

The Effect of the *Tianma Gouteng Yin* Formula Therapy on Patients with Vertigo of Liver Hyperactivity Syndrome

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ABSTRACT

Keywords: vertigo, Tianma Gouteng Yin, hepatic hyperactivity syndrome

Based on WHO data in 2019, vertigo was experienced by 7.4% of the global population aged 18-79 years. In Indonesia, Basic Health Research (2023) reported a very high prevalence of vertigo, making it the third most common complaint in hospitals, with a prevalence rate of 50% in the 40–50-year age group. A preliminary survey at the Divine Nature Health Center in 2024 confirmed the high number of vertigo cases, with an average of 500 patients every three months, of which liver yang hyperactivity syndrome was the most frequent (300 patients per three months). This research aims to determine the effect of the Tianma Gouteng Yin formula therapy on vertigo patients with liver yang hyperactivity syndrome. The study employed a quantitative method using a pre-experimental one-group pre-post test design. Fifty research subjects were selected through purposive sampling between March and June 2025. Subjects aged 40-50 years received Tianma Gouteng Yin therapy twice daily at 2 grams for one week. Measurements were conducted using the VSS-SF questionnaire before and after therapy. Results showed that the average VSS-SF score decreased from 10.6 (pretest) to 2.96 (posttest). Statistical analysis indicated an asymp. sig. value of 0.000 (p < 0.05) and an effect size (r = -0.869), demonstrating that Tianma Gouteng Yin formula therapy has a significant and strong effect in reducing VSS-SF scores in vertigo patients with liver yang hyperactivity syndrome.

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INTRODUCTION

According to World Health Organization (WHO) data in 2019, vertigo is generally experienced by patients aged 18–79 years, with a global prevalence of 7.4%. Meanwhile, according to Basic Health Research (*Riskesdas*) data in 2023, the prevalence of vertigo in Indonesia is very high and ranks as the third most frequently reported complaint when visiting hospitals. In Indonesia, vertigo is among the conditions with a prevalence rate of around 50% in individuals aged 40–50 years (Ministry of Health, 2022).

This finding is reinforced by a preliminary survey conducted at the Divine Nature Health Center, which revealed that vertigo was the most common disease in 2024, with an average of 500 cases every three months. Stroke ranked second with 350 cases, while musculoskeletal problems ranked third with 250 cases in the same period.

At the Divine Nature Medical Center, the most common syndrome pattern associated with vertigo is *liver yang hyperactivity* (*Gan Yang Shang Kang*, 肝阳上亢), which affects more than 300 patients every three months. The second most common syndrome is *qi* and blood deficiency, with 150 patients, followed by weak physical constitution at 50 patients per three

months. The Divine Nature Health Center is a traditional science-based health service under PTT in Central Jakarta.

Based on these data, the researcher chose to examine a study titled "The Effect of the Tianma Gouteng Yin Formula Therapy on Patients with Vertigo of Liver Yang Hyperactivity Syndrome." This aligns with the increasing public awareness of health and a growing interest in natural ingredients for treating diseases (Anwar et al., 2024).

Vertigo is a disorder of the body's balance, which is controlled by the vestibular, visual, and proprioceptive systems working synergistically. Disturbance or imbalance in these systems can lead to distortion of sensory information, resulting in vertigo (Stanton & Freeman, 2023). This disorder typically occurs due to dysfunction of the vestibular system, which is responsible for maintaining body balance and coordinating movements. The causes of vertigo are diverse, including abnormalities in the inner ear and disorders of the central nervous system (Strupp et al., 2020).

Several key conditions are associated with the onset of vertigo, including Benign Paroxysmal Positional Vertigo (BPPV), Ménière's Disease, Vestibular Neuritis, and Vestibular Migraine. BPPV is the most common type, triggered by dislodged particles in the inner ear semicircular canal, which cause dizziness with head movement (Stanton & Freeman, 2023). Ménière's Disease is characterized by excess endolymphatic fluid in the inner ear, resulting in recurrent vertigo, hearing loss, and tinnitus (Strupp et al., 2020). Vestibular neuritis typically arises from viral infection causing inflammation of the vestibular nerve, thereby impairing balance (Furmann & Cass, 2021). Vestibular migraine occurs in individuals with a history of migraines, in which the vestibular system is affected, producing vertigo symptoms (Baloh & Honrubia, 2020).

