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Review Article

Acupuncture for Chronic Prostatitis or Chronic Pelvic Pain Syndrome: An Updated Systematic Review and Meta-Analysis

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Background. Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a complex male dysfunction, mostly seen in young and middle-aged men with a history of more than 3 months. As a traditional therapy of Traditional Chinese Medicine, acupuncture has been proven an effective method to treat CP/CPPS in recent years. Though some meta-analyses on acupuncture for chronic prostatitis were published in 2018 and 2019, most of the included studies were low in quality according to the JADAD score (JADAD < 4). The conclusions of acupuncture for CP/CPPS remain indefinite. *Purpose*. This review aims to evaluate the efficacy of acupuncture for CP/CPPS by including high-quality literature only (JADAD ≥ 4) to provide a reliable basis for clinical applications and research. *Method*. Nine electronic databases were searched from inception to March 1, 2022, and only randomized controlled trials (RCT) with high-quality (JADAD ≥ 4) were included. Data were analyzed using Review Manager 5.3. and was verified through trial sequential analysis (TSA). We carried out a sensitivity analysis for the heterogeneity ($I^2 \geq 50\%$). Publication bias was explored using a funnel plot. *Result*. Ten RCTs (11 trials) of high-quality methodology involving 798 patients were included. Meta-analysis showed that compared to sham acupuncture (SAT) and western medicine (WM), acupuncture (AT) played superior roles for CP/CPPS patients in pain score, NIH-CPSI score, quality of life score, urinary symptom, and efficacy rate. As for the adverse effects, 4 RCTs described mild hematoma and pain in AT and SAT groups, while specific symptoms including nausea, abdominal pain, dizziness, and low blood pressure were reported in WM groups. *Conclusion*. This meta-analysis indicated that acupuncture has measurable benefits on CP/CPPS, and security has also been ensured. However, this meta-analysis only included 10 RCTs; thus, RCTs with a larger sample size and longer-term observation are required to verify the effectiveness of acupuncture further in the future.

1. Introduction

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a complex neurological dysfunction, and the incidence is on the rise year by year. According to foreign reports, the incidence of prostatitis is about 9%, and the recurrence rate is 20%–50% [1]. In China, epidemiologic studies have shown that the incidence of CP/CPPS is higher than in other countries, about 6.0% to 32.9% [2–4]. Patients with CP/CPPS usually suffer from varying degrees of pelvic pain or discomfort, and lower urinary tract symptoms and most prominent in the elderly [5]. It has ranked fourth among the 20 principal diagnostic diseases in the United States [6] and the third most commonly found urinary tract disease in men [7]. Men with chronic prostatitis have low blood flow in the common iliac vein, suggesting that pelvic congestion may be related to this condition [8]. The urinary tract is naturally colonized with a specific microbiome, and any imbalance may cause impairment and functional disorders [9]. Patients with CP/CPPS often

experience urinary symptoms in their filling phase, urethral pain in the voiding phase, and recurrent urinary tract infections, which severely impact the patients' quality of life. Further, evidence supports a correlation between male infertility and prostatitis, as the prostate gland is the primary male accessory gland for male fertility. Many cases are underdiagnosed and undertreated by physicians [10].

Typical therapies such as alpha-blockers, antibiotics, and anti-inflammatory medications occur with relatively modest effects on physiological functions; acupuncture may be an important consideration in difficult-to-treat pain syndromes. As a nonpharmacological intervention, acupuncture is a comprehensive concept of physical therapy that involves all kinds of needling techniques, moxibustion, and acupoint stimulation therapies. Researchers have confirmed that acupuncture is effective for CP/CPPS; however, most of the publications were nonrandomized studies [11–16]. Besides, though three similar SRs regarding acupuncture for CP/CPPS were published in 2018 [17], 2019 [18],and 2020 [19], according to the JADAD score, most of the included studies were low in quality. Furthermore, several relative trials [20–22] were conducted after the retrieval deadline (up to February, 2019) in 2020. Therefore, it is necessary to update a new SR by setting restricted inclusion and exclusion criteria and expanding search fields to draw a definite conclusion about acupuncture for CP/CPPS.

2. Material and Methods

2.1. Search Strategy. This review was reported in conformity with the Preferred Reporting Item for Systematic Review and Meta-Analyses Statement. We searched PubMed, EMBASE, Springer, ICTRP, the Cochrane Library, China National Knowledge Infrastructure (CNKI), Technology Periodical Database (VIP), Wan Fang Data, and China Biology Medicine (CBM) from the earliest available date until September 15, 2022. The following keywords were used: acupuncture (AT), chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS), and randomized controlled trial (RCT). The language was restricted to Chinese and English. Study screening was performed independently by two researchers (Juanhong Pan and Di Zhang). Detailed search strategies based on guidance from the Cochrane handbook for PubMed, the Cochrane Library, and China National Knowledge Infrastructure (CNKI) would employ similar strategies for the other databases.

2.2. Quality of Studies. The methodological quality was assessed using an improved JADAD scale (0–3: low quality; 4–7: high-quality), and only articles with high-quality (JADAD ≥ 4) were included. Risk of bias was also performed by two reviewers (J.H.P. and D.Z.) following the Cochrane Handbook for Systematic Reviews of Interventions, Version 5.3. The items included random sequence generation (selection bias), allocation concealment (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective reporting (reporting bias), and other bias. The quality of all the included trials was categorized as low/unclear/high risk of bias ("Yes" for a low risk of bias, "No" for a high risk of bias, and "Unclear" otherwise). We evaluated every study and made judgments about potential bias.

2.3. Inclusion/Exclusion Criteria. The inclusion/exclusion criteria are available in the published protocols [23]. After we reviewed relevant articles, eligibility criteria for this review based on PICOS frameworks (population, intervention, comparison, outcome, and study) were as follows: (1) participants suffered from CP/CPPS; (2) broad acupuncture including traditional acupuncture (manual acupuncture, electronic acupuncture, dry needle, and scalp acupuncture) and acupuncture combination therapies (acupuncture combined with western medicine (it is medication, for example, tamsulosin capsule, levofloxacin hydrochloride or azithromycin capsules, and acupoint injection) seemed as experimental groups; (3) non -acupuncture was applied to control groups; (4) RCTs; (5) JADAD ≥ 4; and (6) study published in English or Chinese. Differences in sex, age, country, time, and race were not taken into account. Studies were excluded if they were nonrandomized studies or used other forms of acupuncture, such as transcutaneous electrical nerve stimulation and laser acupuncture. Grey literature databases and websites were not searched. There were no restrictions on population characteristics and publication type.

2.4. Data Extraction. Two authors (J.H.P. and D. Z.) screened the studies and collected the data independently according to the inclusion and exclusion criteria. The information of author, publication year, country (language), demographics of participants, intervention, positive or negative conclusion, treatment duration (number), treating time, frequency (per week), time (per day), follow-up, outcomes, and JADAD score were recorded. All studies were managed with Endnote X9. Disagreements were resolved by discussion or umpired with a third reviewer (Y. W.).

2.5. Data Synthesis. We developed inclusion/exclusion criteria for screening articles, followed by data extraction and quality evaluation. We used Review Manager 5.3 software provided by the Cochrane Collaboration for data analyses and presented the final result. For the continuous data, the mean differences (MD) and 95% confidence intervals (CI) were used when outcomes were assessed by the same scale. I^2 statistical tests were adopted to assess the heterogeneity among studies. A fixed-effect model was applied to combine the data if the $I^2 < 50\%$; otherwise, a random effect model was applied. If $I^2 \geq 50\%$, the heterogeneity was high, and sensitivity analysis would be considered. The efficacy is dichotomous data and categorized into two levels ((1) effective and (2) inefficacious). The efficacy rate means the percentage of the total number of participants categorized in the first two levels. Publication bias was explored using a funnel plot.

