

Effectiveness of Warm Ginger Hydrotherapy and Foot Massage in Enhancing Subjective Well-Being in Patients with Type 2 Diabetes Mellitus

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Abstrak:

Type 2 Diabetes Mellitus (DM) requires a holistic approach to blood glucose control management, but non-pharmacological therapy is still rarely applied in society. Research on warm ginger hydrotherapy and foot massage as complementary therapies has previously been conducted separately, but the combination of these two therapies in DM patients has never been conducted. This study aims to analyze the effects of a combination of warm ginger hydrotherapy and foot massage on subjective well-being of patients.

The research method used in this study was a pre-experimental pre-post design, with a sample of 70 participants selected through purposive sampling. Inclusion criteria included DM patients aged 18-65 years with high blood glucose levels. The intervention was carried out for one month, with sessions three times a week. Data were collected using a subjective well-being questionnaire that had been tested for validity and reliability with 40 respondents, the Cronbach's alpha reliability test results were 0.514 and had been validated with a Cronbach's alpha value of 0.938.

The results showed that most respondents were aged 45-60 years (35.7%), female and male (50%), and had suffered from diabetes mellitus for 5-10 years (42.9%). T-test showed an increase in subjective well-being from Mean 45.6 to 52.3 ($p = 0.001$).

These findings support the use of non-pharmacological therapies in managing Type 2 DM and highlight the potential of the combination of hydrotherapy and foot massage in improving patients' quality of life. However, this study has limitations, including a small sample size and an uncontrolled design. Further studies with more rigorous designs are recommended to confirm these findings and explore the benefits of alternative therapies in diabetes management

Keywords: Diabetes Mellitus, Hydrotherapy, Foot Massage, Subjective Well-being..

1. Introduction

One of the global health problems that occurs in the world is caused by diabetes mellitus. Complications that can occur due to diabetes mellitus such as kidney failure, stroke, heart failure, and the most significant is the impact on the decline in the quality of life of diabetes mellitus patients. One of these declines is their psychological well-being. (Lovic et al., 2020). Controlling blood glucose levels is the main thing in treating DM, but non-pharmacological therapy is still rarely applied in society, especially those aimed at improving the subjective well-being of patients. (Alwiyan & Mukarromah, 2022). The role of non-pharmacological therapy

has recently been highlighted as one way to control diabetes mellitus, such as hydrotherapy and massage, in helping to manage DM. By providing non-pharmacological therapy as a complementary therapy for alternative medicine that provides benefits for lowering blood glucose levels thereby increasing subjective well-being (Chidambaram et al., 2024).

Previous research has indicated that warm ginger hydrotherapy and foot massage have the potential to lower blood glucose levels while providing relaxation benefits. Warm ginger hydrotherapy has been shown to decrease blood glucose levels by enhancing insulin sensitivity and reducing insulin resistance (Muda et al., 2023).

Several studies have been conducted to determine blood glucose levels after hydrotherapy and foot massage. (Putra et al., 2024) (Wardani et al., 2019). No applied research on hydrotherapy and foot massage has been conducted together and no one has studied the effect of this combination of implementations on subjective well-being. Therefore, the focus of this study is to examine to bridge the gap by examining the effects of a combination of warm ginger hydrotherapy and foot massage on the subjective well-being of Type 2 DM patients. The main objective of this study is to analyze the effectiveness of combination therapy on subjective well-being. This study is important because it can support a more specific DM management program that focuses on improving psychological well-being.

2. Material and method

2.1 Material

The research design used was pre-experimental with pre-test and post-test phases, to compare before and after the intervention. This study measured subjective well-being using a subjective well-being questionnaire. The research sample consisted of 70 respondents selected through purposive sampling, by meeting the inclusion criteria, namely type 2 DM patients aged between 18 and 65 years and having fasting blood glucose levels (FBS) exceeding 126 mg/dl and random blood glucose levels (RBS) exceeding 200 mg/dl, who are independent in their activities and can communicate, taking diabetes mellitus medication.

2.2 Data collection procedures

The study began with an ethical process from the Health Research Ethics Committee of Nahdlatul Ulama University of Surabaya, continued with the patient identification process, then providing intervention for one month, and within 1 week this intervention was carried out 3 times with a duration of about 30 minutes each session. Subjective well-being measurements were assessed using a validated questionnaire.

2.3 Data analysis

Data analysis was carried out using the t-test. The data collection procedure from this study can be carried out after being declared to have passed the ethical test from the Research Ethics Commission with number No.0365/EC/KEPK/UNUSA/2024. The hypothesis is accepted if the p-value <0.05.