According to the World Health Organization (WHO), vestibular system disorders, including vertigo, are among the most common health problems globally (WHO, 2025). Diseases such as Ménière's disease, ear infections, and hearing loss are included in groups of ear health disorders that significantly impact daily life (Stanton & Freeman, 2023).

The management of vertigo requires a multidisciplinary approach, including identifying causative factors, administering appropriate pharmacological therapies, and implementing vestibular rehabilitation. Vestibular rehabilitation involves exercises tailored to improve the brain's adaptation to altered vestibular input, thereby reducing symptoms and restoring balance (Stanton & Freeman, 2023). Accurate diagnosis and appropriate intervention are essential to optimize patients' quality of life.

From the perspective of PTT (Traditional Chinese Medicine), vertigo is associated with emotional disturbances, improper diet, and overwork. Excessive emotional stress may lead to *qi* stagnation, generating fire and wind, which manifests as irritability and escalates into *heart yang hyperactivity* (*Gan Yang Shang Kang*, 肝阳上亢). Over time, this disrupts the clarity of the brain (*qing qiao*).

Improper diet—such as excessive intake of oily or sugary foods—disrupts the spleen's transformation and transportation function, leading to accumulation of damp phlegm in the *middle jiao*. This condition obstructs the ascent of clear yang, allowing turbid phlegm to block the brain. Additionally, congenital weakness or chronic disease may result in deficiency of *qi* and blood, causing malnourishment of the brain and clear orifices. Excessive work depletes *jing*

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(kidney essence), which further leads to malnourishment of the brain and marrow, contributing to vertigo (Fang, 2021).

Previous research has explored various methods of vertigo management. Stanton & Freeman (2023) and Strupp et al. (2020) documented conventional approaches for vestibular disorders, while Traditional Chinese Medicine (TCM) studies identified *liver yang hyperactivity* as a common syndrome pattern underlying vertigo (Zhang, 2015; Chen & Zhang, 2010). Clinical trials have tested TCM formulations for hypertension and neurological conditions (Hong et al., 2020; Jia et al., 2020), and recent studies are increasingly focusing on TCM-based treatment for vertigo (Yao et al., 2024; Ban Hua & Kang, 2024).

However, a significant research gap remains in the rigorous clinical evaluation of specific TCM formulas, particularly *Tianma Gouteng Yin*, for vertigo caused by *liver yang hyperactivity syndrome*. Prior studies have either concentrated on conventional therapies such as vestibular rehabilitation or taken broad views of TCM without employing validated outcome instruments like the Vertigo Symptom Scale-Short Form (VSS-SF). Moreover, very little research has quantitatively assessed the effectiveness of *Tianma Gouteng Yin* among the Indonesian population, despite the condition's high prevalence in this demographic.

The novelty of this research lies in its focused investigation of *Tianma Gouteng Yin* formula therapy for vertigo patients with *liver yang hyperactivity syndrome*, using a quasi-experimental pre–post design and validated outcome measurements. The utilization of the VSS-SF provides scientific rigor, while the focus on Indonesian patients addresses a significant local need identified through epidemiological findings. This study thus bridges traditional medical knowledge with modern evidence-based practice.

The aim of this study is to determine whether *Tianma Gouteng Yin* formula therapy significantly improves vertigo in patients with *liver yang hyperactivity syndrome*. The general objective is to examine its influence on patients' vertigo conditions, while the specific objectives include analyzing demographic characteristics (such as age and gender), and evaluating the severity of vertigo before and after therapy.

The expected benefits of this study are multifold. For researchers, it expands scientific insight and experience in managing vertigo through TCM. For educational institutions, the findings can serve as references in courses, particularly at Medika Suherman University's Applied Bachelor of Traditional Chinese Medicine program. For the public, this research enhances understanding of the therapeutic effects of *Tianma Gouteng Yin*. For healthcare institutions, it provides valuable data to inform clinical practice. Finally, for traditional medicine practitioners, the results increase confidence in applying therapies that are supported by empirical evidence and scientific evaluation.