2.6. Trial Sequential Analysis. Meta-analysis usually requires multiple tests, and random errors may sometimes lead to false significant results when data are accumulated, and the increased frequency of statistical tests in a meta-analysis increases the possibility of reporting such results [24]. However, trial sequential analysis (TSA) overcomes the shortcomings of classical meta-analysis and corrects for the increase of type 1 error [25].

TSA.0.9.5.10 beta, was used for sequential analyses. If the Z-curve exceeds the traditional boundary but does not cross the TSA boundary, it suggests that a false positive error may be made. If it intersects the TSA boundary, it suggests that the meta-analysis results are robust, even if the RIS is not reached. The Z curve did not intersect with the traditional cut-off value and the TSA cut-off value, and the positive or negative conclusion could not be drawn. The Z-curve intersects the null line, indicating no significance [26]. We set a two-sided 5% type I error risk (α) and 20% type II error risk (β) to calculate the amount of information needed, with a 20% relative risk (RRR) reduction and a control event rate derived from data from the meta-analysis.

3. Results

3.1. Study Selection. A flow chart depicts the search process and study selection (Figure 1). After primary searches from the databases, 2963 articles were screened. After reading the titles and abstracts, 2830 articles were excluded. Full texts of 133 articles were retrieved, and 123 articles were excluded with reasons listed as the following: not randomized ($n = 18$), no data for extraction ($n = 5$), low quality ($n = 30$), and others ($n = 70$). In the end, 10 RCTs were included. 5 were written by Chinese in Chinese [20, 21, 27–29], 3 [22, 30, 31] of which were written by Chinese in English, 1 by Malaysian in English [32], and 1 by Turkish in English [33].

3.2. Study Characteristics. The characteristics of included RCTs are listed in Tables 1 and 2. A total of 798 patients with CP/CPPS were included. There were 11 trials that specified 9 diagnostic criteria of CP/CPPS. The age, frequency, and treatment duration varied from 18 to 55 years, 1 d/w to 3 d/w, and 20 to 24 times a course, respectively. The intervention of treatment groups included scalp acupuncture, acupoint injection, electric acupuncture, acupuncture, and Tiaoshen acupuncture. The intervention of control groups included western medicine and sham acupuncture. The outcomes were NIH-CPSI, pain, urinary symptoms, quality of life, and efficacy rate.

3.3. Methodological Quality of Included Studies. The methodological quality of most included RCTs was generally "high" (JADAD ≥ 4), according to the quality assessment criteria with improved JADAD scale (Table 1) [20–22, 27–33]. Almost all the trials mentioned the randomized allocation of participants. Selective reporting was generally uncertain in the trials due to the inaccessibility of the trial protocol.

3.4. Risk of Bias. As shown in Figure 2, the 11 trials were at low risk. All of 11 trials reported random sequence generation and were assessed as low risk. 5 trials [21, 28, 32, 33] were assessed as unclear risk, 5 were assessed as low risk [20, 22, 28, 29, 31], and 1 [30] was assessed as high risk in the aspect of allocation concealment. In blinding of participants and personnel, 9 trials [21, 27–33]were assessed as unclear risk, 1 trial [20] was assessed as low risk, and 1 trial [31] was assessed as high risk. Also, 7 [21, 22, 27–29, 32] trials were assessed as unclear risk and 4 trials [20, 30, 31, 33] were assessed as low risk in the blinding of the outcome assessment. Of all these 11 trials, 7 trails [20, 21, 28, 29, 31, 32] were assessed as low risk and 4 [22, 27, 30, 33] were assessed as high risk, which was assessed in incomplete outcome data (Figure 2).

3.5. Publication Bias. As can be seen in Figure 3, all studies were not outside the funnel plot, but publication bias could be suspected based on the funnel plot asymmetry.

3.6. Trial Sequential Analysis. Eleven RCTS [20–22, 27–33] reported the total clinical effective rate, which were analyzed sequentially, with a type I error of 5% and a statistical power of 80%. The information axis was set as the cumulative sample size, and the sample size was used as the expected information value (RIS). Figure 4 [20, 21, 28, 29]shows that the Z-curve crosses the conventional boundary value and the TSA boundary value, indicating that the results obtained from this meta-analysis are robust and the efficacy of acupuncture in the treatment of CP and CPPS is positive. Meantime, the penalty curve also exceeded the traditional boundary value, which made the meta-analysis result more stable, but it did not reach the RIS value, and further research is needed.

In Figure 5 [22, 27, 30–33], although the Z curve crossed the traditional boundary value curve and the penalty curve crossed the traditional boundary value curve, the Z curve did not cross the TSA boundary value curve and did not reach the RIS value, indicating that the results of meta-analysis may have false positive, and further research is needed to further prove the efficacy of acupuncture and sham acupuncture in the treatment of CP and CPPS.

3.7. Effect of the Interventions. Based on various outcome measures (pain score, urinary symptom, NIH-CPSI score, quality of life, and efficacy), different pooled data from 11 trials were used. The data were divided into stratified analyses according to different interventions of control groups. The effect of acupuncture on CP/CPPS is shown below, respectively.

3.7.1. Acupuncture versus Western Medicine. A total of 4 studies [20, 21, 28, 29] including 1 three-arm trial [28] compared acupuncture with western medicine on CP/CPPS. It is obvious that acupuncture yielded the greatest benefits compared with western medicine in the NIH-CPSI score (-3.82 (95% CI, -6.54, -1.11), $P = 0.006$, $I^2 = 81\%$), pain