3. Result and Discussion

Table 1. Characteristics of Respondents

Characteristic	Frequency (n)	Percentage (%)
Age (years)		
- 18-30	10	14.3
- 31-45	20	28.6
- 46-60	25	35.7
- >60	15	21.4
Gender		
- Male	35	50.0

- Female	35	50.0
Duration of DM		
- <5 years	20	28.6
- 5-10 years	30	42.9
- >10 years	20	28.6

Based on Table 1, 35.7% showed an age between 46 and 60 years, while male and female genders had the same presentation, while patients suffering from diabetes mellitus were between 5-10 years (42.9%).

Table 2. The Effect of Combined Foot Massage and Warm Ginger Hydrotherapy on Subjective Well-Being in Patients with Type 2 DM

Parameter	Before	After	p-value
Subjective Well-Being	45.6	52.3	0.001

Additionally, there was an improvement in the subjective well-being of respondents, increasing from a baseline score of 45.6 to 52.3 following the intervention (p = 0.001).

Discuss

Respondent characteristics

The majority of respondents in this study were aged 46-60 years (Table 1). According to the World Health Organization (WHO), this age is considered elderly. Age is one of the risk factors for diabetes mellitus. Impaired glucose tolerance due to insulin resistance occurs in the elderly, which is caused by the aging process such as decreased activity and changes in neurohormonal function.(Liu et al., 2018). In addition, most of the respondents in this study were women (Table 1). Another risk factor that can affect the occurrence of diabetes mellitus is diabetes. The decrease in estrogen hormone levels after menopause causes diabetes mellitus to occur in many women. These changing hormone levels will increase RBG levels.(Hu et al., 2019)

The Combination Of Warm Ginger Hydrotherapy And Foot Massage On Subjective Well-Being In Patients With Type 2 Diabetes Mellitus

In recent years, research on complementary therapies in dealing with Type 2 Diabetes Mellitus has received attention. One of the problems in patients with diabetes mellitus is a decrease in quality of life. Subjective well-being is one indicator of a person's quality of life. research shows the effectiveness of methods such as foot massage and hydrotherapy. The findings of this study revealed that the combined intervention of warm ginger hydrotherapy and foot massage significantly increased subjective well-being from 45.6 to 52.3 (p = 0.001). This study also strengthens the evidence that warm ginger hydrotherapy can play a role in reducing inflammation and improving endocrine function,(Aljulifi, 2023) which ultimately leads to decreased blood glucose levels (Al-Taie et al., 2021) .These improved conditions will have a good impact on the psychological aspects of DM patients, namely subjective well-being. DM patients who have low subjective well-being have an influence on their level of self-care and also the way DM patients treat their illnesses becomes less than optimal. Meanwhile, someone who has a high level of subjective well-being can live their life well, and can change, improve or control their surroundings.(Proctor, 2024) Subjective well-being in patients with diabetes mellitus begins with how the individual can accept themselves and their body condition. This acceptance then determines the process of solving the problems they face with positive management.(Kashdan & Ciarrochi, 2013) If an individual has acceptance of life and social support from the family and community environment, the individual will tend to

have more positive strategies and problem management so that it will ultimately foster subjective well-being. Warm Ginger Hydrotherapy can have an impact on blood vessels where the warmth of the water makes blood circulation smooth, the second is the loading factor in the water which will strengthen the muscles and ligaments that affect the sensitivity of the feet so that the risk of injury in diabetes mellitus patients does not occur so that their quality of life is good (one of the indicators is subjective well-being)(Annuril et al., 2023). In addition, foot massage can also improve blood circulation. During foot massage, individuals feel relaxed so that it can improve sleep quality. The hot temperature of the foot soak can widen blood vessels, improve blood circulation, and stimulate endorphins. This has an impact on body relaxation. The implementation of this combination of therapies can improve subjective well-being 2.(Ainiyah & Wardani, 2021)

Important implications in managing the management of Diabetes Mellitus, especially in the community through complementary or alternative therapies such as hydrotherapy and foot massage need to be taught so that they can provide benefits to DM patients, holistically and patient-centered (Shourabi et al., 2020)

4. Conclusion

This study aimed to explore the effects of the combination of warm ginger hydrotherapy and foot massage on subjective well-being in patients with Type 2 Diabetes Mellitus. Future research should explore longer intervention durations and assess the effects of this therapy on other health parameters, such as blood pressure and lipid profiles. Overall, this study provides new insights into the potential benefits of a combination of warm ginger hydrotherapy and foot massage for patients with Type 2 DM. However, further research is needed to confirm these findings and explore the underlying biological mechanisms. Future research could also consider measuring additional variables such as stress levels or sleep patterns, which may influence subjective well-being.

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Conflict of interest

There is no conflict of interest in this study.

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