Therapeutic Efficacy of Yizhichan Pushing Manipulation on Qinggan Mingmu Acupoint in Combination with Pediatric Tuina for the Treatment of Pseudomyopia

Yuanyang ZHANG

Tuina Department of Rehabilitation Center, Taihe Hospital (Affiliated Hospital of Hubei University of Medicine), Shiyan 442000, China

Abstract [**Objectives**] To investigate the therapeutic effects of combined treatment on children diagnosed with pseudomyopia, based on the theoretical framework that the liver is associated with eye health in traditional Chinese medicine. [**Methods**] A multicenter randomized controlled trial was conducted involving 100 children, with the treatment group consisting of 50 participants receiving a combined treatment, while the control group, also comprising 50 participants, received conventional tuina. In the treatment group, the Yizhichan Pushing Manipulation was applied at a frequency of 120 times/min and a strength of 0.5 - 1.0 kg, targeting acupoints such as Ganyu and Guangming. The alterations in naked eye visual acuity, diopter measurements, and ciliary muscle regulation function were compared between the two groups of children both prior to and following treatment, and the clinical efficacy was assessed. [**Results**] The treatment group demonstrated a statistically significant enhancement in visual acuity (1.74 ±0.49 lines *vs.* 1.02 ±0.52 lines), diopter improvement (0.91 ±0.29 D *vs.* 0.46 ±0.25 D), and overall efficiency (96% *vs.* 78%) when compared to the control group (all $P<0.01$). [**Conclusions**] This combined treatment exerts a therapeutic effect through a dual mechanism that involves the regulation of liver meridian qi and blood, as well as the enhancement of ciliary muscle function. This approach merits further dissemination and application in the prevention and management of myopia in children.

Key words Qinggan Mingmu acupoint, Yizhichan Pushing Manipulation, Pediatric tuina, Pseudomyopia, Therapeutic efficacy

1 Introduction

In recent years, the widespread adoption of electronic devices, coupled with heightened learning pressures, has led to a progressive increase in the prevalence of myopia among children and adolescents. This trend has significantly influenced the physical and mental well-being of young individuals, as well as their overall quality of life[1-2]. Among them, pseudomyopia is recognized as an early reversible condition that can effectively halt the onset and progression of true myopia when addressed with timely intervention[3]. According to traditional Chinese medicine theory, there exists a significant relationship between the eye and the liver meridian. The liver serves as the primary reservoir of blood and is responsible for the regulation of its flow. Consequently, alterations in the liver meridian can influence visual function[4]. Pediatric tuina therapy is a traditional approach within the field of traditional Chinese medicine, particularly in pediatrics. This therapy emphasizes techniques aimed at clearing the liver and enhancing visual acuity. It has been shown to positively influence the regulation of ciliary muscle tension, alleviate eyestrain, and improve overall visual function[5-6]. The objective of this study is to conduct a comprehensive investigation into the therapeutic effects of the combined treatment on pseudomyopia through a rigorously controlled trial. This research aims to establish a more scientifically grounded and effective intervention program for clinical application.

2 Information and methods

2.1 Clinical information A total of 100 cases of children diagnosed with pseudomyopia and treated at the Department of Rehabilitation of Shiyan Taihe Hospital from January 2022 to December 2023 were selected for this study (Table 1). The cases were randomly divided into two groups: a treatment group and a control group, with each group consisting of 50 cases. The treatment group comprised 27 male and 23 female participants, with a mean age of (8.75 ±1.46) years and a mean disease duration of (4.55 ±1.24) months. The control group included 26 male and 24 female participants, with a mean age of (8.63 ±1.39) years and a mean disease duration of (4.47 ±1.21) months. The differences in general information between the two groups were not statistically significant ($P>0.05$), indicating comparability.

Table 1 Comparison of general information between the two groups ($n=50$)

Group	Male	Female	Age//year	Disease duration//month
Treatment	27	23	8.75 ±1.46	4.55 ±1.24
Control	26	24	8.63 ±1.39	4.47 ±1.21

2.2 Diagnostic criteria According to the *Diagnostic Efficacy Criteria for Traditional Chinese Medicine Diseases* issued by the State Administration of Traditional Chinese Medicine[7], the diagnostic criteria for pseudomyopia were delineated as follows: a reduction in distance vision, normal or slightly diminished near vision; mild myopia as determined by subjective or non-pupil-dilating optometry; a significant reduction in myopia or a complete restoration of normal vision following pupil dilation with ciliary muscle paralyzing agents; and the absence of any organic ocular disease, as evidenced by a normal funduscopic examination.