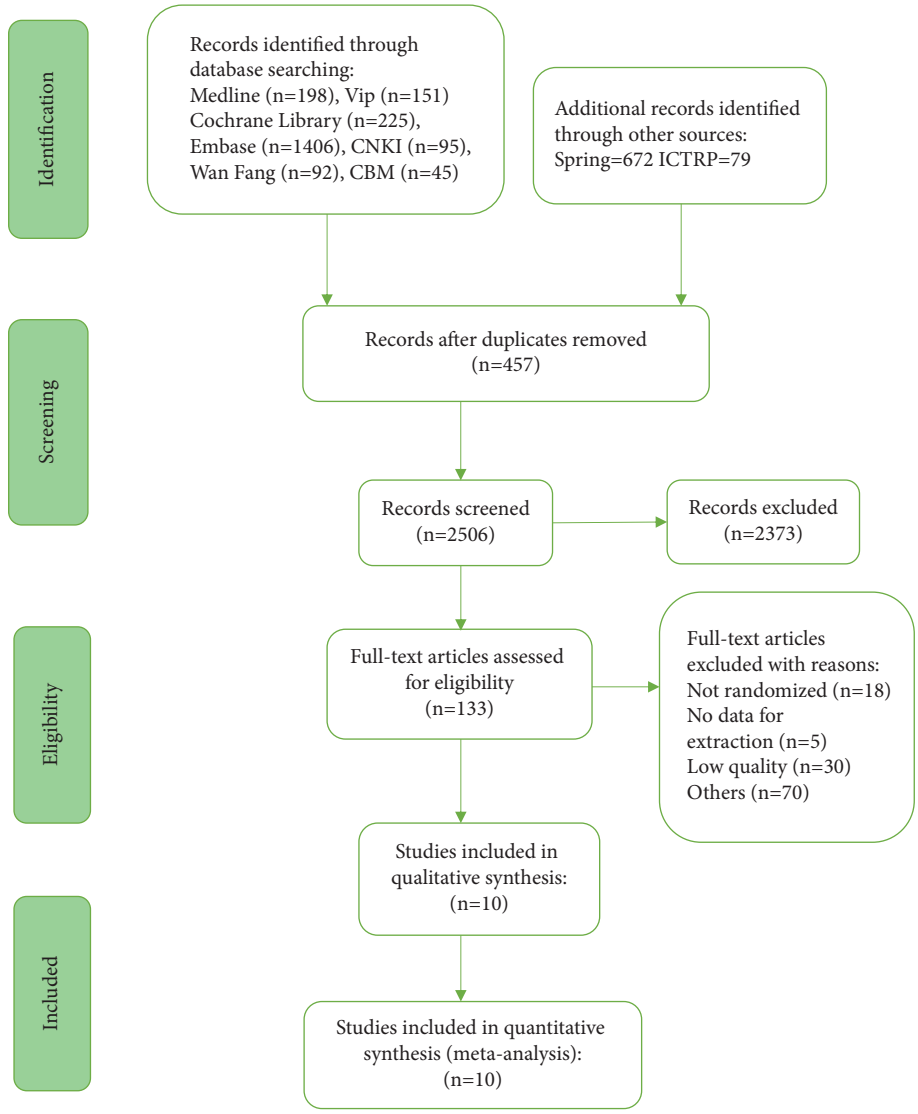


Figure 1: Flowchart of the selection process.

score [20, 28] (−2.31 (95% CI, −3.43, −1.19), $P < 0.0001$, $I^2 = 40\%$), and effective rate (2.95 (95% CI, 1.41, 6.18), $P = 0.004$, $I^2 = 0\%$) [20, 21, 28, 29]. Only 1 study [20] reported the outcome of quality of life score (−1.98 (95% CI −3.12, −0.84), $P = 0.0007$) and urinary symptom score, which had no significant differences between the two groups (−1.21 (95% CI, −2.48, 0.06), $P = 0.06$). (Figure 6).

Sensitivity analysis: by analyzing the sources of NIH-CPSI heterogeneity, we found that the heterogeneity decreased after excluding 1 three-arm trial with the intervention of scalp acupuncture [28] ($I^2 = 8\%$, $P < 0.00001$).

3.7.2. Acupuncture versus Sham Acupuncture. A total of 6 studies [22, 27, 30–33] compared acupuncture with sham acupuncture on CP/CPPS. Pooling of the data using a random effect model revealed that acupuncture could significantly improve the NIH-CPSI score (−6.41 (95% CI, −7.53, −5.29), $P < 0.00001$, $I^2 = 0\%$), pain score (−2.29 (95% CI, −2.99, −1.59), $P < 0.00001$, $I^2 = 36\%$), urinary symptom score (−1.68 (95% CI, −2.04, −1.32), $P < 0.00001$, $I^2 = 0\%$), the quality of life (−2.52 (95% CI, −3.64, −1.40), $P < 0.0001$, $I^2 = 76\%$), and effective rate (4.70 (95% CI, 3.02, 7.32), $P < 0.00001$, $I^2 = 38\%$) compared to sham acupuncture (Figure 7).

Sensitivity analysis: the source of the quality of life heterogeneity was analyzed. We found that the heterogeneity decreased ($I^2 = 17\%$, $P < 0.00001$) after eliminating 1 study with the frequency of 3 d/w [32].

4. Discussion

There were 10 studies, including 1 three-arm trial, with 798 patients included in the total. Acupuncture, as one of the traditional Chinese medicine therapies, includes many different acupuncture methods. In this meta-analysis, standard acupuncture and moxibustion, electroacupuncture, Tiaoshen acupuncture, scalp acupuncture, acupuncture combined with western medicine, and acupoint injection were all classified as broad acupuncture therapy

Table 1: Characteristics summary of included studies.

Author/year (number)	Country language	Patients	Diagnostic criteria	Treatment group				Control group					Outcomes	Positive or negative	Quality score (JADAD ≥ 4)
				Age	Sample size	Intervention	Frequency	Age	Sample size	Intervention	Frequency	Times			
Liang 2020 [20]	China (China)	CP	① + ② + ④ + ⑥ + ⑦ + ⑧	42.2 ± 12.8	31	Electric acupuncture + western medicine	1/2d	41.9 ± 13.0	30	Western medicine	1/d	45	a+b + b1 + b2 + b3 + c + e	+	6
Xia et al. 2020 [21]	China (China)	CP/CPPS	① + ② + ⑥ + ⑦ + ⑧	43.24 ± 6.23	33	Tiaoshen acupuncture	1/d	43.70 ± 6.25	34	Western medicine	2/d	24	a + b + e	+	4
Yang et al. 2018 [27]	China (China)	CP/CPPS	① + ② + ③ + ⑦ + ⑧ + ⑨	18–55	60	Acupuncture	3/w	18–55	57	Sham acupuncture	3/w	24	a + b + c + d	+	4
Chen et al. 2016a [28]	China (China)	CP/CPPS	① + ② + ⑥ + ⑧	18–48	30	Scalp acupuncture + western medicine	1/d	19–45	29	Western medicine	1/d	24	a + b	+	4
Chen et al. 2016b [28]	China (China)	CP/CPPS	① + ② + ⑥ + ⑧	18–47	29	Scalp acupuncture	1/d	19–45	29	Western medicine	1/d	24	a + b	_	4
Guo and Wang 2018 [29]	China (China)	CP/CPPS	① + ② + ④ + ⑥	28–48	37	Acupuncture + acupoint injection	1/d	24–49	37	Western medicine	1/d	10	a + e	+	5
Xie et al. 2021 [22]	China (English)	CP	① + ② + ⑦ + ⑧ + ⑨	35.17 ± 8.76	24	Acupuncture	3/w	35.48 ± 7.92	27	Sham acupuncture	3/w	20	a + b	+	5
S. H. Lee and B. C. Lee 2008 [32]	Malaysia (English)	CP/CPPS	① + ② + ③ + ⑦ + ⑧	≥20	44	Acupuncture	2/w	≥20	45	Sham acupuncture	2/w	20	a + b + b1 + b2 + b3 + c + e	+	5
Lee et al. 2011 [30]	China (English)	CP/CPPS	① + ② + ③ + ⑦ + ⑧	40.9 ± 11.0	44	Acupuncture	2/w	42.8 ± 9.4	45	Sham acupuncture	2/w	20	a	+	5
Qin et al. 2018 [31]	China (English)	CP/CPPS	① + ⑦ + ⑧ + ⑨	18–50	34	Acupuncture	3/w	18–50	34	Shan acupuncture	3/w	24	a + e	+	7
Sahin et al. 2015 [33]	Turkey (English)	CP/CPPS	① + ⑧ + ⑨	20–50	50	Acupuncture	1/w	20–50	50	Sham acupuncture	1/w	6	a + b + b1 + b2 + b3 + e	+	5

§: three-arm trial. Diagnostic criteria: symptoms: ①prostate or pelvic region pain history: persistent or recurrent discomfort or pain in the prostate or pelvic area more than 3 months; ②lower urinary tract pathologies or genitourinary pain in the prostate or pelvic area more than 3 months; ③sexual dysfunction: impotence, premature ejaculation, spermatorrhea, sexual desire decreases; physical examination; ④prostate palpitation: abnormal size, uneven surface, local tenderness, or a lot of prostate fluid flow; auxiliary examination; ⑤ultrasonic examination: a slightly deformed section but with no expansion, uneven and inconsistent capsule often accompanied with prostatolith, less or not a smooth echo of a prostatic capsule and less even or uneven internal echo; ⑥laboratory test: EPS (white blood cell >10/HP objective and reduced of lecithin capsule); NIH-CPSI: ⑦NIH-CPSI total score ≥15 scores; age: ⑧age ≥18; ⑨age ≤50. Outcomes: a. treatment efficacy; b. NIH-CPSI score; b1. pain score; b2. urinary symptom score; b3. quality of life score; c. IPSS score; d. recurrence rate; e. side-effect.