RESEARCH METHOD

This study employed a quantitative quasi-experimental design without random assignment, allowing analysis of cause-and-effect relationships between independent and dependent variables. Pre-intervention (pre-test) and post-intervention (post-test) results were compared to assess changes in vertigo symptoms. The research design used was a one-group pre-post test design, where conditions before and after treatment were measured using the Vertigo Symptom Scale-Short Form (VSS-SF). Sampling was conducted through purposive sampling based on predetermined criteria, following Nursalam (2011) and Hidayat (2014).

The study population consisted of patients from the Divine Nature Health Center in Central Jakarta. From this group, 50 respondents were selected based on inclusion and exclusion criteria. Inclusion criteria were patients diagnosed with vertigo due to liver yang hyperactivity syndrome, aged 40–50 years, not receiving other treatments, willing to participate, and having no history of neurological disorders or severe trauma. Exclusion criteria included subjects who withdrew, failed to follow therapy schedules, or were pregnant.

The independent variable in this study was *Tianma Gouteng Yin* formula therapy, and the dependent variable was the vertigo condition in patients with liver yang hyperactivity syndrome. The study was conducted at the Divine Nature Health Center from May to June 2025. Data collection involved three stages: preparation (surveys, permits, and data collection), intervention (introduction of therapy and administration of the formula), and evaluation (post-test and monitoring after the intervention).

The data consisted of primary sources (interviews and questionnaires) and secondary sources (supporting journals and health reports). Research instruments included informed consent forms, anamnesis forms, management sheets, and the VSS-SF. Data processing consisted of checking, coding, and entering responses into SPSS. Data were analyzed using univariate methods for descriptive characteristics and bivariate analysis to test hypotheses, applying either a paired t-test or Wilcoxon test depending on data distribution.

RESULTS AND DISCUSSION

A. Data Analysis Results

The results of the study on 50 research subjects including univariate analysis and bivariate analysis are presented as follows:

1. Analisa Univariat

The characteristics of the research subjects were based on gender, age, before and after the intervention, to find out the characteristics of the research sample.

a) Characteristics of Research Subjects by Gender and Age

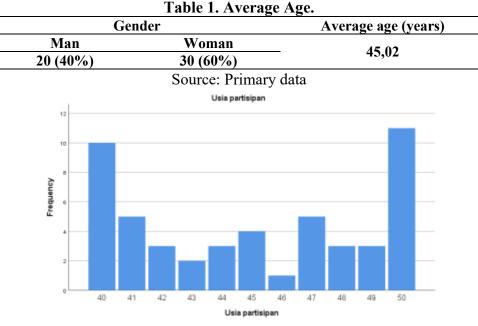


Figure 1. Participant Age Source: Primary data

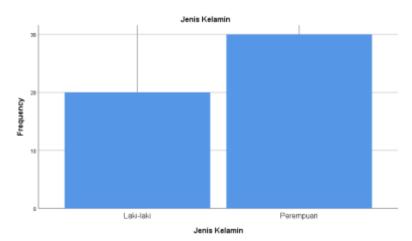


Figure 2. Gender Source: Primary data

b) Vertigo measurement using VSS – SF scores before and after the intervention

Table 2. Average VSS – SF score
e VSS score - SF Perc

| Average VSS score - SF | | Percentage (%) | |
|------------------------|---------------|----------------|--|
| Before Therapy | After Therapy | | |
| 10.60 | 2.96 | 72,07% | |

VSS - SF Average Score

12
10
8
6
4
2
0
VSS - SF Score

Before Therapy After Therapy

Figure 3. Average VSS – SF score Source: Primary data

- c) Analyzing vertigo data before and after intervention
 - 1) Uji Wilcoxon
 - a. Wilcoxon Test Before and After Intervention

Table 3. Wilcoxon Test Results

| | | N | Mean rank | Sum of Ranks |
|-----------------------|----------------|-----|-----------|--------------|
| Before Therapy | Negative Ranks | 50a | 25,5 | 1275,00 |
| - | Positive Ranks | 0b | 0,00 | 0,00 |
| After Therapy | Ties | 0c | | |
| | Total | 50 | | |

Source: Primary data

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b. Hypothesis Test

Table 4. Hypothetical Results

| | Before therapy – After therapy |
|------------------------|--------------------------------|
| Z | -6,174b |
| Asymp. Sig. (2-tailed) | 0,000 |

