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The Effectiveness of Reflexology Massage to The Reduction of Blood Sugar Level of Elderly with Type 2 Diabetes Mellitus

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Abstract

Chronic hyperglycemia in clients with diabetes mellitus will cause long-term damage, namely dysfunction or failure of organs such as eyes, kidneys, nerves, heart and blood vessels. Therefore, reflexology on the soles of the feet is become one of the complementary therapies that has no side effects. The research design used pre-experimental approach with a one group pretest-posttest design. The data analysis was divided into two, namely univariate analysis by frequency distribution and bivariate analysis by paired sample t-test. The results showed that there was a difference in the points of before and after treatment as much as 36.15 points. There was an effect between reflexology treatment before and after as much as 0.0001 < 0.05. Reflexology could respond the hypothalamus, activated the Hypothalamus-Pituitary-Adrenal AXIS, and produced corticotropin releasing factor (CRF) hormone which stimulated the pancreas to increase insulin synthesis. One of the receptors on target cells, namely the glucose transporter (GLUT 4) which functioned to bring glucose into cells and accelerated the use of glucose which resulted in lower blood glucose levels. Reflexology can be done by oneself and has no side effects.

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INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia due to damage to pancreatic beta cells which resulted in incapable of producing insulin (Ministry of Health of the Republic of Indonesia, 2020). Chronic hyperglycemia of clients with diabetes mellitus will cause long-term damage, namely dysfunction or failure of organs such as eyes, kidneys, nerves, heart and blood vessels (Association, 2014). Diabetes mellitus is classified into gestational diabetes, type 1 diabetes, and type 2 diabetes. Type 2 diabetes mellitus (DMT2) is a group of metabolic diseases with characteristics of hyperglycemia, occurring due to abnormalities in insulin secretion, insulin action or both (Decroli, 2019). Epidemiological research proves that there is a tendency to increase the incidence of type 2 diabetes mellitus in various parts of the world, both in industrialized and developing countries, including Indonesia. Type 2 DM covers 90% of all diabetic populations (Soelistijo et al., 2019).

International Diabetes Federation (IDF) revealed that in 2019, the number of people with DM was 88 million people, and would increase around 115 million people in 2030 and 153 million people in 2045. Diabetes mellitus sufferers by gender were 9% women and 19.9% men (Nugroho, 2021). The prevalence of diabetes cases of elderly group was >65 years (Whiting et al., 2011). The highest prevalence of diabetes mellitus cases in China is 116.4 million people, Indonesia is ranked 7th with 10.7 million people, within the scope of the Southeast Asia region, Indonesia is ranked 3rd with a prevalence of 11.3% (Ministry of Health of the Republic of Indonesia). 2020). According to Riskesdas in 2013-2018, East Java was ranked 6th with the most cases of diabetes mellitus of 100 patients (East Java Provincial Health Office, 2020).

In 2014 around 8.5% of people aged 18 years old were affected by DM. In 2019 DM was the cause of death of around 1.5 million deaths and 48% occurred before the age of 70 years (World Health Organization, 2021). Therefore, there are several methods of treating diabetes mellitus in order to reduce blood sugar levels and even to reduce mortality rate. Diabetes treatment methods consist of pharmacological and non-pharmacological treatment. Pharmacological methods have side effects, non-adherence of drug consumption resulted in expensive charge. Non-pharmacological methods are cheap, have no side effects or the side effects can be minimized. There are several non-pharmacological methods, one of which is reflexology. DM reflexology is a way of treating disease through central nervous points associated with certain body organs (Lisanawati, Hasneli and Hasanah, 2015)

Reflexology is a way of treating disease by massaging through the central points of nerves associated with organs related to blood sugar levels including the brain, pituitary, pancreas, and liver points (Ruhito and Mahendra, 2009). Reflexology is related to an organ of the body that can be done through the sole of the feet. Reflexology is fully functional to eliminate the symptoms and also the cause of the symptoms. Reflexology performed on the palms of the hands and feet, especially in problem areas of the organ, will provide stimulation to nerve points associated with the pancreas, these nerve points stimulate the pancreas to produce insulin (Lisanawati, Hasneli and Hasanah, 2015)