Table 2: The methods of acupuncture and chosen acupoints of the enrolled studies.

Author/year (number)	Acupuncture and acupoints
Liang 2020 [20]	Electro-acupuncture, 5 points, CV4 (Guanyuan), SP6 (Saninjiao, bilateral), and SP9 (Yinlinquan, bilateral)
Xia et al. 2020 [21]	Tiaoshen acupuncture, 14 points, HT7 (Shenmen), GV24 (Shenting), GB13 (Benshen, bilateral), BL24 (Qihai), CV4 (Guanyuan), CV3 (Zhongji), ST28 (Shuidao, bilateral), SP6 (Sanyinjiao), ST36 (Zusanli), BL63 (Jinmen), KI5 (Shuiquan), and LR3 (Taichong)
Yang et al. 2018 [27]	Acupuncture, 4 points, BL23 (Shenshu), BL33 (Zhongliao), BL35 (Huiyang), and SP6 (Sanyinjiao)
Chen et al. 2016 [28]	Acupuncture, 21 points, DU24 (Shenting), DU22 (Xinhui), DU21 (Qianding), DU20 (Baihui), BL6 (Chengguang), BL7 (Tongtian), BL8 (Luoque), DU18 (Qiangjian), DU17 (Naohu), BL9 (Yuzhen), BL10 (Tianzhu), CV3 (Zhongji), CV4 (Guanyuan), ST29 (Guilai), KI12 (Dahe), ST31 (Biguan), ashi points, BL28 (Pangguangshu), BL32 (Ciliao), BL54 (Zhibian), and GB30 (Huantiao)
Guo and Wang 2018 [29]	Acupuncture, 7 points, CV4 (Guanyuan), SP6 (Sanyinjiao), CV3 (Zhongji), SP10 (Xuehai), ST36 (Zusanli), BL20 (Pishu), BL23 (Shenshu), acupoint injection, 2 points, BL54 (Zhibian), and BL32 (Ciliao)
Xie et al. 2021 [22]	Acupuncture, 4 points, BL23 (Shenshu), BL33 (Zhongliao), BL35 (Huiyang), and SP6 (Sanyinjiao)
S. H. Lee and B. C. Lee 2008 [32]	Acupuncture, 4 points, CV4 (Guanyuan), CV1 (Huiyin), SP6 (Sanyinjia), and SP9 (Yinlingquan)
Lee et al. 2011 [30]	Acupuncture, 4 points, CV4 (Guan Yuan), CV1 (Huiyin), SP6 (Sanyinjiao), and SP9 (Yinlingquan)
Qin et al. 2018 [31]	Acupuncture, 5 points, BL33 (Zhongliao, bilateral), BL23 (Shenshu), BL35 (Huiyang), and SP6 (Sanyinjiao)
Sahin et al. 2015 [33]	Acupuncture, 7 points, BL33 (Zhongliao), BL34 (Xialiao), BL54 (Zhibian), CV1 (Huiyin), CV4 (Guanyuan), SP6 (Sanyinjiao), and SP9 (Yinlingquan)

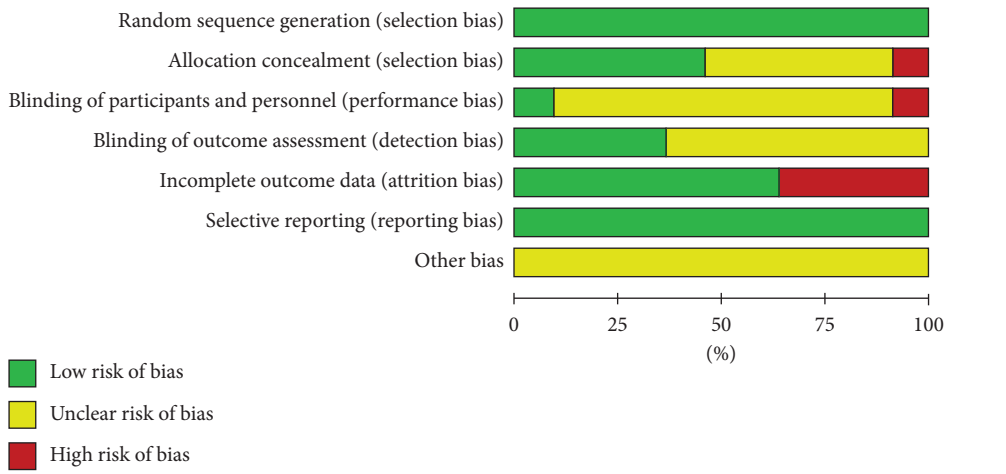
(AT). All of them have been evaluated and compared with western medicine and sham acupuncture.

The overall quality of these identified trials was high (JADAD ≥ 4). The overall trials were at low risk. All studies have reported random sequence generation and prespecified expected outcomes without missing data. However, some studies were recorded deficiently about the outcome of blinding of participants and outcome assessment, and meantime, it was hard to judge the existence of the important other bias due to the original data were not available.

Despite the methodological quality and risk of bias limitations, acupuncture (AT) displayed a superior effect in the improvement of pains, urinary symptom, quality of life, NIH-CPSI score, and efficacy than western medicine (WM) and sham acupuncture (SAT). We found that in the acupuncture versus western medicine group, the heterogeneity in NIH-CPSI decreased after excluding 1 study ($I^2 = 8\%$, $P < 0.00001$) [28], of which the intervention was scalp acupuncture, while the others were manipulated by body acupuncture. Our findings indicate that different acupuncture positions might be the sources of the heterogeneity. Besides, we found that there are no significant differences in improving urinary symptom scores between the two groups ($P = 0.06$), which was contrary to the original study. We speculated this inconsistency might be related to the process of raw data for being failed to contact the author. As for the results of quality of life in the acupuncture versus sham acupuncture group, the heterogeneity decreased ($I^2 = 17\%$, $P < 0.00001$) after eliminating 1 study [32]. According to Figures 2 and 7, the frequency of this study was 3 d/w, but other studies <3 d/w, which would be related to the high heterogeneity, and we speculated the frequency ≥3/w was more effective.

Meanwhile, to confirm the stability of the results of this meta-analysis, a trial sequential analysis was performed. Figure 4 [20, 21, 28, 29] shows that the *Z*-curve crosses the conventional boundary value and TSA boundary value, although it does not reach the RIS value, indicating that the results obtained in this meta-analysis are robust. Compared with western medicine, the efficacy of acupuncture in the treatment of CP and CPPS is positive, and the penalty curve also exceeds the traditional boundary value, making the results of the meta-analysis more stable. In Figure 5, [22, 27, 30–33], although the *Z*-curve crosses the traditional boundary value curve and the penalty curve crosses the traditional boundary value curve, the *Z* curve does not cross the TSA boundary value curve, indicating that there may be false positive results in the meta-analysis, and further research is needed to further prove the efficacy of acupuncture and sham acupuncture in the treatment of CP and CPPS. However, unfortunately, the *Z*-curve did not exceed the RIS value in both analyses, indicating that a lot of research is needed in this regard.