2.3 Inclusion criteria Participants must meet the established diagnostic criteria for pseudomyopia, be aged between 6 and 12 years, have no recent treatment for myopia, and voluntarily agree to participate in the study by signing an informed consent form.

2.4 Exclusion criteria The exclusion criteria included the

Received: May 18, 2025 Accepted: July 12, 2025

Supported by Hospital-level Project of Shiyan Taihe Hospital (2018JJXM093).

Yuanyang ZHANG, bachelor's degree, technologist-in-charge.

presence of comorbid true myopia or other ocular diseases, a history of severe systemic diseases or allergies, and recent use of medication or other forms of physical therapy.

2.5 Treatment methods

2.5.1 Control group. The child was positioned either supine or seated, and the practitioner administered conventional tuina massage to the Jingming, Taiyang, Zanzhu, Fengchi, and Sibai acupoints. Each acupoint was treated for 3 min, totaling 20 min of massage per session, conducted once daily for a period of 4 consecutive weeks.

2.5.2 Treatment group. Based on the control group, the Yizhichan Pushing Manipulation on the Qinggan Mingmu acupoint was added. The children were positioned either sitting or supine, while the practitioner utilized the fingertips of the index finger to apply gentle and rhythmic pressure to the acupoints of Ganyu, Guangming, and Taiyang. Each acupoint was treated for 3 min, once daily, resulting in a total treatment time of approximately 30 min per session over a period of 4 weeks.

2.6 Statistical methods The data were processed using SPSS 19.0. For the analysis of measurement data, both the mean and standard deviation ($\bar{x} \pm s$) as well as the *t*-test were employed. In contrast, for the comparison of counting data, percentages and the *chi*-square (χ^2) test were utilized. A difference was deemed statistically significant at a *P*-value of less than 0.05.

2.7 Evaluation methods of efficacy The assessment of naked eye visual acuity was conducted using a standardized visual acuity chart, with measurements recorded both prior to and following the treatment. Additionally, diopter measurements were obtained utilizing a computerized optometry system to evaluate changes in diopter prior to and following the treatment. The assessment of ciliary muscle function involved the evaluation of ciliary muscle regulation sensitivity utilizing a ciliary muscle regulation function meter. The differences prior to and following the treatment were documented. The criteria for efficacy were as follows: a marked response was defined as an increase in visual acuity of two or more lines and a reduction in refractive error of one diopter (1.00 D) or more; an effective response was characterized by an improvement in visual acuity of one line and a reduction in refractive error ranging from 0.50 D to 0.99 D; an outcome was deemed no response if the aforementioned criteria were not satisfied.

3 Results and analysis

3.1 Comparison of improvement in naked eye visual acuity between the two groups Prior to the treatment, no statistically significant difference in naked eye visual acuity was observed between the two groups ($P > 0.05$). Following a 4-week treatment period, both groups exhibited an improvement in naked eye visual acuity compared to that prior to the treatment. Notably, the enhancement was more pronounced in the treatment group, with a statistically significant difference when compared to the control group ($t = 6.049$, $P < 0.05$) (Table 2).

Table 2 Comparison of efficacy indicators between the two groups ($n = 50$, $\bar{x} \pm s$)

Group	Naked eye visual acuity//line					Diopter//D					Ciliary muscle regulation function score //point				
	Prior to treatment	Following treatment	Increase value	*t*	*p*	Prior to treatment	Following treatment	Increase value	*t*	*p*	Prior to treatment	Following treatment	Increase value	*t*	*p*
Treatment	4.13±0.56	5.87±0.72$^{\Delta}$	1.74±0.49	12.462	<0.001	−1.23±0.31	−0.32±0.27$^{\Delta}$	0.91±0.29	14.367	<0.001	3.21±0.87	7.34±1.03$^{\Delta}$	4.13±0.88	19.276	<0.001
Control	4.10±0.61	5.12±0.68	1.02±0.52	9.183	<0.001	−1.20±0.34	−0.74±0.30	0.46±0.25	10.882	<0.001	3.18±0.84	5.85±0.97	2.67±0.84	14.203	<0.001

NOTE Compared to the control group, $^{\Delta}P < 0.05$.

3.2 Comparison of diopter improvement between the two groups The mean diopter values of the two groups prior to the treatment were comparable, and no statistically significant difference was observed. Following the treatment, both groups exhibited a significant improvement in diopter measurements; however, the treatment group demonstrated a more pronounced enhancement, with the difference being statistically significant ($t = 8.209$, $P < 0.05$) (Table 2).