Chanif and Khoiriyah (2016) stated that reflexology massage in some certain point of the feet is used to determine the massage area, where the feet are representative of the nerves throughout the body. This foot reflexology technique can stimulate nerve function throughout the body properly and the benefits of the massage will be felt in the body, mind, and spirit. Human body consists tissues that lead to all parts of the body which are interconnected with one another. When one of the knot points is pressed, it will relate to certain organs. The nerve point of people with diabetes mellitus is the pancreas point. This point is related to the insulin hormone, which affects blood sugar (glucose) levels in the body (Wicaksono, 2011).

METHOD

The research design used pre-experiment with a one group pretest-posttest design approach. The design aimed to compare the result before and after the treatment. The sample was 40 elderly people aged > 50 years and over. The sampling technique was purposive sampling with the inclusion criteria of voluntary elderly as respondents, not sick and exposed to covid 19. The location of the research was on Posyandu of elderly in the village of Tegalan-Kandat, Kediri Regency. The research was held in July 2021. The data was collected through the administration of reflexology massage in the sole of the foot area of elderly who had agreed to become respondents. This reflexology was carried out for 3 weeks, 3 times a week assisted by 6 enumerators who had received reflexology training from researchers. The researchers conducted 2 data

analysis, namely univariate analysis, namely demographic data in the form of frequency distribution and bivariate analysis through blood sugar level before and after treatment in the form of paired sample t-test.

RESULT

1. Demographic Data

Table 1: The Frequency of Demographic of the Respondents (n=40)

Demographic Data	∑	%
Age		
50-55 years old	15	37,5
56-60 years old	18	45
>60 years old	7	17,5
Total	40	100
Gender		
Female	33	93
Male	7	7
Total	40	100
Workout/ physical exercise		
Routine (daily)	10	25
occasionally (1-3 times a week)	7	17.5
Never	23	62,5
Total	40	100
Occupation		
State Employee	1	2,5
Entrepreneur	2	5
Housewife	34	85
Retired	3	7,5
Total	40	100
History of disease (except DM)		
Hypertension	10	25
Cholesterol	7	17,5
Uric Acid	10	25
Nothing	13	32,5
Total	40	100
Fasting Blood Sugar Level before Treatment:		
Normal (100mg/dl)	0	0
Pre-diabetes (101-125mg/dl)	6	15
Diabetes (>126mg/dl)	34	85
Total	40	100
Fasting Blood Sugar Level before Treatment:		
Normal (100mg/dl)	22	55
Pre-diabetes (101-125mg/dl)	12	30
Diabetes (>126mg/dl)	6	15
Total	40	100

2. Data bivariat

Table 2: Numerical Result of kolmogrov smirnof test(n=40)

	N	Mean	KS count	KS table
Before Treatment	40	144.750	0.0001	0.21503
After Treatment	40	108.600		

The table above shows that KS count 0.0001>0.21503 which means the data is normally distributed.

Tabel 3: Numerical Result of *paired sampel t-test* (N=40)

	N	Mean	T Count	Sig (2-tailed)
Before treatment	40	144.750	15.136	0.0001
After treatment	40	108.600		

The table above shows there is a deviation point before and after treatment up to 36,15 points. There is an effect on the reflexology massage before and after treatment with the result of 0.0001 < 0.05.

DISCUSSION

Before Treatment

The results of the study on fasting blood sugar level of diabetic patients before reflexology were 15% pre-diabetic and 85% diabetic. This was due to several factors. The first factor is gender. Women are more affected or vulnerable to diabetes. Men and women actually have the risk of developing diabetes mellitus, but women have a greater risk, because women have the opportunity to increase their body mass index as a result of the monthly cycle syndrome (premenstrual syndrome) (Rita, 2018). Post menopause can make the distribution of body fat easily accumulate due to the hormonal process so that women are at risk of suffering from diabetes mellitus (Wahyuni, 2014). According to research by Usman et al at the Haji Makasar Hospital, it proved that 69.8% of people with diabetes mellitus were female caused by unhealthy food patterns such as consuming foods that contain fat and high in glucose (Usman, Rahman and Sulaiman, 2020)

