Annals of Middle Eastern Medicine

ORIGINAL ARTICLE

Physical therapy in tension-type headache: a systematic review of randomized controlled trials

Adnan Ahmed Badahdah[1], Majed Hassan Alahmadi[2], Gharam Abdulaziz Alahmadi[3*], Mohamad Bassel Dahha[3], Amal Abdullah Alzahrani[4], Ahad A. Alkenani[5], Yazeed Abdulrahman Alqahtani[6], Khalid M. Alrashidi[7], Nourah Ali Alqhtani[8], Amjad Adel Alosaimi[9], Bashayer N. Alkorbi[10]

ABSTRACT

Background: Tension-type headache (TTH) is the most prevalent neurological disorder globally, affecting over 2 billion individuals and posing a substantial public health and socioeconomic burden. Although pharmacological treatments, such as non-steroidal anti-inflammatory drugs, offer symptomatic relief, concerns regarding long-term efficacy and medication overuse have driven interest in physical therapy as an alternative or adjunctive intervention.

Methods: In line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, a systematic search from inception to December 2024 was conducted in the following electronic databases: PubMed, Google Scholar, Web of Science, the Cochrane Library, and DOAJ. Randomized controlled trials investigating the effect of physiotherapy on TTH were included.

Results: Fifty-one randomized controlled trials involving 3,404 participants were included in this review. The studies investigated various physical therapy interventions, including manual therapy, therapeutic exercise, and multimodal approaches. The majority of the included studies demonstrated statistically significant improvements in headache intensity, frequency, and duration compared to control groups. Adverse events, when reported, were minor and transient. No serious complications were associated with the physical therapy interventions.

Conclusion: Physical therapy interventions can be safe with minimal adverse effects in managing patients with TTH. Various physical therapy interventions are effective in reducing pain intensity, frequency, and duration of TTH, both chronic and episodic. However, the lack of long-term outcome data highlights the need for future high-quality randomized controlled trials with extended follow-up.

Keywords: Headache, tension-type headache, physical therapy, physiotherapy, manual therapy.

Introduction

Tension-type headache (TTH) is the most prevalent neurological disorder worldwide, affecting over 2 billion individuals [1]. It ranks as the second leading cause of chronic disease and disability, underscoring its significant public health burden [2,3]. Beyond its clinical impact, TTH imposes considerable socioeconomic consequences, as it contributes to reducing work efficiency due to absenteeism and presenteeism, ultimately diminishing productivity [2].

Epidemiological data from the Global Burden of Disease study confirm the widespread prevalence of headache disorders. However, methodological discrepancies across studies have resulted in substantial variability

Correspondence to: Gharam Abdulaziz Alahmadi
*College of Medicine, Ibn Sina National College, Jeddah, Saudi Arabia.
Email: gharamalahmadi57@gmail.com
Full list of author information is available at the end of the article.
Received: 03 April 2026 | **Revised (1):** 31 May 2026| **Accepted:** 03 June 2026

in prevalence estimates, creating uncertainty regarding regional differences and trends over time [3]. Given the high global burden of TTH, understanding its underlying pathophysiology and optimizing treatment approaches are critical to improving patient outcomes.

TTH is a multifactorial disorder involving cranial and cervical muscle tension, psychological stress, and central sensitization [4]. Among individuals with chronic headache, sleep disturbances such as insomnia are frequently reported, with studies suggesting a bidirectional relationship between sleep dysfunction and headache severity [5]. The complex interplay of musculoskeletal, neurological, and behavioral factors in TTH necessitates a comprehensive approach to treatment that goes beyond symptomatic relief.

The primary pharmacological treatment for TTH involves simple analgesics and non-steroidal anti-inflammatory drugs, with ibuprofen (400 mg) and aspirin (1,000 mg) being widely recommended due to their efficacy and safety profile. However, reliance on pharmacotherapy raises concerns regarding medication overuse headache, potential side effects, and limited effectiveness in chronic cases. Consequently, there has been increasing interest in non-pharmacological interventions, particularly physical therapy, as an alternative or adjunct to pharmacological management.

Unlike pharmacological treatments that primarily provide temporary symptomatic relief, physical therapy directly addresses the musculoskeletal dysfunctions contributing to TTH. Manual therapy techniques, such as trigger point release therapy, suboccipital inhibitory pressure, and instrument-assisted soft tissue mobilization, aim to reduce muscle tension, restore cervical mobility, and alleviate myofascial pain. Acupuncture-based therapies, including dry needling, target neuromuscular sensitization and pain modulation. In addition, structured exercise programs, such as aerobic exercise and deep breathing exercises, enhance muscular flexibility and reduce physiological stress responses.

Despite promising findings, the efficacy of physical therapy for TTH remains uncertain due to variability in treatment protocols, differences in outcome measures, and a lack of long-term follow-up studies. Furthermore, comparative analyses assessing the relative effectiveness of different physical therapy techniques are limited. Addressing these gaps is essential to establishing evidence-based guidelines for integrating physical therapy into standard TTH management.

In this study, we aim to evaluate the effectiveness of physical therapy in reducing headache intensity, frequency, and duration in adults diagnosed with TTH.

Methods

Search strategy

This review followed the Preferred Reporting Items for Systematic Review and Meta-Analysis Statement (PRISMA 2020) Page et al. [6]. A systematic search was performed in several databases, including PubMed, Google Scholar, Web of Science, the Cochrane Library, and DOAJ, using a combination of keywords (tension-type headache OR tension headache OR TTH) AND (physical therapy OR physiotherapy OR physical treatment OR physical exercises OR physical therapy interventions OR physical therapy modalities). This review was prospectively registered in the International Prospective Register of Systematic Reviews (PROSPERO; registration ID: CRD42024561923).

Study selection and eligibility criteria

Two independent reviewers performed a literature search in several databases from inception to December 2024. The search was limited to the English language, and only studies with primary data were included. The combination of keywords used was: (tension-type headache OR tension headache OR TTH) AND (physical therapy OR physiotherapy OR physical treatment OR physical exercises OR physical therapy interventions OR physical therapy modalities). The studies have been evaluated using a two-level assessment approach. Level 1 screening included titles and abstracts of retrieved records. The complete text of all potentially eligible citations was obtained and reviewed for final eligibility. All studies were screened based on the specified eligibility criteria outlined below. Studies that met the following criteria were included in this meta-analysis: (i) studies published without time frame limitations; (ii) studies in the English language; (iii) the review included studies with adult patients above 18 who were diagnosed with TTH; and (iv) the included studies reported outcomes of interest relevant to the clinical questions and included randomized controlled trials (RCTs) only.

Data extraction

Two independent reviewers extracted data from acceptable studies, including authors, study design, mean age, sex, sample size, number of sessions, and follow-up period, into a tested Excel spreadsheet. The two examiners cross-checked and verified the extraction sheet to eliminate errors and ensure the data's integrity.

Bias assessment

We performed a quality assessment for 51 studies. Following the ROB-2 Quality Assessment Tool guidelines Sterne et al. [7], 23 studies were considered to have good quality (low risk of bias). However, 28 studies were considered to have moderate quality (moderate risk of bias) due to some concerns in different domains, like the randomization process, deviations from the intended intervention, and missing data.

Results

Study selection and characteristics

The initial search yielded 1,923 potential articles. After screening titles and abstracts, 1,630 full-text articles were assessed for eligibility. Ultimately, 51 randomized controlled trials met the inclusion criteria (Figure 1). These studies included a total of 3,404 participants, aged between 20 and 55 years (Table 1). The sample consisted

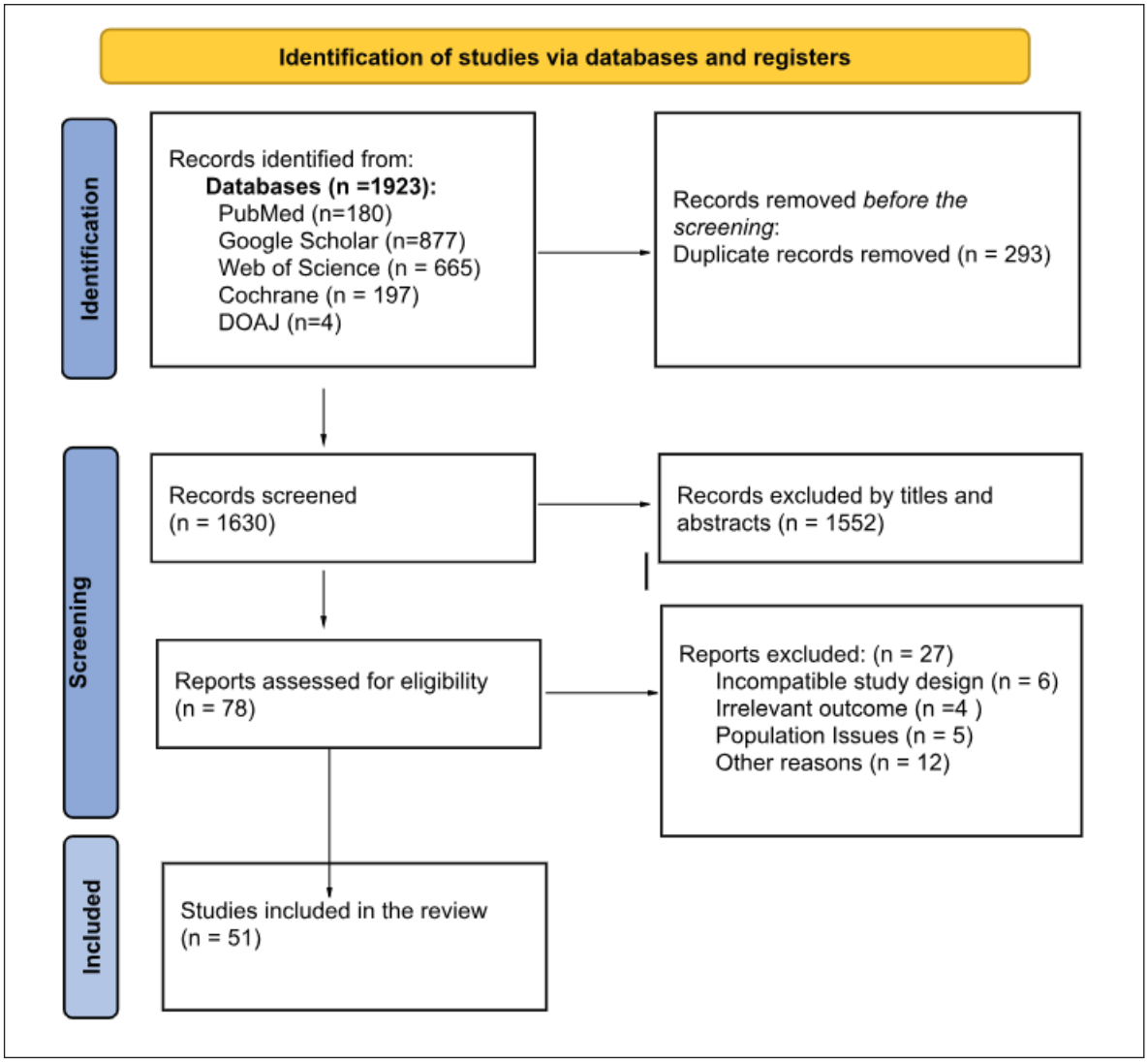

Figure 1. *PRISMA flow diagram of study selection for the included studies in the systematic review.*

predominantly of females (approximately 70% of participants) diagnosed with either chronic tension-type headache or episodic tension-type headache (Table 2).