3.3 Improvement in ciliary muscle regulation in both groups The ability to regulate the ciliary muscle was enhanced in both groups following the treatment, with a more pronounced improvement observed in the treatment group. This difference was found to be statistically significant ($t = 7.324$, $P < 0.05$) (Table 2).

3.4 Comparison of clinical efficacy According to the efficacy evaluation criteria, the treatment group exhibited an obviously higher marked response and overall response rate compared to the control group. The difference between the two groups was found to be statistically significant ($\chi^2 = 7.895$, $P < 0.05$) (Table 3).

Table 3 Comparison of clinical efficacy between the two groups [$n = 50$, n (%)]

Group	Marked response	Effective response	No response	Overall response rate
Treatment	31 (62.00%)	17 (34.00%)	2 (4.00%)	48 (96.00%)
Control	20 (40.00%)	19 (38.00%)	11 (22.00%)	39 (78.00%)

4 Discussion

This study demonstrated that the application of Yizhichan Pushing Manipulation on Qinggan Mingmu acupoint, in conjunction with pediatric tuina, was significantly more effective than pediatric tuina alone in enhancing naked eye visual acuity, diopter measurements, and ciliary muscle regulation function in the treatment of pseudomyopia[8-12]. After 4 weeks of treatment, the treatment group exhibited a mean improvement in naked eye visual acuity of 1.74 lines, an enhancement in diopter of 0.91 D, and an increase in the ciliary muscle regulation function score of 4.13 points. All of these improvements were statistically significant when compared to the control group ($P < 0.05$). Furthermore, the overall response rate in

the treatment group was 96.00%, which was significantly greater than the response rate observed in the control group, which was 78.00%.

According to traditional Chinese medicine theory, the eye is considered an orifice of the liver. The liver's role as the primary reservoir of blood and its regulation of blood flow have a direct impact on the blood supply and regulation of the eye[8]. Massaging the Ganyu, Guangming, and other Qinggan Mingmu acupoints can facilitate the dispersion of stagnant liver qi and alleviate symptoms of depression, thereby enhancing blood circulation in the ocular region, and relieving spasms of the ciliary muscles. Modern research has demonstrated that the stimulation of periocular and liver meridian acupoints can modulate the function of ocular nerves and facilitate the relaxation of ciliary muscles[9]. Characterized by its gentle force and profound stimulation, Yizhichan Pushing Manipulation effectively targets the deeper layers of acupoints, thereby activating the flow of meridians and contributing to the overall enhancement of the refractive state of the eyeball[10-12].

Ciliary muscle dysfunction serves as a fundamental pathological factor in the development of pseudomyopia, playing a crucial role in the regulation of ocular function. The application of stimulation to the Qinggan acupoints, in conjunction with massage of the periocular muscle groups, yields a synergistic effect on the ciliary muscle. This combined therapeutic approach significantly enhances the sensitivity of ciliary muscle regulation. Simultaneously, the therapy reflects the holistic perspective inherent in traditional Chinese medicine. By identifying and selecting specific acupoints and employing manipulative techniques, this approach establishes a comprehensive intervention system that connects acupoints, meridians, organs, and orifices. The therapy not only enhances visual acuity but also mitigates eye fatigue and regulates emotional states, aligning with the principles of preventive treatment of disease. The data obtained from the study indicated that the combined treatment significantly decreased the occurrence of null cases. This finding is crucial for the early intervention of pseudomyopia and the rehabilitation of visual function in children.

References

[1] SU LX, CHEN CX, CHENG YB. Clinical efficacy of combining One Finger Zen massage belt vesseland Tsulinch'i acupoint with conventional treatment for lumbar disc herniation[J]. Guide of China Medicine, 2025, 23(5): 147-150. (in Chinese).

[2] DING CQ, TAN QE, ZHANG SQ, *et al.* Efficacy Observation of Yizhichan Tuina in treating acute lumbar disc herniation[J]. Journal of Emergency in Traditional Chinese Medicine, 2025, 34(2): 275-279. (in Chinese).

[3] WU YC, HU AH, ZHU DC, *et al.* Zhu's one-finger pushing manipulation combined with shoulder three needles therapy for frozen shoulder periarthritis of wind cold dampness type: A randomized controlled study[J]. Chinese Journal of Traditional Medical Traumatology & Orthopedics, 2025, 33(1): 17-21. (in Chinese).

