients. non-insulin dependent diabetes mellitus. Stimulation in the form of emphasis placed on these acupressure points (SP6 and ST36) is believed to improve energy flow. In his journal Jumari (2019) explained that the stimulation of SP6 and ST36 points can activate glucose-6-phosphate which is one of the enzymes of carbohydrate metabolism and can respond to the hypothalamus, activates

the Hypothalamus-Pituitary-Adrenal AXIS and produces hormones.

Corticotropin releasing factor (CRF) thus stimulates the pancreas to increase insulin synthesis, one of the receptors on target cells, namely glucose transporter (GLUT4). These receptors function to carry glucose into cells and accelerate the use of glucose, thereby lowering blood glucose levels. so it can be said that acupressure is effective for lowering blood glucose levels. Acupressure is also convenient for diabetics because it uses hands to massage and there is no fear of needle sticking. Therefore, acupressure can be an alternative nursing intervention in reducing blood glucose levels in patients with type 2 diabetes mellitus.

CONCLUSION

Based on the analysis that has been done by the author, it can be concluded that acupressure therapy can reduce blood glucose levels in type II DM patients. Acupressure therapy must be carried out according to the correct and regular procedure to avoid failure in acupressure therapy. Emphasis at the right point can activate enzymes that stimulate the pancreas to secrete insulin so that glucose levels in the blood can decrease.

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Tabel 2. List of search results articles

Author	Year	Title	DOI
Anung Putri Illahika, HeanSafira	2021	Effect of acupressure therapy period toward blood sugar level in type 2 diabetes mellitus patients at Lumajang acupressure clinic	DOI: http://dx.doi.org/10.30651/jqm.v5i1.5097
Asieh Zarvasi, Ali Ansari Jaber, TayebheNegahban Bonabi, Mahnaz Tashakori	2018	Effect of self-acupressure on fasting blood sugar (FBS) and insulin level in type 2 diabetes patients: a randomized clinical trial	DOI: http://dx.doi.org/10.19082/7155
Musmuliadin ,Rr. Sri EndangPujiastuti , Hotma Rumohorbo	2018	The Influence Of Acupressure Therapy Against Blood Glucose Levels In Patients Of Type 2 Diabetes Mellitus In The Prolanis Program (A Study On Health In Ambalawi)	DOI: http://dx.doi.org/10.2225/wmj.3.2.804.65-72
Sied Saeed Najafi , MS; Hassan Ghorbani , MS;Amin Kordi Yoosefinejad, PhD; MajidNajafi Kalyani , PhD	2020	The Effect of Acupressure on Fasting Blood Glucose and Glycosylated Hemoglobin Levels in Diabetic Patients: A Randomized Controlled Trial	Doi: 10.30476/ijcbnm.2021.86059.1318.
Maryam Salmani Mood,Zahra Yavari, Hamidreza Bahrami Taghanaki, Gholamhossein Mahmoudirad	2021	The effect of acupressure on fasting blood glucose, glycosylated hemoglobin and stress in patients with type 2 diabetes	DOI: https://doi.org/10.1016/j.ctcp.2021.101393

Tabel 3. Literature Review

No	Author	Title	Intervention	Sample	Method	Outcome
1.	Anang Putri Illahika, Hean Safira.	effect of acupressure therapy period toward blood sugar level in type 2 diabetes mellitus patients at Lumajang acupressure clinic	Acupressure	This research carried out on 36 respondents who were divided into 2 groups, each each group of 18 people.	The method used is observation analytic with a pre-test and post-test system on the respondents.	Acupressure on both groups using the acupoint San Yin Jiao (SP-6) for 20 minutes 3 times a week can reduce glucose levels in type 2 diabetics.
2.	Asieh Zarvasi, Ali Ansari Jaber, Tayebbeh, Negahban Bonabi, Mahnaz Tashakori.	Effect of self-acupressure on fasting blood sugar (FBS) and insulin level in type 2 diabetes patients: a randomized clinical trial	Acupressure	This study involved 60 diabetic patients from the Rafsanjan diabetes clinic in Iran which were divided into 2 groups of 30 patients each.	This study uses a randomized clinical trial with the minimization method.	After doing acupressure at points ST-36, LIV-3, KD-3 and SP-6 bilaterally for 5 minutes for each point with a pressure of 10 seconds and a rest time of 2 seconds and examination of fasting blood sugar and insulin levels before and after the intervention, it was found that acupressure can help reduce fasting blood sugar levels and increase insulin levels in type 2 diabetes patients.
3.	Musmuliadin, Rr. Sri Endang Pujiastuti, Hotma Rumohorbo.	The influence of acupressure therapy against blood glucose levels in patients of type 2 diabetes mellitus the prolanis program (A study at health center ambalawi)	Acupressure	34 type 2 DM patients who participated in the prolanis program were divided into 2 groups, namely the experimental group and the control group.	This study uses a quasi-experimental design with a sampling method using purposive sampling	The results of this study indicate that acupressure is effective for lowering blood sugar levels in patients with type 2 diabetes. These results were obtained after the patients were given acupressure 3 times for 3 weeks and their glucose levels were measured on days 6, 12, and 18.
4.	Sied Saeed Najafi, Hassan Ghorbani, Amin Kordi Yoosefinejad, Majid Najafi Kalyani	the effect of acupressure on fasting blood glucose and glycosylated hemoglobin levels in diabetic patients: a randomized controlled trial	Acupressure	this research was performed on 102 patients referred to the Motahari Shiraz clinic and divided into three groups.	The method used in the journal is clinical trials on patients with diabetes mellitus. The sample was determined using simple random sampling and the group was divided through permuted block randomization.	After acupressure was performed at the ST-36 point, the results shown in this study were that there was no significant difference between the mean glucose levels of the three groups before and after the intervention.
5.	Maryam Salmani Mood, Zahra Yavari, Hamidreza Bahrami Taghanaki,	The effect of acupressure on fasting blood glucose, glycosylated hemoglobin and	Acupressure	This study involved 66 patients with type 2 diabetes mellitus which were divided into 2 groups.	The method used is a randomized controlled clinical trial.	The journal showed that the average fasting blood sugar levels were significantly reduced after the intervention. The intervention used was acupressure at the Xing Jian

Gholamhossein
Mahmoudirad.
stress in
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(LR2) and HeGu (LI4)
points.



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