Risk of bias assessment

The methodological quality of the included studies varied. Random sequence generation and allocation concealment were adequately reported in approximately 60% of the trials. Blinding of participants and therapists was a common challenge due to the nature of physical therapy interventions; however, blinding of outcome assessors was maintained in the majority of high-quality studies (Figure 2).

Efficacy of interventions

The included studies utilized a wide range of physical therapy interventions. Manual therapy (including suboccipital release and spinal manipulation) was the most common modality, appearing in 15 studies, followed by therapeutic exercises (craniocervical strengthening and aerobic training) in 12 studies. Other interventions included acupuncture, dry needling, and electrotherapy. Multimodal physical therapy programs, combining manual techniques with exercise, were evaluated in 14 studies. Across the 51 studies, physical therapy consistently resulted in significant reductions in headache frequency, intensity, and duration compared to control or placebo groups. Manual therapy techniques showed immediate improvements in pain pressure thresholds, while therapeutic exercises demonstrated long-term benefits, particularly in reducing headache frequency (Table 3).

Adverse events

Safety data were explicitly reported in 38 of the 51 studies. Generally, physical therapy interventions were well-tolerated. Reported adverse events were mild and transient, including post-treatment muscle soreness, temporary fatigue, and minor bruising (primarily associated with dry needling). No serious or life-threatening adverse events were recorded in any of the included trials (Table 4).

Table 1. *The studies' characteristics.*

Author name, year, country	Study design	Sample size			Age			Sex, Male *N* (%)			Sex, Female *N* (%)			BMI (kg/m²)		
		Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Damapong et al. [8]	RCT	30	30	60	N/M	N/M	49.75+-10.93	4	1	5	26	29	55	N/M	N/M	N/M
Gildir et al. [9]	Double-blind, parallel-group RCT	80	80	160	36.7 ± 7.6 years	36.0 ± 8.3 years	N/M	N/M	N/M	N/M	41 (51.3%)	44 (55%)	85	N/M	N/M	N/M
Endres et al. [10]	Multicenter, patient- and observer-blinded RCT	209	200	409	39.2 ± 11.4 years	38.9 ± 12.2 years	N/M	N/M	N/M	N/M	163 (78%)	158 (79%)	321	24 (21–27)	24 (22–26)	N\M
Mohamadi et al. [11]	RCT	13	13	26	39 ± 11 years	38 ± 9 years	N/M	2	3	5	11	10	21	N/M	N/M	N/M
Soderberg et al. [12]	RCT	27	28. and Group3: 25	80	40.5 ± 10.4 years	43.1 ± 8.8 years and Group3: 40.9 ± 8.3 years	N/M	6	7 and Group3: 6	19	21	21 and Group3:19	61	N/M	N/M	N/M
Kwon and Yoon [13]	RCT	11	11 and Group3: 11	33	40.73 ± 7.82 years	49.27 ± 11.37 years and Group3: 41.82 ± 7.50 years	N/M	5	6 and Group3: 5	16	6	5 and Group3: 6	17	N/M	N/M	N/M
Aslam et al. [14]	RCT	16	15	31	35.81 ± 9.30 years	30.73 ± 7.99 years	N/M	N/M	N/M	N/M	N/M	N/M	N/M	24.11 ± 3.49	22.43 ± 3.36	N/M
Espí-López et al. 15]	Factorial, single-blinded, RCT	19	19	76 (19 per group across four groups)	Mean 43.74 years (SD 13.73)	Mean 41.58 years (SD 10.02)	39.9 years (SD 10.9)	2	8	14	17	11	28	N/M	N/M	N/M
Kamali et al. [16]	Parallel single-blind RCT	20	20	40	Mean 37.45 years (SD 12.57)	Mean 33.70 years (SD 9.94)	N/M	4	1	5	16	19	35	N/M	N/M	N/M
Saad et al. [17]	Single-blind RCT	15	15	30	Mean 36.67 years (SD 4.18)	Mean 33.73 years (SD 3.26)	N/M	N/M	N/M	N/M	N/M	N/M	N/M	Mean 24.31 kg/m² (SD 1.46)	Mean 24.65 kg/m² (SD 1.04)	N/M
Espí-López et al. [18]	RCT	19	19	76 (62 women, 14 men)	39.9 ± 10.9 years	N/M	N/M	N/M	N/M	14	N/M	N/M	62	N/M	N/M	N/M

Continued

Author name, year, country	Study design	Sample size			Age			Sex, Male *N* (%)			Sex, Female *N* (%)			BMI (kg/m²)		
		Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Ferragut-García et al. [19]	Double-blind, placebo-based RCT	Group A (Placebo): 24 Group B (Soft tissue): 23	Group C (Neural mobilization): 25 Group D (Combined): 25	97	Group A: 40.5 ± 12.0 years Group B: 38.1 ± 10.9 years	Group C: 39.4 ± 11.0 years Group D: 40.8 ± 12.1 years	39.7 ± 11.5 years	Group A: 4 (16.7%) Group B: 6 (26.0%)	Group C: 5 (20.0%) Group D: 4 (16.0%)	19 (19.6%)	Group A: 20 (83.3%) Group B: 17 (74.0%)	Group C: 20 (80.0%) Group D: 21 (84.0%)	78 (80.4%)	Group A: 25.3 ± 3.0 kg/m² Group B: 24.7 ± 3.4 kg/m²	Group C: 25.1 ± 3.3 kg/m² Group D: 24.9 ± 3.0 kg/m²	25.0 ± 3.2 kg/m²
Ajimsha [20]	Single-blinded RCT	Group A (DT-MFR): 22	Group B (IDT-MFR): 22 Group C (Control): 12	56	Group A: 43.7 ± 5.6 years	Group B: 44.7 ± 5.2 years Group C: 43.0 ± 5.4 years	43.8 ± 5.4 years	Group A: 7	Group B: 8 Group C: 5	20	Group A: 15	Group B: 14 Group C: 7	36	Group A: 24.7 ± 5.9 kg/m²	Group B: 24.8 ± 6.2 kg/m² Group C: 24.2 ± 5.0 kg/m²	24.6 ± 5.7 kg/m²
Castien et al. [21]	Pragmatic, multicentre, RCT clinical trial	41	41	82	20–63	20–59	N/M	N/M	N/M	9	N/M	N/M	32	N/M	N/M	N/M
Hosseinifar et al. [22]	RCT	15	15	30	25.06 ± 7.64	29.33 ± 11.63	N/M	N/M	N/M	N/M	15	15	30	N/M	N/M	N/M
Gopichandran et al. [23]	Prospective RCT	84	85	169	44.21 ± 10.7	46.167 ± 11.12	N/M	39 (46.5)	34 (40)	N/M	45 (53.5)	51 (60)	N/M	N/M	N/M	N/M
Shafiq et al. [24]	RCT	15	15	30	mean age: 20.27 ± 1.53 years	mean age: 21.27 ± 1.79years	N/M	5	6	11	10	9	19	N/M	N/M	N/M
Pérez-Llanes et al. [25]	RCT	13	12	25	43.3 years	46.2 years	N/M	3	1	4	10	11	21	Mean BMI: 24.7 kg/m2	Mean BMI: 26.3 kg/m2	N/M
Cabanillas-Barea et al. [26]	RCT	43	43	86	37.25 years (±15.41)	39.49 years (±16.26)	38.35 years (±15.78)	12	12	24	31	31	62	N/M	N/M	N/M
Monti-Ballano et al. [27]	Single-blinded RCT	16	16	32	mean age 31.75 ± 10.75 years	mean age 41.44 ± 14.68 years	mean age 39.09 ± 12.88 years	N/M	N/M	8	N/M	N/M	24	N/M	N/M	N/M
Álvarez-Melcón et al. [23]	RCT	76	76	152	mean age 20.23 (SD ± 2.50)	mean age 20.62 (SD ± 2.21)	20.42 years (SD ± 2.36)	26	42	68	50	34	84	N/M	N/M	N/M
Park [28]	RCT	18	17	35	39.6 ± 15.9 years	41.0 ± 9.4 years	N/M	N/M	N/M	N/M	N/M	N/M	N/M	23.8 ± 2.6 kg/m²	25.2 ± 4.2 kg/m²	N/M