Source: Primary data

$$r = \frac{z}{\sqrt{N}}$$
Result:
$$r = \frac{-6,174}{\sqrt{50}}$$

$$r = -0,869$$

Tabel 5. Effect Size

| Percentage Value | Information |
|------------------|-----------------------|
| 0,10-0,3 | Small/weak effects |
| 0,3-0,5 | Moderate Effects |
| > 0.5 | Large/powerful Effect |

Source: Primary data

Before the Intervention – After the Intervention



Figure 4. Tongue Photos

Source: Primary data

B. Discussion of Research Results

1. By Gender and Age

Frequency distribution data from all 50 respondents as research subjects showed that the number of male research subjects was 40% (20 people) while women were 60% (30 people). The largest number of respondents were women with a total of 30 respondents. The average age of the respondents in this study was at the age of 45 years and the most respondents were 50 years old. In conventional medicine, it is said that excessive physical activity, fatigue, and

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psychological stress can trigger and aggravate the condition of vertigo sufferers (Sibuea, S, 2023).

From this study, it can be concluded that vertigo can be suffered by both men and women, but in this study it was found that the number of vertigo sufferers is less male than female. Meanwhile, the average vertigo sufferer in this study was 45 years old. With the most respondents being 50 years old.

These results are supported by research conducted by Banhua and Hari Iskandar Kang in the research journal "Prevalence of Vertigo Based on Syndrome and Formula of Traditional Chinese Medicine in Patients at Duta Hong Clinic for the Period of October to December 2022" with a total of 40 respondents and it was found that there were more female vertigo sufferers than men, with a total of 30 people (75%) women and 10 men (25%) (Hua & Kang, 2024).

2. Measurement of VSS – SF scores before and after the intervention

Based on the results of the study, it was found that the average VSS – SF score before therapy was 10.6 and the average VSS – SF score after therapy was 2.96. Therefore, from these data, it can be concluded that the intervention of *Tianma Gouteng Yin* formulation therapy has an effect on the decrease in VSS – SF score. The research subjects were referred to the measurement of VSS – SF \geq 3 score reduction which was a reference for the success of vestibular rehabilitation (Harditya, et al. 2023).

From the point of view of PTT (traditional Chinese medicine) one of the causes of this vertigo complaint is liver hyperactivity, where there is a lack of liver or kidney yin can cause an increase in the liver so that it causes yin yang imbalance or organ phenomena. This is often caused by physical and psychological fatigue and psychological stress that can affect the balance of yin yang and organ phenomena so that it manifests in the form of vertigo symptoms (Harditya, et al. 2023).

In this case, it can be understood that both conventional medicine and PTT agree that physical fatigue, emotional stress or physical and psychological activities can trigger or even worsen the condition of vertigo symptoms.

3. Discussion of the Results of Vertigo Data Analysis before and after the Wilcoxon Test intervention

1) Wilcoxon Test Before and After Intervention

Based on the results of the study on 50 research subjects using the Wilcoxon Test, data was obtained that Negative Ranks or the difference between the variables before and after the therapy intervention, which had a negative value of 50 respondents or in other words there were 50 respondents as the object of research on the variables after therapy whose value was less than the respondents in the variables before therapy. And the average ranking is 25.5 with a total of negative rankings of 1275. Which means that there is a decrease in the VSS – SF scale after receiving *Tianma Gouteng Yin* Formulation therapy.

2) Uji Hypothesis

Based on the results of the study on 50 research subjects, it was obtained that the asymp sig value was 0.000 which has a meaning smaller than α 0.05. Where if the test result value < α 0.05, then Ho is rejected and HA is accepted, but if the test result > α 0.05, then Ho is accepted and HA is rejected. Thus, based on the results of the study, it can be concluded that the result of asymp sig is 0.000 which means less than α 0.05, then Ho is rejected and HA is accepted

which means that the intervention of providing *Tianma Gouteng Yin* formulation therapy has a significant effect on the decrease in VSS – SF score.