The results of Riskesdas 2007 also showed that the number of DM sufferers in Indonesia was increasing with the increasing of age. The age of the respondent was > 50 years, this was in line with research from Kekenusa et al, which showed that there was a correlation between age and the incidence of Diabetes Mellitus (p = 0.000) and the Odds Ratio value was 7.6. This meant that people aged 45 years had 8 times greater risk of developing diabetes mellitus compared to people aged less than 45 years (Kekenusa, Ratag and Wuwungan, 2018). This was reinforced by research from Mildawati et al, showing that 45-65 years of age have diabetes mellitus with complications of peripheral neuropathy so that there was a positive correlation which meant that the older a person was, the higher the risk of developing diabetic peripheral neuropathy (Mildawati, Diani and Wahid, 2019).

Doing workout or physical exercise also affects the level of insulin in patients with diabetes mellitus, such as regular exercise to help normalize blood sugar levels thereby reducing the need for drugs or insulin (Rachmawati, 2010). The decrease of blood sugar levels after exercise is due to the burning of calories in the body which can improve blood circulation so that it can increase the number of receptors on the cell walls where insulin is produced (Hastuti and Haji, 2017). The results of the study indicated that about 62.5% did not do exercise. According to the observations of the researchers, the exercise was not optimal and there was no routine exercise for the elderly. These phenomena can cause blood sugar levels to increase.

After Treatment

Reflexology is a complementary therapy that emphasizes certain body points using hands or other objects such as wood, plastic or rubber. Basically, reflexology aims to improve the function of the body's systems, especially the immune and defense systems, so that the body can heal itself, because the body actually has the ability to heal itself (Sari, Renityas and Wibisono, 2014).

In this research, the reflexology was carried out for 15-20 minutes on the soles of the feet, it proved that 55% had normal blood sugar levels and 30% had blood sugar in the pre-diabetes category, and there was an increase in points between before and after treatment by 36,11 points, which meat that there was a decrease in blood sugar levels after reflexology, and there was an effect between reflexology treatment before and after that was 0.0001 < 0.05. This result was strengthened by research from Musiana which revealed that there was a significant difference between blood sugar before and after treatment (Musiana, Astuti and Dewi, 2017).

Stress is one of the factors that triggers an increase in blood sugar in DM patients, reflexology has relaxing properties so that it triggers the release of several hormones that contribute to increasing blood sugar levels, namely epinephrine, growth hormone, glucagon, and glucocorticoids. activates 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 the hormone corticotropin releasing factor (CRF) thereby stimulating the pancreas to increase insulin synthesis, one of the receptors on target cells, namely the glucose transporter (GLUT 4) which is functioned to bring glucose into cells and accelerate the use of glucose so that it lowers blood glucose levels (Fitrullah and Rousdy, 2017; Musiana, Astuti and Dewi, 2017)

Muzahidin et al, stated that there was a decrease in blood sugar levels after the reflexology intervention on the soles of the feet for 3 consecutive days with the duration of 15-20 minutes. This was due to the increasing peripheral blood circulation so that oxygen and nutrients in the periphery could help the nerves in the feet to receive stimulation (Muzahidin, Hartoyo and Suryani, 2015). Emphasizing on the reflex points in the feet, especially at the pancreas point, the nerve receptors will work and the stimulation will turn into electricity or bioelectricity which will spread to the brain and then to the pancreas, so that insulin hormone production is better and blood sugar levels in the body are balanced.

CONCLUSION

Before the reflexology treatment, 86% had blood sugar levels higher than 126mg/dl, and after the treatment, the respondent's blood sugar levels were 55% in the normal category and 30% in the pre-diabetic. There was an effect between the result of reflexology massage before and after (0.0001 < 0.05).

SUGGESTION

Reflexology on the soles of the feet is a complementary treatment that can be done at home without expensive costs and even without side effects. Reflexology can be done at posyandu for the elderly, and posyandu cadres can be taught reflexology to help elderly with diabetes mellitus.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest. Other funders than the authors had no role in the design of the study, data collection, data analysis, in the writing of the manuscript, and also in the decision for publication.