Continued

Author name, year, country	Study design	Sample size			Age			Sex, Male *N* (%)			Sex, Female *N* (%)			BMI (kg/m²)		
		Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Chatchawan et al. [29]	Prospective, parallel-group RCT	36	36	72	mean age: 27.39 ± 6.73 years	mean age: 27.36 ± 9.55 years	total mean age: 27.37 ±8 .37 years	10	7	17	26	29	55	22.48 ± 5.33 kg/m2	22.17 ± 7.55 kg/m2	22.33 ± 6.36 kg/m2
Choi et al. [30]	RCT	Temporomandibular group 14, cervical group 14	13	41	TMJT 35.00 ± 11.82 years , CMT 34.71 ± 7.50 years	42.62 ± 11.00 years	N/M	15	8	23	13	5	18	N/M	N/M	N/M
Martín-Vera et al. [31]	RCT	20	20	40	33.9 ± 12.2 years	40.1 ± 14.0 years	N/M	3 15%	5 25%	8 20%	17 85%	15 75%	32	24.4 ± 3.9 kg/m2	24.2 ± 4.2 kg/m2	N/M
Antonia (Gomez) et al. [32]	RCT	62	22	84	N/M	N/M	Mean age: 39.76 years (Range: 18-65)	N/M	N/M	16	N/M	N/M	68	N/M	N/M	N/M
Van Ettekoven and Lucas [33]	RCT	38	42	81	48.3	43.4	45.85	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Kanji et al. [34]	RCT	17	20	37	40.7	44.3	ns	5	3	8	12	17	29	N/M	N/M	N/M
Madsen et al. [35]	RCT	23	21	44	33	36	ns	5	6	11	18	15	33	24	24	24
Xue et al. [36]	Single-blinded, sham-controlled, crossover clinical trial	20	20	40	42.6 (1.8)	41.5 (1.9)	N/M	7	7	14	13	13	26	N/M	N/M	N/M
Moraska et al. [37]	RCT	20 for massage	21 wait list , 21 for placepo	62	32.1 ± 12.0	32.1 ± 12.0	N/M	N/M	N/M	N/M	88.2	89.5	N/M	N/M	N/M	N/M
Rinne et al. [38]	RCT	57	69	116	45.8 (8.6)	42.6 (9.7)	N/M	All female	N/M	N/M	57	69	N/M	N/M	N/M	N/M
Karst et al. [39]	RCT	34	35	69	47.9 (13.8)	48.2 (14.6)	N/M	17	14	31	17	21	38	N/M	N/M	N/M
Torelli et al. [40]	RCT	24	24	48	43.9 (24-63)	46.8 (29-59)	44.9 (24-63)	5	10	15	19	14	33	N/M	N/M	N/M
Bove and Nilsson 41]	RCT	37	38	75	37 (22-59)	38 (20-58)	38 (20-59)	15	11	26	23	26	49	N/M	N/M	N/M

Continued

Author name, year, country	Study design	Sample size			Age			Sex, Male *N* (%)			Sex, Female *N* (%)			BMI (kg/m^2)		
		Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Hamed [42]	Parallel RCT	15 for each group SOES (group A); SPTP (group B);	15	45	Group A =37.0 ± 7.1 Group B =36.6 ± 7.2	35.6 ± 4.6	N/M	5 in group A, 6 In group B	5	16	10 IN GROUPA, 9 in group B	10	29	N/M	N/M	N/M
Karakurum et al. [43]	Randomized, double-blind study	15	15	30	28.4 ± 11.6	27.9 ± 10	N/M	all females	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Cabanillas-Barea et al. [44]	RCT	41	41	82	37.25 (15.41)	39.39 (16.26)	N/M	11	11	22	29	28	57	24.08 (2.17)	23.83 (1.70)	N/M
Corum et al. [45]	RCT	15 for each group (group A)and (group B);	15	45	Group A = 33.5 ± 8.2, Group B = 30.7 ± 8.0	32.5 ± 6.5	N/M	Group A = 4, Group B = 3	4	11	Group A = 9, Group B = 11	8	28	Group A = 22.1 ± 2.3, Group B = 21.9 ± 2.6	23.5 ± 3.2	N/M
Sertel and Bakar [46]	RCT	BAT (*n* = 20), aerobic exercise (*n* = 20)	20	60	42.6 ± 9.5 for BAT group, 36.20 ± 7.86 for AE Group	39.00 ± 9.53	N/M	N/M	N/M	N/M	N/M	N/M	N/M	27.31 ± 5.6 for BAT group, 27.10 ± 4.6 for AE Group	25.66 ± 3.71	N/M
Kwon and Yoon [47]	RCT	15	15	30	37.93 ± 10.32	38.27 ± 11.10	N/M	8	7	15	7	8	15	N/M	N/M	N/M
Espí-López et al. [48]	Single-blinded, RCT	52	52	104	37.69 ± 10.64	40.47 ± 11.33	N/M	10	13	23	41	38	79	N/M	N/M	N/M
Azhdari et al. [49]	Parallel design RCT	12	12	24	43.16	41.41	N/M	5	4	9	7	8	15	N/M	N/M	N/M
Georgoudis et al. [50]	A single-blind, prospective, multicentre, RCT	20	24	44	54.8 ± 14.7	43.0 ± 6.5	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Georgoudis et al. [51]	A single-blind multicenter-RCT	20	24	44	54.8 ± 14.7	43.0 ± 6.5	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Cho et al. [52]	RCT	SMI group =15, SMIEx =15	15	45	SMI group = 36.60 ± 8.33, SMIEx = 36.00 ± 8.47	39.07 ± 10.99	N/M	SMI group = 3, SMIEx = 4	3	10	SMI group =11, SMIEx = 10	10	31	N/M	N/M	N/M
Ghanbari et al. [53]	RCT	15	15	30	37.66 ± 8.6	36.26 ± 7.46	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Ebneshahidi et al. [54]	single blind, placebo RCT	25	25	50	33 (25-52)	38.6 (26-54)	N/M	5	5	10	20	20	40	N/M	N/M	N/M

Continued

Author name, year, country	Study design	Sample size			Age			Sex, Male *N* (%)			Sex, Female *N* (%)			BMI (kg/m²)		
		Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Abaschian and Mansoursohani 55]	Single-blind, parallel-group RCT	12	12	24	37.4 + 9.24	32.55 + 7.65	N/M	N/M	N/M	N/M	N/M	N/M	N/M	25.27 + 4.36	25.12 + 4.55	N/M
Berggreen et al. [56]	RCT	20	19	39	38.8 (13.7)	42.3 (10.2)	N/M	ALL females	N/M	N/M	20	19	39	N/M	N/M	N/M
Espí-López et al. [57]	Double-blind RCT	62 divided to three sub groups	22	84	Treatment SI = 42.75 (18-65) , OAA =34 (18-50), SI and OAA = 40.70 (24-62)	41.95 (18-62)	39.76 (1 -65)	Treatment SI = 5 , OAA =2, SI and OAA = 4	4	15	Treatment SI = 17 , OAA =20, SI and OAA = 18	18	68	N/M	N/M	N/M

Table 2. *Baseline tension headache features of the participants.*

Author, year, country	Type of headache		The pain intensity			Duration of tension-type headache			Frequency of tension-type headache			Mean No. Of analgesics		
	Chronic TTH #	Episodic TTH #	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Damapong et al. [8]	55	N/M	6.3 + −1.2	6.06 + −0.94	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Gildir et al. [9]	160	N/M	4.5 ± 1.0 cm	4.6 ± 1.2 cm	N/M	3.9 ± 0.7 hours/day	3.9 ± 0.7 hours/day	N/M	18.5 ± 2.7 days/month	18.0 ± 2.4 days/ month	N\M	N/M	N/M	N/M
Endres et al. [10]	93 (Group 1), 94 (Group 2)	116 (Group 1), 106 (Group 2)	68.3 ± 12.1	67.5 ± 12.5	N/M	11.2 ± 10.3 years	11.7 ± 10.7 years	N/M	14 (12–18) days/4 weeks	14 (12–19) days/4 weeks	N/M	N/M	N/M	N/M
Mohamadi et al. [11]	All participants	N/M	7.46 ± 1.80	6.53 ± 1.89	N/M	N/M	N/M	N/M	18.30 ± 6.29 days/month	16.69 ± 6.14 days/ month	N/M	N/M	N/M	N/M
Soderberg et al. [12]	80	N\M	N/M	N/M	N/M	N/M	N/M	N/M	18.6 ± 6.7 days/month	20.5 ± 6.2 days/ month and Group3: 18.2 ± 5.7 days/ month	N/M	N/M	N/M	N/M

Continued

Author, year, country	Type of headache		The pain intensity			Duration of tension-type headache			Frequency of tension-type headache			Mean No. Of analgesics		
	Chronic TTH #	Episodic TTH #	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Kwon and Yoon [13]	33	N/M	35.36 ± 0.92	35.18 ± 1.25 and Group3: 35.36 ± 1.74	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Aslam et al. [14]	31	N\M	6.62 ± 1.58	6.73 ± 1.53	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Espí-López et al. [15]	17	21	6.5	N/M	6.5	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Kamali et al. [16]	N/M	N/M	Median 8.00	Median 9.50	N/M	N/M	N/M	N/M	Median 5 days/week	Median 7 days/week	N/M	N/M	N/M	N/M
Saad (Nambi) et al. [17]	30	N/M	Mean 6.26 (SD 0.86)	Mean 6.45 (SD 0.96)	N/M	N/M	N/M	N/M	Mean 4.73 days/week (SD 1.03)	Mean 4.60 days/week (SD 0.91)	N/M	N/M	N/M	N/M
Espí-López et al. [18]	40.8% of 76	59.2% of 76	N/M	N/M	N/M	N/M	N/M	N/M	N/M	2.63 (pre-treatment frequency score for the control group)	N/M	N/M	N/M	N/M
Ferragut-Garcías et al. [19]	41.7% in Group A, 34.8% in Group B, 44.0% in Group C, 48.0% in Group D	58.3% in Group A, 65.2% in Group B, 56.0% in Group C, 52.0% in Group D	Group A: 5.6 ± 1.1 Group B: 4.4 ± 1.1	Group C: 5.7 ± 0.8 Group D: 5.1 ± 1.0	N/M	N/M	N/M	N/M	Group A: 7.2 ± 2.7 days/15 days Group B: 8.6 ± 2.3 days/15 days	Group C: 7.9 ± 2.7 days/15 days Group D: 8.0 ± 2.6 days/15 days	N/M	N/M	N/M	N/M
Ajimsha [20]	9 (16.1%)	47 (83.9%)	N/M	N/M	N/M	Group A: 7.1 ± 7.2 years	Group B: 7.3 ± 8.1 years Group C: 7.7 ± 7.7 years	N/M	Group A: 12.0 ± 2.8 days/4 weeks	Group B: 12.4 ± 2.8 days/4 weeks Group C: 12.0 ± 2.5 days/4 weeks	N/M	N/M	N/M	N/M
Castien et al. [21]	83	0	7.5 (1.7) P value not reported	7.7(1.6) P value not reported	N/M	12.8(8.9) P value not reported	13.0(9.1) P value not reported	N/M	23.7(6.8) P value not reported	24.0(7.0) P value not reported	N/M	N/M	N/M	2
Hosseinifar et al. [22]	30	0	4.06 ± 0.69 P value =1.000	4.06 ±1.27 P value =1.000	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Gopichandran et al. [23]	169	0	6.7 ± 1.05	6.52 ± 1.2	N/M	<1 year = 2 (2.4) > 1-2 year = 38 (45.2) >2-3 years = 30 (35.7) >3 years = 14 (16.6)	<1 year = 5 (6) > 1-2 year = 32 (37.6) >2-3 years = 30 (35.2) >3 years = 18 (21.4)	N/M	19.44 ± 1.56 p = -0.03 (0.97)	19.43 ± 1.18 p = -0.03 (0.97)	N/M	Analgesics= 30 (35.3) Analgesics with amitriptyline and propranolol = 55 (64.7)	Analgesics 30 (35.7). Analgesics with amitriptyline and propranolol = 54 (64.3)	N/M