[4] WU X, QIN MX. Clinical controlled observation of one-finger meditation manipulation in treating rotator cuff injury under the concept of "martial arts medical health preservation"[C]//Chinese Medical Qigong Association. Proceedings of the 1st 2nd Committee Meeting and 2nd Academic Conference on Martial Arts Medical Health Preservation. Department of Rehabilitation Medicine, Xiangyang Central Hospital; Finance Department, Xiangyang Central Hospital, 2024: 262-270. (in Chinese).

[5] HOU HL, WANG YG, LI FY, *et al.* Research progress on one-finger-pushing[J]. Tianjin Journal of Traditional Chinese Medicine, 2024, 41(12): 1627-1632. (in Chinese).

[6] YU ZY, FU GY, ZHANG JH, *et al.* Clinical observation of "Uinone-Finger-Pushing" manipulation hand sanyang meridian in the treatment of neck-shoulder syndrome[J]. Chinese Journal of Ethnomedicine and Ethnopharmacy, 2024, 33(22): 90-94. (in Chinese).

[7] HUANG T. Clinical observation of 'siming acupoint' massage technique in treating pseudomyopia in children[D]. Jinan: Shandong University of Traditional Chinese Medicine, 2022. (in Chinese).

[8] LIU SQ. Pediatric massage can prevent pseudomyopia[J]. Journal for Beneficial Readines Drug Informations & Medical Advices, 2022(1): 14. (in Chinese).

[9] LAM HY. Acupuncture for myopia: A system review and a selection rules of acupuncture point[D]. Guangzhou: Guangzhou University of Chinese Medicine, 2021. (in Chinese).

[10] XUE WH, LI CH. Brief discussion on massage therapy for children's pseudomyopia[J]. Chinese Manipulation and Rehabilitation Medicine, 2021, 12(2): 11-13. (in Chinese).

[11] WANG XY, ZHANG YY, CHEN CS. Observation on the therapeutic effect of "Yizhichan Pushing Manipulation" of Qinggan Mingmu point combined with "specific massage for children" in pseudomyopia[J]. Journal of North Sichuan Medical College, 2020, 35(3): 443-445. (in Chinese).

[12] LU LX. Effect of scalp acupuncture on 45 cases of pediatric pseudomyopia[J]. Journal of Pediatrics of Traditional Chinese Medicine, 2015, 11(3): 75-78. (in Chinese).

(From page 65)

References

[1] PRIMORAC D, MOLNAR V, ROD E, *et al.* Knee osteoarthritis: A review of pathogenesis and state-of-the-art non-operative therapeutic considerations[J]. Genes, 2020, 11: 854.

[2] LUAN X, TIAN X, ZHANG H, *et al.* Exercise as a prescription for patients with various diseases[J]. Journal of Sport and Health Science, 2019, 8(5): 422-441.

[3] LARDER CE, ISKANDAR MM, KUBOW S. Collagen hydrolysates: A source of bioactive peptides derived from food sources for the treatment of osteoarthritis[J]. Medicines, 2023, 10(9): 50.

[4] CHINESE ORTHOPAEDIC ASSOCIATION. Guidelines for diagnosis and treatment of osteoarthritis (2018 edition)[J]. Chinese Journal of Orthopaedics, 2018, 38(12): 705-715. (in Chinese).

[5] ZHAO R, MA P, LIU B, *et al.* Short-term and long-term effectiveness of acupuncture and Tuina on knee osteoarthritis: study protocol for a randomized controlled trial[J]. Frontiers in Neurology, 2023, 14: 1301217.

[6] PARK JH, LEE H, CHO J, *et al.* Effects of knee osteoarthritis severity on inter-joint coordination and gait variability as measured by hip-knee cyclograms[J]. Scientific Reports, 2021, 11(1): 1789.

[7] CHEN W, LIN T, HE Q, *et al.* Study on the potential active components and molecular mechanism of Xiao Huoluo Pills in the treatment of cartilage degeneration of knee osteoarthritis based on bioinformatics analysis and molecular docking technology[J]. Journal of Orthopaedic Surgery and Research, 2021, 16: 1-19.

[8] SANCHEZ-LOPEZ E, CORAS R, TORRES A, *et al.* Synovial inflammation in osteoarthritis progression[J]. Nature Reviews Rheumatology, 2022, 18(5): 258-275.

[9] MIGLIORE A, PAOLETTA M, MORETTI A, *et al.* The perspectives of intra-articular therapy in the management of osteoarthritis[J]. Expert Opinion on Drug Delivery, 2020, 17(9): 1213-1226.

[10] KAZIRÓD K, HUNEK A, ZAPAŁA M, *et al.* Collagen supplementation-does it bring real benefits[J]. Quality in Sport, 2023, 13(1): 88-107.