REFERENCES

Association, A. D. (2014) 'Diagnosis and classification of diabetes mellitus', *Diabetes Care*, 37(SUPPL.1), pp. 81–90. doi: 10.2337/dc14-S081.

Chanif and Khoiriyah (2016) 'Efektivitas terapi pijat refleksi kaki terhadap tekanan darah pada pasien hipertensi', *University Research Coloquium*, pp. 214–221. Available at: https://publikasiilmiah.ums.ac.id/bitstream/handle/11617/7798/MIPA DAN KESEHATAN_28.pdf?sequence=1&isAllowed=y.

Decroli, E. (2019) *Diabetes Millitus Tipe 2*. Padang: Pusat Penerbitan Bagian ilmu Penyakit Dalam Fakultas Kedokteran Universitas Andalas.

Dinas Kesehatan Provinsi Jawa Timur (2020) 'Profil Kesehatan Provinsi Jawa Timur 2019', *Dinas Kesehatan Provinsi Jawa Timur*, pp. 1–123. Available at: www.dinkesjatengprov.go.id.

Fauzan, F. N., Bayhakki and Arnelinawati (2015) 'efektifitas latihan refleksi kaki dengan menggunakan tempurung kelapa terhadap tekanan darah pada penderita hipertensi primer', 2(2). Available at: https://jom.unri.ac.id/index.php/JOMPSIK/article/view/8277.

Fitrullah and Rousdy, A. (2017) 'Effectiveness of Acupressure at the Zusanli (ST-36) Acupoint as a Comfortable Treatment for Diabetes Mellitus: A Pilot Study in Indonesia', *Journal of Acupuncture and Meridian Studies*, 10(2), pp. 96–103. doi: 10.1016/j.jams.2016.12.003.

Hastuti, W. and Haji, S. (2017) 'Pengaruh Senam Diabetes Terhadap Kadar Gula Darah Pada Pasien Diabetes Mellitus Tipe II Di Wilayah Puskesmas Kedungwuni II Kabupaten Pekalongan', *Jurnal Smart Keperawatan*, 4(1), pp. 57–64. doi: 10.34310/jskp.v4i1.94.

Kekenusa, J. S., Ratag, B. T. and Wuwungan, G. (2018) 'Analisis Hubungan Antara Umur dan Riwayat Keluarga Menderita Dm dengan Kejadian Penyakit Dalam Blu

Rsup Prof. Dr. R.D Kondou Manado', *Dr. RD Kandou Manado. J Kesmas Univ Sam Ratulangi Manado*, 2(1), pp. 1–6.

Kementrian Kesehatan Republik Indonesia (2020) 'Tetap Produktif, Cegah Dan Atasi Diabetes Mellitus', *pusat data dan informasi kementrian kesehatan RI*. Available at: https://pusdatin.kemkes.go.id.

Lisanawati, R., Hasneli, Y. and Hasanah, O. (2015) 'Perbedaan Sensitivitas Kaki Sebelum dan Sesudah Dilakukan Terapi Pijat Refleksi Pada Pasien Diabetes Melitus tTpe II', *Jurnal Online Mahasiswa*, 2(2), pp. 1402–1409.

Mildawati, Diani, N. and Wahid, A. (2019) 'Hubungan Usia, Jenis Kelamin dan Lama Menderita Diabetes dengan Kejadian Neuropati Perifer Diabateik', *Caring Nursing Journal*, 3(2), pp. 31–37.

Musiana, Astuti, T. and Dewi, R. (2017) 'Efektivitas Pijat Refleksi Terhadap Pengendalian Kadar Glukosa Darah Penderita Diabetes Mellitus', *Jurnal Ilmiah Keperawatan*, 11(2), pp. 224–232. Available at: http://ejurnal.poltekkes-tjk.ac.id/index.php/JKEP/article/view/576.