Continued

Author, year, country	Type of headache		The pain intensity			Duration of tension-type headache			Frequency of tension-type headache			Mean No. Of analgesics		
	Chronic TTH #	Episodic TTH #	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Shafiq et al. [24]	N/M	N/M	mean pain intensity: 2.53 ± 0.51	Mean pain intensity 2.53 ± 051	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Pérez-Llanes et al. [25]	25	0	4.6 (SD = 2.87)	6.9 (SD = 1.33)	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	paraceta-mol, NSAIDs, antide-pressants, anxiolytics.
Cabanillas-Barea et al. [26]	86	0	Actual pain: 1.75 ± 1.74, usual pain: 3.42 ± 1.81, worse pain: 6.227 ± 1.64	Actual pain: 2.04 ± 1.76, usual pain 2.99 ± 1.46, worse pain: 6.14 ± 1.71	N/M	N/M	N/M	N/M	13.28 ± 11.97 days/2 weeks	13.26 ± 12.39 days/2 weeks	N/M	NSAIDs 18, Acetaminophen and NSAIDs 8, Acetaminophen 16	NSAIDs 16, Acetaminophen and NSAIDs 7, Acetaminophen 16	N/M
Monti-Ballano et al. [27]	CTTH and ETTH		N/M	N/M	N/M	N/M	N/M	N/M	13.69 ± 9.00 days/months	13.19 ± 11.55 days/ months	13.44 ± 10.19 days/ months	18.94 ± 28.21 doses/months	39.81 ± 69.98 doses/months	29.38 ± 53.73 doses/ months
Álvarez-Melcón et al. [58]	52	100	Mean intensity 5.82 (1.26)	Mean intensity 5.57 (1.32)	Total mean intensity 5.695	Mean duration 6.35 hours/ day	Mean duration 5.94 hours/ day	Total mean duration 6.15 hours/ day	Mean frequency 12.96 days in 4 weeks	Mean frequency 12.71 days in 4 weeks	Total 12.84 days	Pre-treatment = 7.43 days in 4 weeks, post-treatment 5.13 days in 4 weeks, follow-up 4.19 days in 4 weeks	Pre-treatment 7.46 days in 4 weeks, post-treatment 6.13 days in 4 weeks, follow-up 5.31 days in 4 weeks	N/M
Park [28]	Only chronic	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Chatchawan et al. [29]	42	0	5.54 ± 2.16	4.66 ± 2.40	5.10 ± 2.23	8.28 ± 13.81 hours	4.65 ± 4.67 hours	N/M	16.26 ± 2.02 times/month	16.35 ± 6.68 times/ month	N/M	25	25	50
Choi et al. [38]	41	0	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Martín-Vera et al. [31]	40	0	6.9 ± 1.3	7.1 ± 1.6	N/M	18.3 ± 7.5 hours/month	14.0 ± 8.3 hours/month	N/M	10.1 ± 9.5 days/month	10.5 ± 7.2 days/ month	N/M	N/M	N/M	N/M
Gómez-Conesa et al. [32]	0.571	0.429	N/M	N/M	6.49 (SD; 1.69)	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
van Ettekoven et al. [33]	ETTH and CTTH		5.72	5.86	N/M	8.1 hours per day	8.0 hours per day	N/M	5.49	4.86	ns	1.13 days	0.98 days	ns
Kanji et al. [34]	All participants	N/A	4.3	3.5	ns	8.3 hours per day	6.6 hours per day	N/M	23.6	23.6	N/M	N/M	N/M	N/M
Madsen et al. [35]	N/M	N/M	4.5	3.6	NS	252 hours per month (mean)	198 hours per month (mean)	N/M	19 days	17 days	N/M	3.5 days	4.7 days	N/M

Continued

Author, year, country	Type of headache		The pain intensity			Duration of tension-type headache			Frequency of tension-type headache			Mean No. Of analgesics		
	Chronic TTH #	Episodic TTH #	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Xue et al. [36]	11 in group A , 11 in group B	9 in each group	45.2 (2.4)	49.3 (2.4)	N/M	47.7 (7.4)	40.8 (4.8)	N/M	13.8 (1.7)	12.5 (1.6)	N/M	N/M	N/M	N/M
Moraska et al. [37]	64.7 % in massage group, 52.6% in placebo group	35.3% in massage group, 47.4% in the placebo group	31.4 ± 2.69	33.3 ± 2.52	N/M	3.15 ± 0.43	3.20 ± 0.55	N/M	3.72 ± 0.23	3.81 ± 0.21	N/M	Dose/week = 2.97± 0.82	Dose/week = 1.75± 0.76	N/M
Rinne et al. [38]	N/M	N/M	4.7 (95% confidence intervals, CI 4.4 to 5.0)	4.8 (4.5 to 5.1)	N/M	30.8 (95% CI 24.7 to 36.9) hours/ week in the exercise group	30.5 (23.9 to 37.1) in the control group	N/M	4.5 (95% CI 3.9 to 5.1) in the exercise group	and 4.4 (3.6 to 5.1) in the control group	N/M	N/M	N/M	N/M
Karst et al. [39]	25 in treatment, 22 in placebo	9 in treatment group , 12in placebo group	6.4 (2.0)	6.3 (1.9)	N/M	N/M	N/M	N/M	21.1 (10.2)	20.5 (10.3)	N/M	Analgisics/month 9.0 (11.1)	Analgisics/ month15.6 (32.4)	N/M
Torelli et al.[40]	8 in treatment group , 16 in control group	16 in treatment group , 8 in control	1.6 (1-3)	1.7 (1-3)	N/M	9.8 (7-16)	12.0 (5-22)	N/M	14.5 (11-18)	18.1 (13-22)	N/M	19.7 (5-33)	23.6 (6-32)	N/M
Bove and Nilsson [41]	N/M	N/M	Per day (95% CI) 37/100 (33-41/100)	37/100 (33-41/100)	38/100 (35-41/100)	per day (95% CI) 2.8 (2.1-3.5)	3.4 (2.4-4.4)	3.1 (2.5-3.7)	N/M	N/M	N/M	Per day (95% CI)0.66 (0.49-0.83)	0.82 (0.50-1.14)	0.74 (0.56-0.92)
Hamed [42]	N/M	N/M	group A = 70 ± 1, Group b = 71 ± 12	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Karakurum et al. [43]	20 (66.7%) ,	8 (26.7%) episodic and 2 (6.7%) had episodic TTH in combination with migraine without aura.	N/M	N/M	N/M	N/M	N/M	N/M	29.6/month	25.2/ month	N/M	N/M	N/M	N/M
Cabanillas-Barea et al. [44]	N/M	N/M	1.75 (1.74)	2.04 (1.77)	N/M	N/M	N/M	N/M	13.28 (11.90)	13.26 (12.29)	14 (35%) for Acetaminophen, 18 (45%) for NSAIDs	16 (41%) for Acetaminophen, 16 (41%) for NSAIDs	N/M	

Continued

Author, year, country	Type of headache		The pain intensity			Duration of tension-type headache			Frequency of tension-type headache			Mean No. Of analgesics		
	Chronic TTH #	Episodic TTH #	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total	Group 1 (Treatment)	Group 2 (Control)	Total
Corum et al. [45]	3 in group A, 5 Group B, 4 Group C	9 in group A,10 Group B, 8 Group C	Group A =5.6 ± 1.1, Group B= 5.8 ± 1.1	5.8 ± 1.2	N/M	N/M	N/M	N/M	Group A (Day/2 week) = 5.4 ± 2.3, Group B (Day/2 week)= 5.6 ± 2.5	Day/ 2 week =5.8 ± 2.7	N/M	N/M	N/M	N/M
Sertel and Bakar [46]	N/M	N/M	BAT = 6.15 ± 0.74, AE = 6.1 ± 1.02	5.90 ± 0.71	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Kwon et al. [47]	N/M	N/M	6.27 ± 1.38	5.33 ± 1.17	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Espí-López et al. [48]	24 in control group, 25 in treatment group	27 (control group, 26 in treatment group)	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Azhdari et al. [49]	N/M	N/M	7.37 (2.01)	6.70 (2.37)	N/M	344.18 (333.39)	279.05 (165.66)	N/M	4.91 (2.39)	5.25 (2.05)	N/M	N/M	N/M	N/M
Georgoudis et al. [50]	N/M	N/M	6.5 ± 2.5	7.8 ± 1.8	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Georgoudis et al. [51]	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	8.1 ± 2.8	8.2 ± 3.6	N/M	N/M	N/M	N/M
Cho et al. [52]	N/M	N/M	N/M	N/M	N/M	SMI group =3.63 ± 1.67 (years), SMIEx = 3.29 ± 2.22 (years)	3.28 ± 1.43	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Ghanbari et al. [53]	N/M	N/M	5.80 ± 1.75	6.03 ± 0.99	N/M	6.42 ± 5.70	5.37 ± 3.47	N/M	12.40 ± 2.22	11.13 ± 1.99	N/M	N/M	N/M	N/M
Ebneshahidi et al. [54]	N/M	N/M	10 (3.0)	10 (1.0)	N/M	10 (4.0)	8 (4.5)	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Abaschian and Mansoursohani [55]	N/M	All cases (24)	6.08 + 1.32	4.83 + 1.37	N/M	N/M	N/M	N/M	11.44 + 3.77	11.06 + 3.36	N/M	N/M	N/M	N/M
Berggreen et al. [56]	N/M	N/M	28.0 (15.9)	26.6 (12.6)	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Espí-López et al. [57]	N/M	N/M	Treatment SI = 4.79 (2.26), OAA = 5.12 (1.95), SI and OAA = 4.80 (1.68)	5.24 (1.80)	N/M	N/M	N/M	N/M	Treatment SI = 3.25 (2.29), OAA =2.90 (1.86), SI and OAA = 55.67 (7.74)	3.24 (1.57)	N/M	N/M	N/M	N/M

Figure 2. *Risk of bias summary using ROB-2 quality assessment tool for the included randomized clinical trials.*

Discussion

This systematic review synthesized evidence from 51 randomized controlled trials to evaluate the effectiveness of physical therapy for TTH. The comprehensive analysis of over 3,400 participants confirms that physical therapy is a robust, non-pharmacological treatment option.