3) Effect Size Testing

The Effect Size of the Wilcoxon Test with the standard z statistic and the effect size (r) is used to measure the magnitude of the effect, or effect regardless of the sample size. For Wilcoxon-marked rating tests, the r-value generally ranges from -1 to +1. A negative r-value indicates that the effect is in the direction of a negative difference, which means that the second value in the pair is, on average, smaller than the first. Values close to -1 or +1 indicate a stronger effect, while values close to 0 indicate a weak effect.

Based on the results of the study conducted on 50 research subjects, the results in the form of an r value are -0.869 which is close to -1 which means showing a strong or large effect.

Based on the results of the wilcoxon hypothesis test, it can be concluded that the result of asymp sig is 0.000 which means less than α 0.05, then Ho is rejected and HA is accepted which means that the intervention of giving *Tianma Gouteng Yin* formulation therapy has a significant effect on the decrease in VSS – SF score. And this result is strengthened by the results of the Effect Size test which is obtained that the value of r is -0.869 which is close to -1 which means showing a strong or large effect. Therefore, it can be concluded that the therapeutic effect of *Tianma Gouteng Yin* formulation on patients with vertigo with hyperactivity syndrome in which the liver has a strong significant influence.

The improvement in symptoms is directly proportional to the signs found in the study, in the form of improvement in the color of the tongue muscles or the color of the tongue membranes. Based on the observation of the tongue, it can be known the general health condition of a person, in the observation of the tongue will be observed the size, flexibility, color of the tongue muscles, the brightness or freshness of the tongue, and the humidity, in addition to that the membrane or outer layer of the tongue is also observed, a healthy tongue has a reddish pink color, soft muscles, bright, moist but not wet, thin white membrane. In one of the respondents, it was found that at first he felt dizzy, sometimes spinning, sometimes not with symptoms disappearing, erratic arose, generally if exposed to excessive heat or sunlight, the condition will worsen. No fever, cough or cold. Occasionally if it is too hot, there will be a mild headache that will subside if you take paracetamol, but for dizziness there is not much change, and once betahistine was given by the doctor who treated him, his condition improved if he took betahistine, but it will recur, keep repeating in the last year. There is no history of trauma or post stroke, only ringing in the ears often, especially in crowded places, having a history of hypertension with an average of 160/90, having difficulty sleeping at night, easily getting angry especially if there are things you don't like.

The appearance of the tongue is red, thick yellow membranes, rapid pulse (>5/RR (respiration rate). After consuming on the 3rd day or spending 6 times of the *Tianma Gouteng Yin* formulation, the dizziness condition did not recur, although the headache occasionally recurred, sleep began to fall asleep, even the last 1 night fell asleep without realizing it. After spending the entire series for 6 days or 12x the consumption of the Tianma Gouteng formulation, the dizziness is almost not felt, only once relapsed due to the explosive emotions, good sleep, the pain almost disappears completely and ringing in the ears is almost not felt. On day 6, it appears that the red color changes which tend to be fresher / pink and the yellow

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membrane is reduced to thinner and dominated by white membrane, the pulse is still fast, namely 5x/ respiration rate.

In traditional Chinese medicine (PTT), not only measuring improvement based on symptoms, but there are other signs such as changes in color, shape, both muscles and tongue membranes, pulse, changes in physical condition, body odor, feces, urine etc.

Symptoms of hyperactivity of the liver are manifested in headaches, insomnia, dizziness, spinning dizziness, red tongue, yellow membranes, stringed pulse and rapid or thin. The commonly used herbal formulation is *Tianma Gouteng Yin* (Harditya, et al. 2023). In another research study, it was found that *Tianma Gouteng Yin* has the potential to treat Alzheimer's (Wang, et al. 2018). Hypertension and inflammation and oxidative stress resulting from hypertension (Deng, et al. 2022).

CONCLUSION

This study concluded that vertigo with liver yang hyperactivity syndrome affected both men and women, with a higher prevalence among women, and the average participant age was 45 years, with the highest frequency at 50 years. The results showed that *Tianma Gouteng Yin* formula therapy significantly reduced VSS-SF scores, indicating its effectiveness in alleviating vertigo symptoms. These findings suggest that this therapy may be considered as part of TCM-based vertigo management in healthcare settings. Future research should employ randomized controlled trials (RCTs) with larger and more diverse populations and examine the long-term effects of *Tianma Gouteng Yin* therapy to strengthen evidence of its efficacy.

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