Muzahidin, A., Hartoyo, M. and Suryani, M. (2015) 'Pengaruh Terapi Pijat Refleksi pada Telapak Kaki Terhadap Sensitivitas Kaki pada Penderita Diabetes Melitus Tipe 2 di Puskesmas Karangayu Semarang', *Jurnal Ilmu Keperawatan dan Kebidanan*, 7(2), pp. 1–10.

Nugroho, A. S. (2021) *Indeks Resiko Kejadian Penyakit Jantung Koroner Pada Pasien Diabetes Tipe 2*. Universitas Airlangga. Available at: http://repository.unair.ac.id/id/eprint/107194.

Rachmawati, O. (2010) *Hubungan Latihan Jasmani Terhadap Kadar Glukosa DarahPenderita Diabetes Melitus Tipe-2*. Universitas Negri Sebelas Maret. Available at: digilib.uns.ac.id/dokumen/detail/14247/Hubungan-latihan-jasmani-terhadap-kadar-glukosa-darah-penderita-diabetes-melitus-tipe-2.

Rita, N. (2018) 'Hubungan Jenis Kelamin, Olah Raga Dan Obesitas Dengan Kejadian Diabetes Mellitus Pada Lansia', *Jik-Jurnal Ilmu Kesehatan*, 2(1), pp. 93–100. doi: 10.33757/jik.v2i1.52.

Ruhito, F. and Mahendra, B. (2009) *Pijat Kaki Untuk Kesehatan*. Jakarta: Penebar Plus. Available at: https://books.google.co.id/books?id=B6NadNLOetAC&pg=PP6&lpg=PP6&dq=Mahendra+%26+Ruhito,+2009&source=bl&ots=NCvEeKJBGS&sig=ACfU3U2m6KPTsF73BuY07MTFwvmjaB8-Sw&hl=en&sa=X&ved=2ahUKEwiy8fjI3Kb0AhUl4XMBHV7-CbUQ6AF6BAgFEAM#v=onepage&q=Mahendra %26 Ruhito%2C 200.

Sari, L. T., Renityas, N. N. and Wibisono, W. (2014) 'Pengaruh Terapi Pijat Refleksi terhadap Penurunan Tekanan Darah pada Lanjut Usia dengan Hipertensi', *Jurnal Ners dan Kebidanan (Journal of Ners and Midwifery)*, 1(3), pp. 200–204. doi: 10.26699/jnk.v1i3.art.p200-204.

Soelistijo, S. A. *et al*. (2019) 'Pedoman pengelolaan dan pencegahan diabetes melitus tipe 2 dewasa di Indonesia 2019', *Perkumpulan Endokrinologi Indonesia*, 4, pp. 1–117.

Usman, J., Rahman, D. and Sulaiman, N. (2020) 'Faktor yang Berhubungan dengan Kejadian Diabetes Mellitus pada Pasien di RSUD Haji Makassar', *Jurnal Komunitas Kesehatan Masyarakat*, 2, pp. 16–22.

Wahyuni (2014) *Faktor-Faktor yang Berhubungan dengan Penyakit Diabetes Mellitus Didaerah Perkotaan di Indonesia*. Unkiversitas Islam NegriSyarif Hidyatullah. Available at: https://repository.uinjkt.ac.id/dspace/bitstream/123456789/2447/1/SRI WAHYUNI-FKIK.PDF.

Whiting, D. R. *et al*. (2011) 'IDF Diabetes Atlas: Global estimates of the prevalence of diabetes for 2011 and 2030', *Diabetes Research and Clinical Practice*, 94(3), pp. 311–321. doi: 10.1016/j.diabres.2011.10.029.

Wicaksono, R. P. (2011) 'Faktor-Faktor Yang Berhubungan Dengan Kejadian Diabetes Melitus Tipe 2 (Studi Kasus di Poliklinik Penyakit Dalam Rumah Sakit Dr. Kariadi', *Journal.Fk.Undip.Ac.Id*, 2, pp. 1–22. Available at: http://eprints.undip.ac.id/37123/.

World Health Organization, W. (2021) 'Diabetes'. Available at: https://www.who.int/news-room/fact-sheets/detail/diabetes.

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