The results align with the multifactorial pathophysiology of TTH. Our analysis supports the findings of Repiso-Guardeño et al. [59], whose systematic review highlighted the efficacy of manual therapy in reducing central sensitization. Similarly, Cumplido -Trasmonte et al. [60] emphasized that manual therapy techniques are particularly effective for adults with chronic TTH when applied to the cranio-cervical region.

Regarding multimodal care, our review suggests that combining passive therapies with active exercise yields superior outcomes. This is consistent with the recent meta-analysis by Onan et al. [61], which concluded that physiotherapy approaches are most effective when tailored to address both muscular tension and functional disability. Furthermore, Qin et al. [62] noted that complementary strategies, including acupuncture, significantly reduce headache frequency compared to routine care.

Safety remains a key advantage of physical therapy. Krøll et al. [63] reported that adverse events in non-pharmacological interventions are rare and mild. Our review corroborates this, as the included RCTs (Appendix A) reported mostly transient muscle soreness, reinforcing physical therapy as a safe alternative for patients at risk of medication-overuse headaches.

Despite the heterogeneity in treatment protocols—ranging from single sessions to 12-week programs—the consistent positive outcomes across diverse populations strengthen the external validity of these findings. However, as noted by Jung et al. [64], the quality of evidence is often limited

Table 3. *Characteristics of the physiotherapies conducted in TTH patients.*

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
Damapong et al. [8]	Court type traditional Thai massage	Amitriptyline	N/M	Yes	45 minutes per session, twice a week for 4 weeks	8	2 weeks	None	None	None	N/A
Gildir et al. [9]	Trigger point dry needling (DN)	Sham dry needling (SDN)	No	Yes	3 sessions/week for 2 weeks	6 sessions (for each group)	1 month	0	1	1	1 patient in the control group used tricyclic antidepressants
Endres et al. [10]	Verum acupuncture	Sham acupuncture	No	Yes	10 sessions over 6 weeks (with an additional 5 sessions for partial response)	10 (or up to 15 for partial response)	6 months	5	6	11	N/M
Mohamadi et al. [11]	Positional release technique (PRT)	Ibuprofen 200mg	No	Yes	10 sessions over 5 weeks (2 sessions per week)	10 sessions	5 weeks	2	3	5	Ineligibility (detected by MRI) or discomfort with the procedures
Soderberg et al. [12]	Acupuncture	Physical training (strength and endurance) and Group3: Relaxation training	No	Yes	12 weeks	24 sessions	6 months	1	2 and Group3: 1	4	N/M
Kwon and Yoon [13]	Temporomandibular joint and cervical vertebra treatment	Temporomandibular joint treatment and Group3: Cervical vertebra treatment	NO	Yes	4 weeks, 3 times per week, 50 minutes per session	12 sessions	N/M	N/M	N/M	N/M	N/M
Aslam et al. [14]	Trigger point release therapy (20 minutes)	Heat therapy, TENS, and stretching exercises	No	Yes	3 sessions over 1 week	3	N/M	N/M	N/M	N/M	N/M
Espí-López et al. [15]	Suboccipital inhibitory pressure (SI), suboccipital manipulation (SM), combination	None	N/M	Yes	4 weeks	4 sessions	1 month	None	None	None	None
Kamali et al. [16]	Dry needling versus friction massage at myofascial trigger points	Manual circular pressure instead of needles	N/M	N/M	1 week	3 sessions	48 hours after the last session	N\M	N\M	4	1 withdrew due to needle phobia, 3 did not attend the follow-up
Saad (Nambi) et al. [17]	Instrument-assisted soft tissue mobilization (IASTM)	Conventional physical therapsy	N\M	Yes	4 weeks	12 sessions	Post-treatment evaluation after 4 weeks	1	1	2	N/M

Continued

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
Espí-López et al. [18]	Suboccipital soft tissue inhibition (SI), Occiput-Atlas-Axis (OAA) manipulation, combination	None	No	Qualified physiotherapists with >10 years of experience	4 weeks	4 sessions	4 weeks	N/M	N/M	N/M	N/M
Ferragut-Garcías et al. [19]	Group A: Placebo superficial massage Group B: Soft tissue techniques	Group C: Neural mobilization techniques Group D: Combined soft tissue and neural mobilization techniques	No	Qualified physiotherapists	4 weeks	6 (15 minutes per session)	30 days	N/M	N/M	N/M	N/M
Ajimsha [20]	Group A (DT-MFR): Direct technique myofascial release (3 minutes on each side for multiple head, neck, and face regions)	Group B (IDT-MFR): Indirect technique myofascial release (10-minute stretches and pulls) Group C (Control): Slow soft stroking over the head	No	Certified myofascial release practitioners	12 weeks (2 sessions per week)	24	4 weeks post-intervention (Weeks 17-20)	Group A: 2	Group B: 2 Group C: 1	5	Not provided
Castien et al. [21]	Combination of mobilisations of the cervical and thoracic spine, exercises and postural correction	GP	yes	yes	30 minutes with a maximum of nine treatments	N/M	N/M	none	none	none	N/M
Hosseinifar et al. [22]	MFR technique and exercise therapy	No intervention	No	Yes	Each session last 45 minutes	4 times a week for 3 weeks	At least 3 months	None	None	None	N/M
Gopichandran et al. [23]	Perform PMR and deep breathing exercises	Standard routine care	Yes	Yes	20 minutes daily in the evening with an instruction booklet	Were asked to perform them for 12 weeks	2 weeks- 6 weeks- 12 weeks	None	None	None	N/M
Shafiq et al. [24]	Soft tissue mobilization and trigger point release	Stretching	N/M	yes	3 weeks	9 sessions	N/M	N/M	N/M	22	N/M
Pérez-Llanes et al. [25]	Suboccipital muscle inhibition, interferential current therapy	Received standard treatment	N/M	Yes	4 weeks	8 sessions	4 weeks	0	3	3	Due to lack of adherence to the study
Cabanillas-Barea et al. [26]	Diacutaneous fibrolysis	None	N/M	Yes	1 week	3 sessions	1 month	N/M	N/M	7	4 did not complete the intervention protocol, 3 did not attend the evaluation sessions

Continued

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
Monti-Ballano et al. [27]	Dry needling	None	N/M	N/M	N/M	3 sessions	N/M	N/M	N/M	N/M	N/M
Álvarez-Melcón et al. [58]	Combination of relaxation techniques and physical therapy, AutogenicTraining (AT), Cervical spine kinesiotherapy, posture correction.	Relaxation techniques only (Autogenic training)	Yes	Yes	3 weeks	28 sessions	3 months	4	4	8	N/M
Park et al. [28]	Manual therapy (relaxation approaches+self exercise at peri-neck musscles	Conventional rehabilitation approaches	N/M	Yes	4 weeks	12 sessions	N/M	N/M	N/M	N/M	N/M
Chatchawan et al. [29]	Combined massage for 25 minutes and stretching for 5 minutes according to the pattern of royal Thai massage	Sham US application of a detuned device with circular kneading on the upper neck or upper back in the supine and side lying poisitions	N/M	Yes	3 weeks	9 sessions	12 weeks	6	5	11	Mild fever, mild soreness, and discomfort.
Choi et al. [30]	Temporomandibular joint therapy, Cervical manual therapy	Conservative percutaneous stimulation therapy, ultrasound therapy, and warm compress	N/M	Yes	3 weeks	3 sessions	N/M	N/M	N/M	4	N/M
Martín-Vera et al. [31]	The participants performed specific exercises for craniocervical, shoulder girdle, shoulder muscles.	Daily activities without monitoring	Yes	Yes	12 weeks	2 day in first 6 weeks, 3 days the last 6 weeks	N/M	N/M	N/M	N/M	N/M
Antonia (Gomez) et al. [32]	Manipulative treatment, manual therapy, and combined treatment	Did not receive treatment but stayed in the supine position with neutral ranges for 10 minutes	N/M	Yes	Four treatment sessions (1 session per week) were administered, with an interval of 7 days, Each session lasted for approx-imately 20 minutes.	4	8 weeks	2 participants	2 participants	4	Control group: 1 due to transient illness, 1 for no pain relief. treatment group: 1 due to mild cervical pain, 1 for personal reasons.