Because the etiology and pathophysiological mechanism of chronic prostatitis are still unclear, current reports suggest that the pathogenesis of CP/CPPS may be related to abnormal immune response [34], central sensitivity [35–37], oxidative stress [38], pelvic floor muscle spasm [39] and neuropsychology [40]. Currently, there is no clinically clear treatment for CP/CPPS. The traditional main measures of



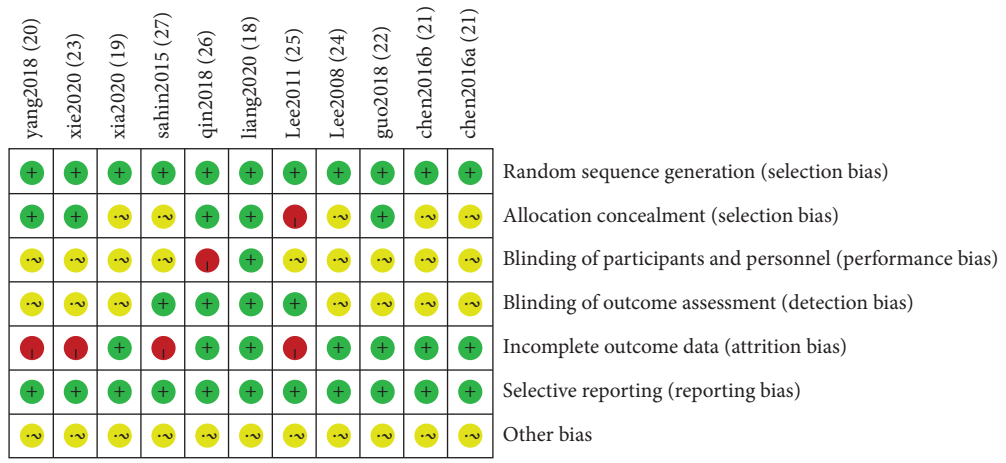


Figure 2: Risk of bias of included studies.

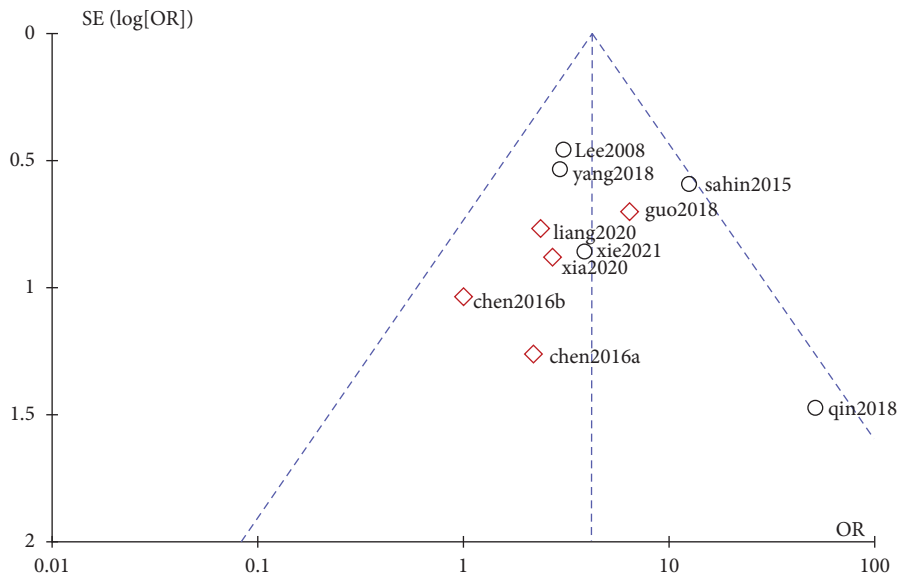


Figure 3: Publication bias of included studies.

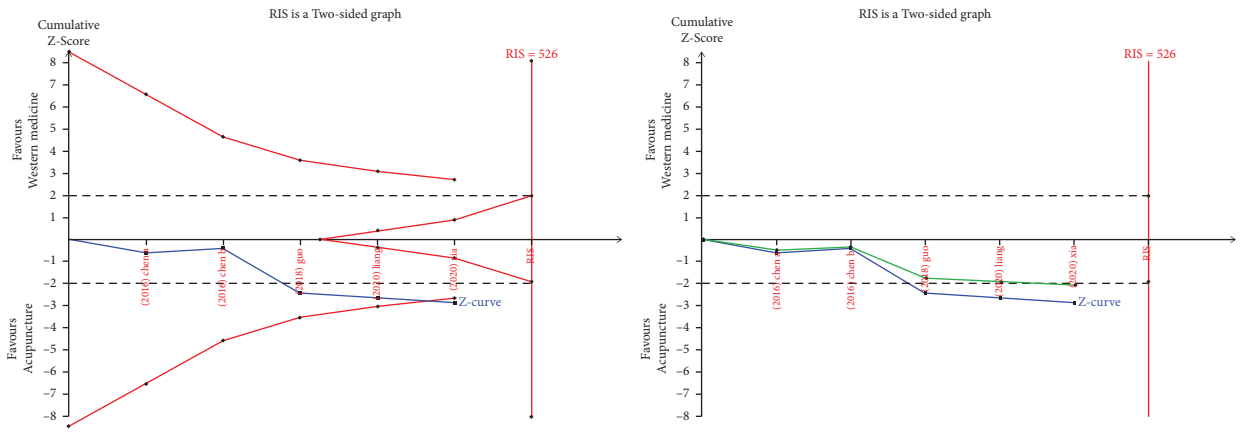


FIGURE 4: TSA on comparison of acupuncture verse western medicine in efficacy rate. The straight black line represents the conventional statistical boundary of $P = 0.05$. The blue line indicates the cumulative z-score of the meta-analysis. The red line indicates the TSA boundary. The green line represents the Z-curve after the penalty statistic. RIS represents the required size of information.

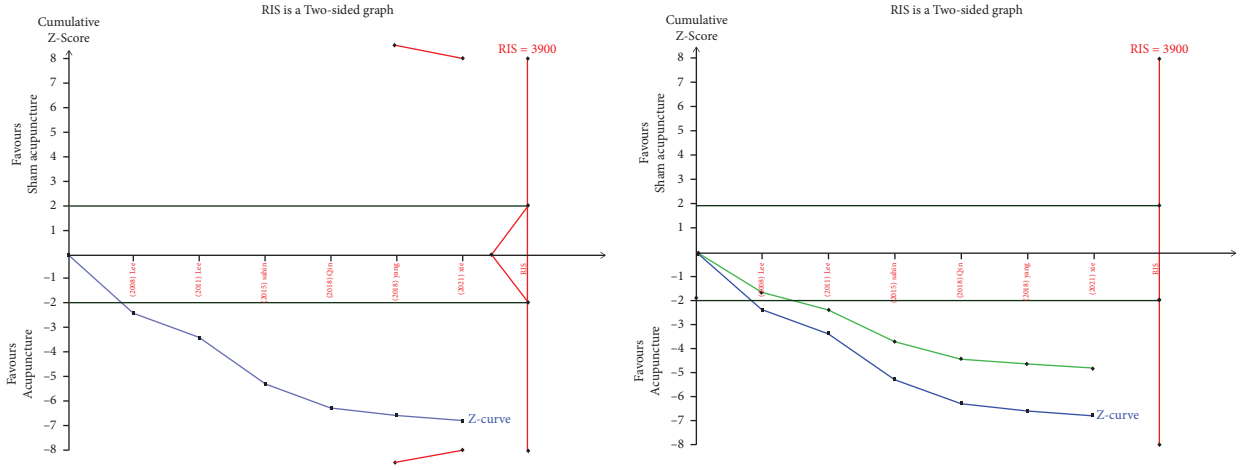


FIGURE 5: TSA on comparison of acupuncture verse sham acupuncture in efficacy rate. The straight black line represents the conventional statistical boundary of $P = 0.05$. The blue line indicates the cumulative z-score of the meta-analysis. The red line indicates the TSA boundary. The green line represents the Z-curve after the penalty statistic. RIS represents the required size of information.

CP/CPPS include taking anti-inflammatory drugs, antibiotics, and α receptor blockers, but long-term use will lead to adverse reactions such as nausea, dizziness, gastrointestinal discomfort, and hypotension [41], and some drugs even have no obvious therapeutic effect [42, 43]. Therefore, patients turn to alternative therapies such as acupuncture and cognitive behavioral therapy, especially acupuncture, which has been recognized for its good efficacy and high acceptance.

Related studies have shown that acupuncture can significantly reduce the pain of CP/CPPS patients, improve the NIH-CPSI symptoms, and improve the quality of life in patients [44]; the reasons include the following three mechanisms: (1) acupuncture can reduce the expression levels of interleukin (IL-6, IL-8), tumor necrosis factor (TNF) -α, prostaglandin E2, interferon (IFN) -γ and other inflammatory factors [45–52]. Increasing the expression levels of anti-inflammatory factors IL-2 and IL-10 and increasing the levels of CD3+, CD8+, and CD25+ in peripheral blood immune cells of CNP patients can regulate their immune function [53]. (2) Persistent chronic pain can reduce gray matter volume [36, 54] and activation [55] in brain regions such as the anterior cingulate gyrus in CP patients. The research on the central mechanism of acupuncture in the treatment of CP is still unclear, but there have been a large number of studies on the central analgesic effect of acupuncture [56]. For example, acupuncture can inhibit the formation of synaptic plasticity and affect the central sensitization state, and regulate the mitogen-activated protein activation (MAPK) mainly cell signaling pathway by inhibiting glial cell activation, and downregulate the expression of TRPV1, purine receptor (P2X3), and endocannabinoid receptor. The central analgesic effect was comprehensively exerted [57]. (3) The increase of oxidative stress products leads to the sensitization of nerve endings, which is an important factor in the occurrence of CP

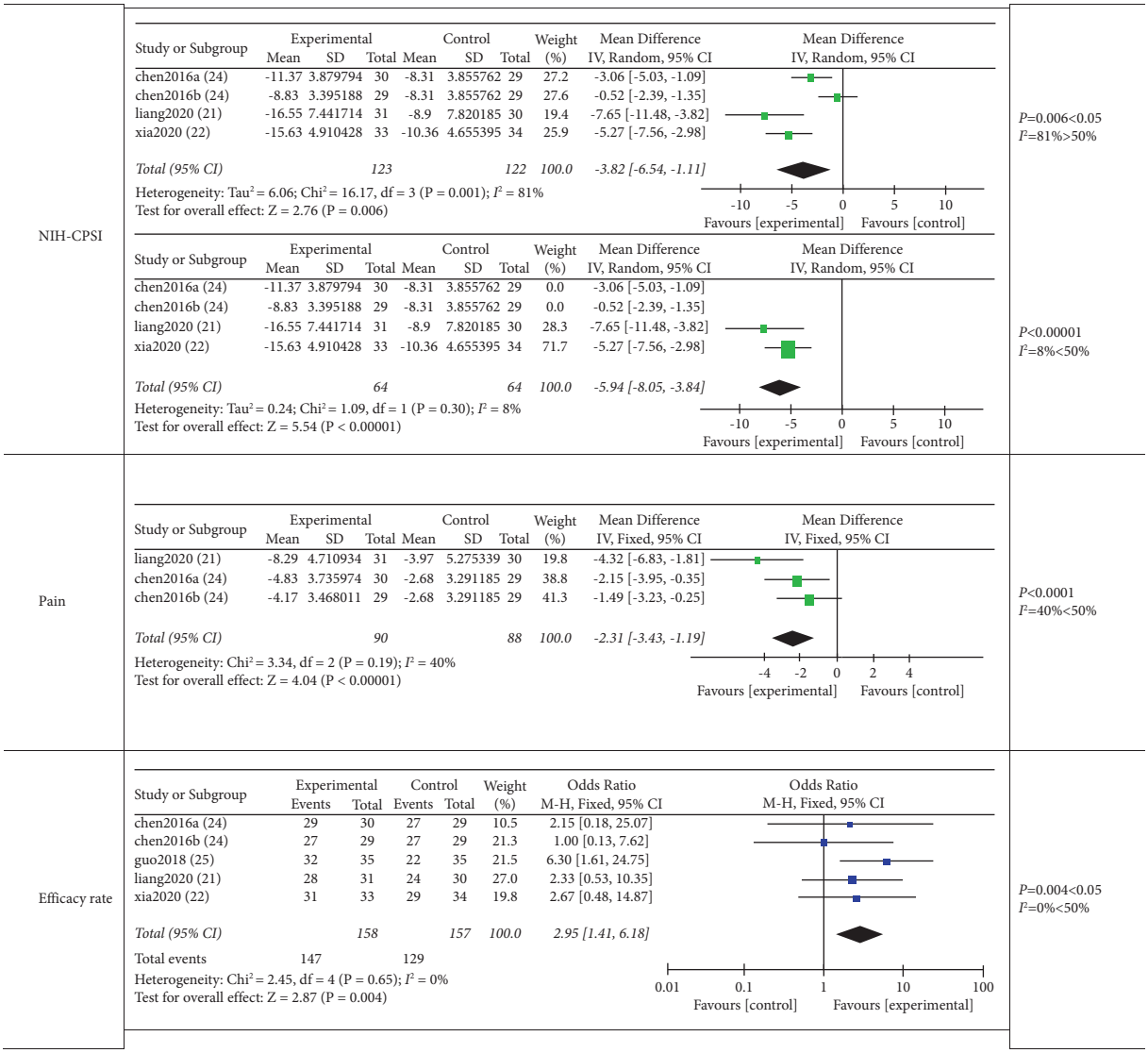


Figure 6: Meta-analysis on comparison of acupuncture verse western medicine in NIH-CPSI, pain, and efficacy rate.

[58, 59]. Among them, the release of substance P and the inhibition of β-endorphin release make CP patients continue to have pain symptoms [60, 61]. Acupuncture can reduce the release of substance P and inhibit the increase of β-endorphin secreted by immune cells, so as to alleviate the clinical symptoms of CP patients [62].

There are 4 studies [21, 22, 24, 28] that described the adverse events. In acupuncture and sham acupuncture groups, specific skin symptoms including mild subcutaneous bleeding and pain were reported, while in the western medicine groups, gastrointestinal symptoms including nausea, abdominal pain, dizziness, and low blood pressure were recorded. Compared to drugs, acupuncture was safer. The security of acupuncture is ensured.

This review indicated that acupuncture is of significant benefit for CP/CPPS by setting strict inclusion/exclusion criteria and controlling the methodology quality. However, there were several limitations in this review. First, the methodological flaw is blinding absence, including participant blinding, therapist blinding, and assessor blinding, and researchers should pay more attention to the use of blinding in the future. Second, the data were extracted from 10 high-quality studies (JADAD ≥ 4) (Table 1), while most of them were with small samples ($n < 50$), and larger sample size high-quality studies are needed to confirm the effectiveness of acupuncture. Third, it can be seen from feature Table 2 that the acupoints and the number of acupuncture points in the 10 RCT are different; for example, Xia 2020 has 14 points, and Chen 2016 has 21 points, but Yang 2018, Xie 2021, Lee 2008, and Lee 2011 only have 4 points. Because of the small number of included literature and no stratification, the choice of acupoint may have an impact on the results of meta-analysis. In the future, high-quality literatures can be accumulated for further exploration. Fourthly, in this meta-analysis, we did not analyze the efficacy of acupuncture and different drugs (such as tamsulosin capsules, levofloxacin hydrochloride, or azithromycin capsules) on CP/CPPS, and new meta-analyses can be