Continued

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
van Ettekoven et al. [33]	Standard physiotherapy and craniocervical training	Standard physiotherapy only	Yes, participants practiced craniocervical training at home twice daily	Yes	6 weeks	NS	Immediately after treatment and at 6 months	1	2	3	NS
Kanji et al. [34]	Sauna bathing 3 times per week for 20 minutes and education and self-directed soft tissue massage	Education and self-directed soft tissue massage	Yes (self-directed soft tissue massage)	N/M	8 weeks (sauna intervention period)	3 times a week (Group 1)	12 weeks	2	4	6	N/M
Madsen et al. [35]	Strength training (progressive with elastic resistance bands)	Ergonomics and posture correction	Yes (self-directed exercises in both groups)	Yes	10 weeks	3 times per week for the strength training group	19–22 weeks	7	9	16	N/M
Xue et al. [36]	Group A had real electroacupunc-ture (REA) in phase I, then SEA in phase II.	Group B reGroup B had SEA in phase I, then REA in phase II.	N/M	N/M	6 weeks	N/M	3 months	N/M	N/M	N/M	N/M
Moraska et al. [37]	Myofascial Trigger Point-focused Head and Neck Massage	Placebo (detuned ultrasound)	N/M	N/M	Over 6 weeks,	N/M	4weeks	4	2	6	N/M
Rinne et al. [38]	Exercise (three included low-load exercises for the neck–shoulder region, and the remaining three specific strengthening exercises for the neck and upper body	Placebo-dosed treatment with 20 minutes of transcutaneous electrical nerve stimulation	N/M	N/M	6 months	N/M	6-month period.	9	9	18	Personal reasons (9), un known reason (5), low back pain (1), maliase 1)
Karst et al. [39]	Verum needle Seirin B-type needles no. 8 (0.3 × 0.3 mm) and no. 3 (0.2 × 0.15 mm) were used for verum acupuncture.	Placebo needle The tip of the needle is blunt in order to cause a pricking sensation without actually puncturing the skin	N/M	N/M	6 weeks	Two treatments per week for a total of 10 treatments.	6 month period	N/M	N/M	N/M	N/M
Torelli et al. [40]	Standardized physiotherapy	Observation period of similar length with clinic visits to the neurologist	N/M	N/M	8 weeks	Twice a week for 4 weeks	12 weeks	6	6	11	N/M

Continued

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
Bove et al. [41]	Joint manipulation of the cervical spine	Deep friction massage.	N/M	N/M	4 weeks	N/M	N/M	2	2	4	N/M
Hamed et al. [42]	Both group (A) and group (B) received standardized physiotherapy treatment program	Only analgesic medications	yes	An educational session	8 weeks	3/week	N/M	N/M	N/M	N/M	N/M
Karakurum et al. [43]	Intramuscular stimulation		N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Cabanillas-Barea et al. [44]	DF group received three interventions on alternate days.	Standard care intervention based on pharmacological therapy	N/M	N/M	3 treatment session	3	1 month	1	2	3	N/M
Corum et al. [45]	HVLA manipulation plus exercise (intervention) (group A)and; myofascial release group, which received suboccipital inhibition plus exercise	Receive exercise only	N/M	N/M	N/M	N/M	3 month	1	3	4	Attendance failure = 3, received prophylactic treatment = 1
Sertel et al. [46]	Treatment group (20 individuals), BAT program was applied, to the second group (20 individuals), the aerobic exercise program	N/M	N/M	N/M	N/M	N/M	N/M	2	0	2	1 had transport difficulty, 1 had family problems
Kwon et al. [47]	Hamstring relaxation program (HR)	Interferometric current treatment and infrared heat treatment simultaneously	N/M	N/M	8 weeks	3 session/ week	N/M	N/M	N/M	N/M	N/M
Espí-López et al. [48]	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Azhdari et al. [49]	Myo-fascial release of SCM,	Drugs (nortriptyline 50 qsh and valporae Na 200 mg BID).	N/M	N/M	1 week	3/week	1 week	0	0	0	N/M
Georgoudis et al. [50]	Acupuncture followed by stretching protocol followed by physiotherapy by microwave diathermy and myofascial release techniques.	Biomedical acupuncture followed by stretching protocol	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M

Continued

Author, year, country	Type of physiotherapy used		Home based program	Conducted by qualified physiotherapist	Duration of physiotherapy	Number of sessions	Follow up period	Withdraw (*N*)			Withdrawal reasons
	Group 1 (Treatment)	Group 2 (Control)						Group 1 (Treatment)	Group 2 (Control)	Total	
Georgoudis et al. [51]	Acupuncture followed by stretching protocol followed by physiotherapy by microwave diathermy and myofascial release techniques.	Biomedical acupuncture followed by stretching protocol	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Cho et al. [52]	Sub- occipital muscle inhibition for one group and another group SMI with FHP correction exercises (SMIEx)	None	N/M	N/M	4weeks	2/week	N/M	2	2	4	N/M
Ghanbari et al. [53]	Positional Release Therapy	Medication therapy	N/M	N/M	2 weeks	5 session in 2 weeks	2 weeks	N/M	N/M	N/M	N/M
Ebneshahidi et al. [54]	low energy laser acupuncture to LU7, LI4,GB14, and GB20 bilaterally.	A similar way except that the output power of the equipment was set to zero.	N/M	N/M	1 month	10session, 2 per week	3 month	N/M	N/M	N/M	N/M
Abaschian et al. [55]	dry needling with passive stretching treatment	Received only passive stretching.	N/M	N/M	4 weeks	N/M	N/M	N/M	N/M	N/M	N/M
Berggreen et al. [56]	(one session of trigger point massage per week for 10 weeks)	None	N/M	N/M	4 weeks	N/M	4 weeks	1	3	4	One participant in the treatment group left the study after seven treatments because of unbearable pain. One participant in the control group was excluded because she started treatment elsewhere. Two participants from the control group did not fill out the diary and questionnaires at follow-up.
Espí-López et al. [57]	SI treatment	None	N/M	N/M	4 weeks	N/M	8 weeks	2	2	2 in treatment group by OAA due to adverse effect, 2 in control group due to not feeling of improvement	N/M

Table 4. *Summary of clinical outcomes and adverse events of the included studies.*

Study (References)	Pain intensity outcomes (group 1 *vs.* group 2)	Frequency and duration outcomes	Adverse events/complications
Damapong et al. [8]	Significant reduction: 2.6 ± 0.7 *vs.* 2.9 ± 1.0 ($p < 0.05$)	No significant difference in frequency.	Mild ache in shoulders (group 1); drowsiness (group 2).
Gildir et al. [9]	Significant reduction: 0.7 ± 0.8 *vs.* 4.6 ± 0.7 cm ($p < 0.001$).	Frequency reduced: 3.8 ± 1.8 *vs.* 7.9 ± 2.0 days/month ($p < 0.001$).	Pain and fear during procedure; One severe headache in sham group.
Endres et al. [10]	No significant difference: 68.3 ± 12.1 *vs.* 67.5 ± 12.5.	Frequency: 6.0 *vs.* 8.4 days/4 weeks ($p = 0.002$).	One severe headache; 10 serious events reported (mostly unrelated).
Mohamadi et al. [11]	Significant reduction: 4.38 ± 1.66 *vs.* 7.00 ± 1.47 ($p = 0.002$).	Frequency reduced: 5.84 ± 3.76 days/month ($p = 0.001$).	None reported.
Söderberg et al. [12]	N/M	Frequency reduced: 11.1 ± 8.4 *vs.* 14.0 ± 9.3 days/month ($p < 0.001$).	None reported.
Kwon et al. [13]	Significant reduction: 22.64 ± 1.80 *vs.* 26.45 ± 2.42 ($p = 0.001$).	N/M	None reported.
Aslam et al. [14]	Significant reduction: 3.75 ± 1.39 *vs.* 5.93 ± 1.62 ($p < 0.001$).	N/M	None reported.
Espí-López et al. [15]	Significant reduction ($p = 0.02$).	N/M	None reported.
Kamali et al. [16]	Significant reduction: Mean 3.00 *vs.* 4.22 ($p < 0.05$).	Mean frequency: 1.95 *vs.* 2.85.	None reported.
Saad (Nambi) et al. [17]	Significant reduction: Mean 4.34 *vs.* 2.29 ($p < 0.05$).	Mean frequency: 2.83 *vs.* 1.73.	None reported.
Espí-López et al. [18]	Significant reduction ($p < 0.05$).	Significantly reduced frequency ($p < 0.05$).	N/M
Ferragut-Garcías et al. [19]	Significant reduction in combined group ($p < 0.001$).	Frequency reduced significantly in combined group ($p<0.001$).	N/M
Ajimsha et al. [20]	N/M	Frequency reduced: 4.9 ± 1.7 *vs.* 10.4 ± 2.7 days/4 weeks ($p < 0.001$).	No serious adverse events; some mild headaches reported.
Castien et al. [21]	Significant difference: 1.8 points improvement.	Frequency difference: 6.4 days ($p < 0.001$).	No adverse events were reported.
Hosseinifar et al. [22]	Significant reduction: 2.33 ± 1.11 *vs.* 4.06 ± 1.16 ($p = 0.000$).	N/M	No side effects.
Gopichandran et al. [23]	Significant reduction at 12 weeks: 2.84 ± 1.49 ($p < 0.001$).	Frequency reduced: 15.03 ± 3.39 ($p < 0.001$).	No any side effect.
Shafiq et al. [24]	N/M	Frequency reduced from >5/week to 1/week.	N/M
Pérez-Llanes et al. [25]	No significant difference in pain intensity ($p = 0.27$).	N/M	No adverse events reported.
Cabanillas-Barea et al. [26]	Change: –0.88 *vs.* 0.22. Significant between-group change ($p < 0.001$).	Frequency Change: –7.45 *vs.* 2.31 ($p < 0.001$).	N/M
Monti-Ballano et al. [27]	Pain intensity: 10.50 ± 16.79 *vs.* 27.93 ± 52 ($p = 0.160$).	Frequency reduced: 13.00 *vs.* 46.63 days/month ($p = 0.009$).	N/M
Álvarez-Melcón et al. [58]	Significant reduction: Mean 4.23 *vs.* 4.58 ($p < 0.001$).	Duration reduced ($p < 0.001$).	N/M
Park et al. [28]	N/M	Frequency reduced: 9.10 *vs.* 10.25 days/4 weeks ($p < 0.001$).	N/M
Chatchawan et al. [29]	Significant reduction: 2.32 *vs.* 2.93 ($p < 0.001$).	Duration reduced: 6.88 *vs.* 10.38 hours.	Mild fever, mild soreness, and discomfort.
Choi et al. [30]	Significant reduction: 5.1 ± 2.1 *vs.* 7.1 ± 1.6 ($p = 0.001$).	Frequency: 7.4 *vs.* 10.5 days/month ($p = 0.109$).	N/M
Martín-Vera et al. [31]	Significant reduction: 5.1 ± 2.1 *vs.* 7.1 ± 1.6 ($p = 0.001$).	Frequency: 7.4 *vs.* 10.5 days/ month.	N/M
Antonia (Gomez) et al. [32]	Significant reduction with combined treatment ($p = 0.001$).	N/M	N/M
van Ettekoven et al. [33]	N/M	Frequency reduced: 1.95 days/ week ($p < 0.0001$).	N/M
Kanji et al. [34]	Significant reduction (44%, $p < 0.0001$).	No significant change in frequency.	Lack of quantification of sauna attendance; no adverse effects.
Madsen et al. [35]	No significant difference ($p = 0.231$).	Frequency reduced: 19 to 17 days ($p = 0.041$).	N/M
Xue et al. [36]	Significant reduction: 13.3h *vs.* 6.3h (duration/pain).	Frequency reduced: 3.0 *vs.* 1.2 per month.	N/M
Moraska et al. [37]	No significant difference ($p = 0.3$).	Frequency: 3.38 *vs.* 3.21 ($p = 0.026$).	N/M