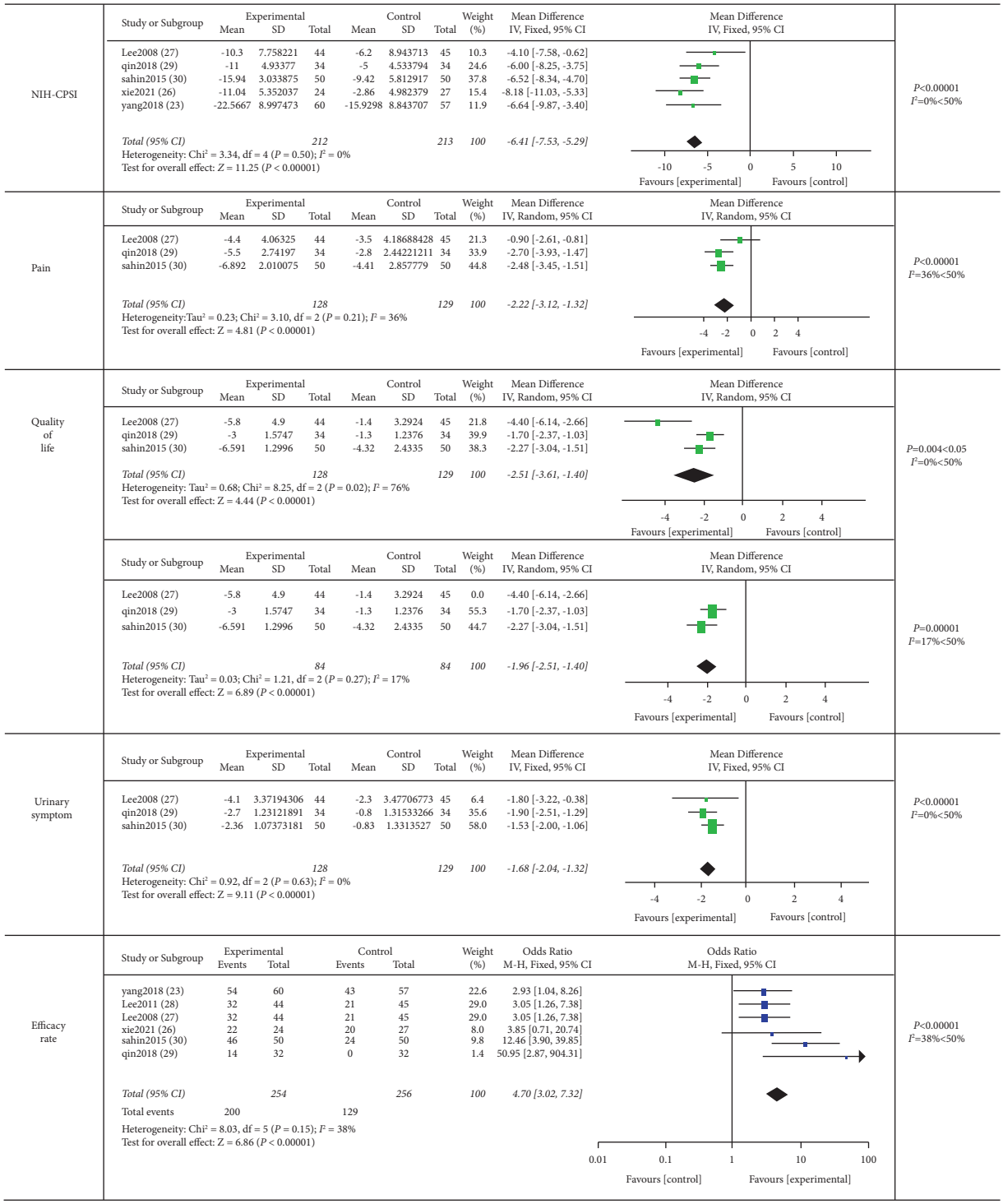


Figure 7: Meta-analysis on comparison of acupuncture verse sham acupuncture in pain, NIH-CPSI, quality of life, urinary symptom, and efficacy rate.

carried out on this point in the future. Fifthly, only 7 studies [20, 22, 27, 29, 31–33] reported the follow-up outcomes; thus, the longer-time efficacy of acupuncture for CP/CPPS needs to be explored further. Finally, this meta-analysis compared acupuncture with sham acupuncture or with western medicine. Unfortunately, the efficacy of different acupuncture treatments on CP/CPPS stays unclear, and a new meta-analysis in this regard can be conducted in the future.

5. Conclusion

This meta-analysis indicated that acupuncture (AT) has measurable benefits on CP/CPPS (pain, urinary symptom, quality of life, NIH-CPSI score, and efficacy rate), and the security of acupuncture was also ensured. However, methodological flaws, such as a small sample, the follow-up absence, and different kinds of acupuncture treatments exist,

thus RCTs with larger sample sizes and longer-term observation are required to verify the effectiveness of acupuncture further, and a new meta-analysis can be conducted to analyze the efficacy of different acupuncture treatments on CP/CPPS in the future.

Abbreviations

CP: Chronic prostatitis
CPPS: Chronic pelvic pain syndrome chronic prostatitis
RCT: Randomized controlled trial
AT: Acupuncture
WM: Western medicine
SAT: Sham acupuncture
NIH-CPSI: The National Institutes of Health Chronic Prostatitis Symptom Index.

Data Availability

All relevant data are within the manuscript and its supporting information file.

Disclosure

JuanHong Pan, Di Zhang, Song Jin, and Quan Xie share the first authorship.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

J.H.P. and D.Z. contributed equally to this work. J.H.P., Z.D., Y.W., Q.X., and S.J. conceived this study and drafted the first frame of this manuscript. J.H.P., D.Z., and Y.W. performed data collection and check. J.H.P. and D.Z. made a great contribution to revise the paper. All authors were involved in the design, gathering of information, data analyses, writeup, and final edits. JuanHong Pan, Di Zhang, Song Jin, and Quan Xie have contributed equally to this work.

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References

[1] L. Ma, C. M. Zhang, and Z. X. Sun, "Treatment of prostatitis with traditional Chinese medicine," *Journal of Practical Traditional Chinese Internal*, vol. 2022, Article ID 0904, pp. 1–4, 2022,http://lib.Cdutcm.edu.cn:7001/rwt/CNKI/http/NNYHGLUDN3WXTLUPMW4A/kcms/detail/21.1187.R.20220822.1832.015.html.

[2] C. Li, L. Xu, and X. Lin, "Effectiveness and safety of acupuncture combined with traditional Chinese medicine in the treatment of chronic prostatitis: a systematic review and meta-analysis," *Medicine (Baltimore)*, vol. 100, no. 49, Article ID e28163, 2021.

[3] X. J. Yu and Q. H. Gao, "Multidisciplinary guidelines for the diagnosis and treatment of chronic prostatitis with integrated traditional Chinese and Western medicine," *National Journal of Andrology*, vol. 26, no. 04, pp. 369–376, 2020.

[4] H. Wang, J. Guo, and J. W. Zhang, "Exploring guihuang formula in treatment of CP based on'Brain-heart-kidney-essence chamber Axis," *Acta Chinese Medicine and Pharmacology*, vol. 50, no. 08, pp. 8–12, 2022.

[5] G. Magistro, F. M. Wagenlehner, M. Grabe, W. Weidner, C. G. Stief, and J. C. Nickel, "Contemporary management of chronic prostatitis/chronic pelvic pain syndrome," *European Urology*, vol. 69, no. 2, pp. 286–297, 2016.

[6] E. Denes, J. Prouzergue, S. Ducroix-Roubertou, C. Aupetit, and P. Weinbreck, "Antibiotic prescription by general practitioners for urinary tract infections in outpatients," *European Journal of Clinical Microbiology & Infectious Diseases*, vol. 31, no. 11, pp. 3079–3083, 2012.