Continued

Study (References)	Pain intensity outcomes (group 1 *vs.* group 2)	Frequency and duration outcomes	Adverse events/complications
Rinne et al. [38]	No between-group difference (p = 0.66).	Duration decreased but no sig diff (p = 0.24).	Feasible and safe to perform.
Karst et al. [39]	N/M	No significant differences in frequency.	N/M
Torelli et al. [40]	N/M	Reduced days: 14.5 to 10.5 (p < 0.001).	N/M
Bove et al. [41]	No significant effect.	Duration unchanged.	N/M
Hamed et al. [42]	Significant reduction (p = 0.0001).	Decrease in headache frequency.	N/M
Karakurum et al. [43]	N/M	Frequency: 29.6 *vs.* 25.2/month.	N/M
Cabanillas-Barea et al. [44]	Significant reduction: 0.86 *vs.* 1.82 (p < 0.003).	Frequency reduced: 5.82 *vs.* 15.49 (p < 0.001).	N/M
Corum et al. [45]	Significant diff between manipulation and soft tissue (p = 0.014).	Frequency improvement (p < 0.001).	N/M
Sertel et al. [46]	Significant reduction: 2.50 *vs.* 5.65 (p = 0.001).	N/M	N/M
Kwon et al. [47]	Significant reduction: 2.73 *vs.* 3.13 (p = 0.057).	N/M	N/M
Espí-López et al. [48]	N/M	N/M	N/M
Azhdari et al. [49]	Significant reduction: 3.04 *vs.* 6.75 (p = 0.001).	Frequency reduced: 4.91 *vs.* 5.25.	N/M
Georgoudis et al. [50]	Significant effect of time on VAS (p<.001).	N/M	N/M
Georgoudis et al. [51]	N/M	Frequency: 3.25 *vs.* 4.50 (p = 0.004).	N/M
Cho et al. [52]	N/M	N/M	N/M
Ghanbari et al. [53]	No significant difference (p = 0.486).	Frequency: 9.33 *vs.* 10.03 (p = 0.508).	N/M
Ebneshahidi et al. [54]	Significant reduction: –5 *vs.* −1 (p = 0.001).	Duration reduced: –6 *vs.* –1 hours (p = 0.001).	N/M
Abaschian et al. [55]	Significant reduction: 5.52 *vs.* 5.12 (p = 0.001).	Frequency: 10.33 *vs.* 11.77 (p = 0.018).	N/M
Berggreen et al. [56]	Significant reduction (p = 0.047).	N/M	N/M
Espí-López et al. [57]	Significant reduction (p = 0.03).	N/M	N/M

by short follow-up periods, necessitating future research with longer observation timelines.

Conclusion

Based on high-quality evidence from 51 RCTs, physical therapy is an effective and safe intervention for TTH. It significantly reduces headache burden with minimal risk of adverse events. To optimize clinical practice, a multimodal approach combining manual therapy and active exercise is recommended. Future studies should focus on long-term follow-up and standardized treatment protocols.

Acknowledgments

None.

List of Abbreviations

GBD	global burden of disease
NSAIDs	non-steroidal anti-inflammatory drugs
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROSPERO	International Prospective Register of Systematic Reviews
RCTs	randomized controlled trials
TTH	tension-type headache

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Funding

None.

Ethical approval

Not applicable (Systematic review of existing literature).

Author details

Adnan Ahmed Badahdah[1], Majed Hassan Alahmadi[2], Gharam Abdulaziz Alahmadi[3], Mohamad Bassel Dahha[3], Amal Abdullah Alzahrani[4], Ahad A. Alkenani[5], Yazeed Abdulrahman Alqahtani[6], Khalid M. Alrashidi[7], Nourah Ali Alqhtani[8], Amjad Adel Alosaimi[9], Bashayer N. Alkorbi[10]

1. Department of Medicine, University of Jeddah, Jeddah, Saudi Arabia
2. Radiology Department, Royal Commission Hospital, Yanbu, Saudi Arabia
3. College of Medicine, Ibn Sina National College, Jeddah, Saudi Arabia
4. College of Medicine, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia
5. Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

6. College of Medicine, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia
7. College of Medicine, University of Hail, Hail, Saudi Arabia
8. College of Applied Medical Sciences, Tabuk University, Tabuk, Saudi Arabia
9. College of Medicine, Taif University, Taif, Saudi Arabia
10. College of Medicine, Najran University, Najran, Saudi Arabia

Supplementary content (If any) is available online.

References

1. International Headache Society. Tension-type headache awareness Campaign [Internet]. 2025 [cited 2025 Feb 20]. London, UK: International Headache Society. Available from: https://ihs-headache.org/en/resources/tension-type-headache-awareness-campaign/
2. Simić S, Rabi-Žikić T, Villar JR, Calvo-Rolle JL, Simić D, Simić SD. Impact of individual headache types on the work and work efficiency of headache sufferers. Int J Environ Res Public Health. 2020;17(18):6664. https://doi.org/10.3390/ijerph17186918
3. Stovner LJ, Hagen K, Linde M, Steiner TJ. The global prevalence of headache: an update, with analysis of the influences of methodological factors on prevalence estimates. J Headache Pain. 2022;23(1):34. https://doi.org/10.1186/s10194-022-01402-2
4. Bendtsen L, Ashina S, Moore A, Steiner TJ. Muscles and their role in episodic tension-type headache: implications for treatment. Eur J Pain. 2016;20(2):166–75. https://doi.org/10.1002/ejp.748
5. Kelman L, Rains JC. Headache and sleep: examination of sleep patterns and complaints in a large clinical sample of migraineurs. Headache. 2005;45(7):904–10. https://doi.org/10.1111/j.1526-4610.2005.05159.x
6. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372(71):n71. https://doi.org/10.1136/bmj.n71
7. Sterne JA, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019;366:l4898. https://doi.org/10.1136/bmj.l4898
8. Damapong P, Kanchanakhan N, Eungpinichpong W, Putthapitak P, Damapong P. A randomized controlled trial on the effectiveness of court-type traditional Thai massage versus amitriptyline in patients with chronic tension-type headache. Evid Based Complement Alternat Med. 2015;2015:930175.
9. Gildir S, Tuzun EH, Eroglu G, Eker L. A randomized trial of trigger point dry needling versus sham needling for chronic tension-type headache. Med (Baltimore). 2019;98(8):e14520.
10. Endres HG, Böwing G, Diener HC, Lange S, Maier C, Molsberger A, et al. Acupuncture for tension-type headache: a multicentre, sham-controlled, patient-and observer-blinded, randomised trial. J Headache Pain. 2007;8(5):306–14.
11. Mohamadi M, Rojhani-Shirazi Z, Assadsangabi R, Rahimi-Jaberi A. Can the positional release technique affect central sensitization in patients with chronic tension-type headache? a randomized clinical trial. Arch Phys Med Rehabil. 2020;101(10):1696–703.
12. Söderberg E, Carlsson J, Stener-Victorin E. Chronic tension-type headache treated with acupuncture, physical training and relaxation training: between-group differences. Cephalalgia. 2006;26(11):1320–9.
13. Kwon J, Yoon Y. Comparison of the effects of temporomandibular joint and cervical vertebra treatment on pain and functional improvement in persons with tension-type headaches. J Phys Ther Sci. 2019;31(4):353–6.
14. Aslam S, Ahmed A, Zia S. Comparison of trigger point therapy and conventional physical therapy in tension type headaches. Rehabil J. 2019;3(1):14–7.
15. Espí-López GV, Rodríguez-Blanco C, Oliva-Pascual-Vaca A, Molina-Martínez F, Falla D. Do manual therapy techniques have a positive effect on quality of life in people with tension-type headache?. Eur J Phys Rehabil Med. 2016;52(4):447–56.
16. Kamali F, Mohamadi M, Fakheri L, Mohammadnejad F. Dry needling versus friction massage to treat tension type headache: a randomized clinical trial. J Bodyw Mov Ther. 2019;23(1):89–93.
17. Saad NG, Yamany AA, Azzam AA, Grase MO. Effect of instrument-assisted soft tissue mobilization on trigger points of tension headache. Turkish J Physiother Rehabil. 2021;32(3):9320.
18. Espí-López GV, Rodríguez-Blanco C, Oliva-Pascual-Vaca A, Benítez-Martínez JC, Lluch E, Falla D. Effect of manual therapy techniques on headache disability in patients with tension-type headache. Eur J Phys Rehabil Med. 2014;50(6):641–7.
19. Ferragut-Garcías A, Plaza-Manzano G, Rodríguez-Blanco C, Velasco-Roldán O, Pecos-Martín D, Oliva-Pascual-Vaca J, et al. Effectiveness of a treatment involving soft tissue techniques and/or Neural mobilization techniques in the management of TTH. Arch Phys Med Rehabil. 2017;98(2):211–9.
20. Ajimsha MS. Effectiveness of direct vs indirect technique myofascial release in the management of tension-type headache. J Bodyw Mov Ther. 2011;15(4):431–5.
21. Castien RF, Van Der Windt DA, Grooten A, Dekker J. Effectiveness of manual therapy for chronic tension-type headache: a pragmatic, randomised, clinical trial. Cephalalgia. 2011;31(2):133–43.
22. Hosseinifar M, Bazghandi R, Azimi Z, Bohlouli BK. Effectiveness of neck myofascial release techniques and exercise therapy on pain intensity and disability in patients with chronic tension-type headache. Glob J Health Sci. 2017;9(6):47–54.
23. Gopichandran L, Srivastsava AK, Vanamail P, Kanniammal C, Valli G, Mahendra J, et al. Effectiveness of progressive muscle relaxation and deep breathing exercise on pain, disability, and sleep among patients with chronic tension-type headache. Holist Nurs Pract. 2024;38(5):285–96.
24. Shafiq M, Mukhtiar S, Naseer M, et al. Effectiveness of Soft Tissue Mobilization & Trigger Point Release Versus Stretching on Tension Type Headache Among University Students. J Riphah Coll Rehab Sci. 2023;11(2).
25. Pérez-Llanes R, Ruiz-Cárdenas JD, Meroño-Gallut AJ, Fernández-Calero MI, Ríos-Díaz J. Effectiveness of suboccipital muscle inhibition combined with interferential current in patients with chronic tension-type headache. Neurologia. 2022;37(9):717–25.

26. Cabanillas-Barea S, Pérez-Guillén S, López-De-Celis C, Rodríguez-Sanz J, Fanlo-Mazas P, Carrasco-Uribarren A. Effects of diacutaneous fibrolysis in patients with tension-type headache: a randomized controlled trial. PLoS One. 2023;18(3):282469.
27. Monti-Ballano S, Jiménez-Sánchez C, et al. Effects of Dry Needling on Active Myofascial Trigger Points and Pain Intensity in Tension-Type Headache. J Pers Med. 2024;14(4):332.
28. Park SY. Effects of relaxation approach with self-exercise on head posture, static postural stability, and headache in persons with tension-type headache. J Phys Ther Sci. 2016;28(10):2738–42.
29. Chatchawan U, Eungpinichpong W, Sooktho S, Tiamkao S, Yamauchi J. Effects of Thai traditional massage on pressure pain threshold and headache intensity in patients with chronic tension-type and migraine headaches. J Altern Complement Med. 2014;20(6):486–92.
30. Choi W, Woo J, Lee S. Effects of treatment of temporomandibular disorders on headache, quality of life, and neck function in patients with tension-type headaches: a randomized clinical trial. J Phys Ther Sci. 2020;32(8):512–6.
31. Martín-Vera D, Sánchez-Sierra A, González-de-la-Flor A, García-Pérez-de-Sevilla G, Domínguez-Balmaseda D, Del-Blanco-Muñiz JÁ. Efficacy of a strength-based exercise program in patients with chronic tension type headache: a randomized controlled trial. Front Neurol. 2023;14:1164137.
32. Gómez-Conesa A, Espí-López GV. Efficacy of manual and manipulative therapy in the perception of pain and cervical motion in patients with tension-type headache. J Chiropr Med. 2014;13(1):4–13.
33. Van Ettekoven H, Lucas C. Efficacy of physiotherapy including a craniocervical training programme for tension-type headache; a randomized clinical trial. Cephalalgia. 2006;26(8):983–91.
34. Kanji G, Weatherall M, Peter R, Purdie G, Page R. Efficacy of regular sauna bathing for chronic tension-type headache: a randomized controlled study. J Altern Complement Med. 2015;21(2):103–9.
35. Madsen BK, Søgaard K, Andersen LL, Tornøe B, Jensen RH. Efficacy of strength training on tension-type headache: a randomised controlled study. Cephalalgia. 2018;38(10):1660–72.
36. Xue CC, Dong L, Polus B, English RA, Zheng Z, Da Costa C, et al. Electroacupuncture for tension-type headache on distal acupoints only: a randomized, controlled, crossover trial. Headache. 2004;44(4):333–41.
37. Moraska AF, Stenerson L, Butryn N, Krutsch JP, Schmiege SJ, Mann JD. Myofascial trigger point-focused head and neck massage for recurrent tension-type headache: a randomized, placebo-controlled clinical trial. Clin J Pain. 2015;31(2):159–68.
38. Rinne M, Garam S, Kukkonen-Harjula K, Tokola K, Häkkinen A, Ylinen J, et al. Neck–Shoulder Region Training for Chronic Headache in Women: a Randomized Controlled Trial. Clin Rehabil. 2023;37(10):1322–31.
39. Karst M, Reinhard M, Thum P, Wiese B, Rollnik J, Fink M. Needle acupuncture in tension-type headache: a randomized, placebo-controlled study. Cephalalgia. 2001;21(6):637–42.
40. Torelli P, Jensen R, Olesen J. Physiotherapy for tension-type headache: a controlled study. Cephalalgia. 2004;24(1):29–36.
41. Bove G, Nilsson N. Spinal manipulation in the treatment of episodic tension-type headache: a randomized controlled trial. JAMA. 1998;280(18):1576–9.
42. Hamed NS. Supraorbital electrical stimulation in management of chronic type tension headache: a randomized controlled study. Physiother Theory Pract. 2018;34(2):101–10.
43. Karakurum B, Karaalin O, Coskun O, Dora B, Üçler S, Inan L. The 'dry-needle technique': intramuscular stimulation in tension-type headache. Cephalalgia. 2001;21(8):813–7.
44. Cabanillas-Barea S, Ceballos-Laita L, Perez-Guillen S, Jimenez-del-Barrio S, Pardos-Aguilella P, Ramon Rodriguez-rubio P, et al. The addition of diacutaneous fibrolysis to a pharmacological intervention in patients with tension-type headache. J Clin Med. 2022;11(22):6847.
45. Corum M, Aydin T, Ceylan CM, Kesiktas FN. The comparative effects of spinal manipulation, myofascial release and exercise in tension-type headache patients with neck pain. Complement Ther Clin Pract. 2021;43:101348.
46. Sertel M, Bakar Y, Åžimåÿek TT. The effect of body awareness therapy and aerobic exercises on pain and quality of life in the patients with tension type headache. Afr J Tradit Complement Altern Med. 2017;14(2):288–310.
47. Kwon SH, Chung EJ, Lee J, Kim SW, Lee BH. The effect of hamstring relaxation program on headache, pressure pain threshold, and range of motion in patients with tension headache. Int J Environ Res Public Health. 2021;18(19):10137.
48. Espí-López GV, Zurriaga-Llorens R, Monzani L, Falla D. The effect of manipulation plus massage therapy versus massage therapy alone in people with tension-type headache. A randomized controlled clinical trial. Eur J Phys Rehabil Med. 2016;52(5):606–17.
49. Azhdari N, Kamali F, Vosooghi O, Petramfar P, Rahimijaberi A. The effect of manual therapies on tension-type headache in patients who do not respond to drug therapy: a randomized clinical trial. J Man Manip Ther. 2023;31(4):246–52.
50. Georgoudis G, Felah B, Nikolaidis P, Damigos D. The effect of myofascial release and microwave diathermy combined with acupuncture versus acupuncture therapy in tension-type headache patients. Physiother Res Int. 2018;23(2):1704.
51. Georgoudis G, Felah B, Nikolaidis PT, Papandreou M, Mitsiokappa E, Mavrogenis A, et al. The effect of physiotherapy and acupuncture on psychocognitive, somatic, quality of life, and disability characteristics in TTH patients. J Pain Res. 2018;11:2527–35.
52. Cho SH, Kim SH, Park SJ. The effect of suboccipital muscle inhibition and posture correction exercises on chronic tension-type headaches. J Back Musculoskelet Rehabil. 2021;34(6):989–96.
53. Ghanbari A, Rahimijaberi A, Mohamadi M, Abbasi L, Sarvestani FK. The effect of trigger point management by positional release therapy on tension type headache. NeuroRehabilitation. 2012;30(4):333–9.

54. Ebneshahidi NS, Heshmatipour M, Moghaddami A, Eghtesadi-Araghi P. The effects of laser acupuncture on chronic tension headache--a randomised controlled trial. Acupunct Med. 2005;23(1):13–8.

55. Abaschian F, Mansoursohani S. Comparison of the effects of deep dry needling into trigger points of temporalis, sternocleidomastoid and upper trapezius on females with episodic tension type headache. J Res Rehabil Sci. 2020;16:150–8.

56. Berggreen S, Wiik E, Lund H. Treatment of myofascial trigger points in female patients with chronic tension-type headache–a randomized controlled trial. Physiother Theory Pract. 2012;28(5):377–89.

57. Espí-López GV, Gómez-Conesa A, Gómez AA, Martínez JB, Pascual-Vaca AO, Blanco CR. Treatment of tension-type headache with articulatory and suboccipital soft tissue therapy: a randomized clinical trial. J Bodyw Mov Ther. 2014;18(4):576–85.

58. Alvarez-Melcon AC, Valero-Alcaide R, Atin-Arratibel MA, Melcón-Álvarez A, Beneit-Montesinos JV. Effects of physical therapy and relaxation techniques on the parameters of pain in university students with tension-type headache. Neurologia. 2018;33(4):233–43.

59. Repiso-Guardeño A, Moreno-Morales N, Armenta-Pendón MA, Rodríguez-Martínez MD, Pino-Lozano R, Armenta-Peinado JA. Physical therapy in tension-type headache: a systematic review of randomized controlled trials. Int J Environ Res Public Health. 2023;20(5):4466. https://doi.org/10.3390/ijerph20054466

60. Cumplido-Trasmonte C, Fernández-González P, Alguacil-Diego IM, Molina-Rueda F. Manual therapy in adults with tension-type headache: a systematic review. Neurologia (Engl Ed). 2021;36(7):537–47. https://doi.org/10.1016/j.nrleng.2017.12.005

61. Onan D, Arıkan H, Ekizoğlu E, Taşdelen B, Özge A, Martelletti P. The efficacy of physiotherapy approaches in chronic tension-type headache: a systematic review and meta-analysis. J Oral Facial Pain Headache. 2025;39(1):34–48.

62. Qin L, Song P, Li X, Yang L, Xu F, Zhu X, et al. Tension-type headache management: a systematic review and network meta-analysis of complementary and alternative medicine. Pain Ther. 2024;13(4):691–717. https://doi.org/10.1007/s40122-024-00600-x

63. Krøll LS, Callesen HE, Carlsen LN, Birkefoss K, Beier D, Christensen HW, et al. Manual joint mobilisation techniques, supervised physical activity, psychological treatment, acupuncture and patient education for patients with tension-type headache. A systematic review and meta-analysis. J Headache Pain. 2021;22(1):96. https://doi.org/10.1186/s10194-021-01298-4

64. Jung A, Eschke RC, Struss J, Taucher W, Luedtke K. Effectiveness of physiotherapy interventions on headache intensity, frequency, duration and quality of life of patients with tension-type headache. A systematic review and network meta-analysis. Cephalalgia. 2022;42(9):944–65. https://doi.org/10.1177/03331024221082073