[7] F. U. Khan, A. U. Ihsan, H. U. Khan et al., "Comprehensive overview of prostatitis," *Biomedicine & Pharmacotherapy*, vol. 94, pp. 1064–1076, 2017.

[8] K. Sugaya, K. Kadekawa, Y. Unten, S. Nishijima, K. Ashitomi, and H. Yamamoto, "Relationship of blood flow in the common iliac vein to lower urinary tract disease," *Journal of Medical Ultrasonics*, vol. 46, no. 2, pp. 223–229, 2001.

[9] G. Magistro and C. G. Stief, "The urinary tract microbiome: the answer to all our open questions?" *European Urology Focus*, vol. 5, no. 1, pp. 36–38, 2019.

[10] A. A. Hassan, S. A. Elgamal, M. A. Sabaa, and K. Salem, "Evaluation of intravesical potassium sensitivity test and bladder biopsy in patients with chronic prostatitis/chronic pelvic pain syndrome," *International Journal of Urology*, vol. 14, no. 8, pp. 738–742, 2007.

[11] N. Z. Zhou and X. L. Qiu, "Professor QIU Xian-ling′s experience of acupuncture for treating chronic prostatitis," *Chinese Acupuncture & Moxibustion*, vol. 41, no. 8, pp. 915–918, 2021.

[12] B. Q. Tang and G. X. Wu, "Cases of chronic prostatitis treated with Chinese medicine and acupuncture," *Cardiovascular Disease Electronic Journal of integrated traditional Chinese and Western Medicine*, vol. 7, no. 21, p. 160, 2019.

[13] H. B. Li and F. Q. Lu, "Treatment of chronic prostatitis by acupuncture combined with infrared polarized light," *Chin J Acu and Mox (Electronic Edition)*, vol. 7, no. 04, pp. 166-167, 2018.

[14] B. Z. Shi and J. Chen, "Clinical experience in the treatment of chronic abacterial prostatitis with acupuncture and moxibustion," *Inner Mongolia Journal of Traditional Chinese Medicine*, vol. 37, no. 10, pp. 80-81, 2018.

[15] Z. J. Dang, X. Q. Gong, X. G. Leng, D. Q. Li, and F. B. Li, "Observation on curative effect of Chinese and Western medicine combined with Acupuncture and acupoint injection in treating chronic prostatitis," *Gansu Medical Journal*, vol. 37, no. 04, Article ID 335337, 2018.

[16] S. M. Liu, J. B. Xi, X. J. Chen, Y. M. Zhang, Z. Huang, and K. S. Zhang, "Clinical observation of acupoint sticking therapy with Xiongbai Qianlie powder in the treatment of type III prostatitis syndrome," *Chinese Acupuncture & Moxibustion*, vol. 32, no. 03, pp. 201–204, 2012.

[17] J. B. Ao, J. M. Cheng, L. Zhang, H. Weng, T. Z. Liu, and X. Z. Zeng, "Meta -analysis of the effects of acupuncture for chronic prostatitis," *Journal of Modern Urology*, no. 12, pp. 937–942, 2018.

[18] Y. J. Song, F. X. Lang, X. Wang, S. Chen, Q. Huang, and Y. J. Zhang, "Acupuncture for chronic pelvic pain syndrome: a meta-analysis," *Liaoning Journal of Traditional Chinese Medicine*, vol. 46, no. 07, pp. 1494–1501, 2019.

[19] J. Li, L. Dong, X. Yan et al., "Is acupuncture another good choice for physicians in the treatment of chronic prostatitis/chronic pelvic pain syndrome? Review of the latest literature," *Pain Research and Management*, vol. 2020, Article ID 5921038, 2020.

[20] Q. F. Liang, "Effect of electro-acupuncture combined with tamsulosin on dam-heat stagnation type clinical observation of chronic prostatitis," *Medicine and Hygiene*, 2020.

[21] S. Y. Xia, S. Wang, S. T. Fang, Y. Z. Sun, and M. Zhao, "Clinical study of tiaoshen acupuncture in treating chronic prostatitis/chronic pelvic pain syndrome," *Journal of Clinical Acupuncture and Moxibustion*, vol. 36, no. 3, pp. 11–15, 2020.

[22] Z. R. Xie, Z. C. Deng, D. Xiao et al., "Acupuncture for chronic prostatitis: a randomized controlled trial," *World Journal of Acupuncture-Moxibustion*, vol. 32, 2021.

[23] T. Peng, Y. Cheng, Y. Jin, N. Xu, and T. Guo, "Acupuncture for chronic prostatitis: a systematic review and meta-analysis protocol," *Medicine*, vol. 97, no. 17, Article ID e0615, 2018.

[24] M. Shao, Y. T. Chen, and W. Xu, "Principle of trial sequential analysis and its application in Meta-analysis," *Chinese Journal of Health Statistics*, vol. 39, no. 01, pp. 47–51, 2022.

[25] H. Weng, S. Li, and X. T. Zeng, "Application of trial sequential analysis soft in Meta-analysis," *Chinese Journal of Evidence-Based Medicine*, vol. 16, no. 05, pp. 604–611, 2016.

[26] H. Weng, C. C. Guo, and J. Lu, "Calculation of information size of trial sequential analysis," *Chinese Journal of Evidence-Based Medicine*, vol. 17, no. 01, pp. 113–116, 2017.

[27] H. Yang, N. Dai, and X. Y. Xu, "Observation of acupuncture treatment of chronic prostatitis/chronic pelvic pain syndrome," *Journal of LiaoNing University of TCM*, vol. 20, no. 11, pp. 93–97, 2018.

[28] G. Chen, J. Xiang, L. Z. Ouyang et al., "Acupuncture combined with western medicine for CP/CPPS: a randomized controlled trial," *Chinese Acupuncture & Moxibustion*, vol. 36, no. 12, pp. 1247–1251, 2016.

[29] S. Guo and X. J. Wang, "Randomized controlled research on acupuncture with acupoint injection for treating chronic non-bacterial prostatitis," *Shanxi Journal of Traditional Chinese Medicine*, vol. 34, pp. 36–38, 2018.

[30] S. W. H. Lee, M. L. Liong, K. H. Yuen, W. S. Leong, N. K. Khan, and J. N. Krieger, "Validation of a sham acupuncture procedure in a randomised, controlled clinical trial of chronic pelvic pain treatment," *Acupuncture in Medicine*, vol. 29, no. 1, pp. 40–46, 2011.

[31] Z. S. Qin, Z. W. Zang, K. H. Zhou et al., "Acupuncture for chronic prostatitis/chronic pelvic pain syndrome: a randomized, sham acupuncture controlled trial," *The Journal of Urology*, vol. 200, no. 4, pp. 815–822, 2018.

[32] S. H. Lee and B. C. Lee, "Electroacupuncture relieves pain in men with chronic prostatitis/chronic pelvic pain syndrome: three-arm randomized trial," *Urology*, vol. 73, no. 5, pp. 1036–1041, 2009.

[33] S. Sahin, M. Bicer, G. A. Eren et al., "Acupuncture relieves symptoms in chronic prostatitis/chronic pelvic pain syndrome: a randomized, sham-controlled trial," *Prostate Cancer and Prostatic Diseases*, vol. 18, no. 3, pp. 249–254, 2015.

[34] M. L. Breser, F. C. Salazar, V. E. Rivero, and R. D. Motrich, "Immunological mechanisms un-derlying chronic pelvic pain and prostate inflammation in chronic pelvic pain syndrome," *Frontiers in Immunology*, vol. 8, p. 898, 2017.

[35] R. Rodriguez, A. Niemeier, and K. Ihle, "Brain gray matter decrease in chronic pain is the consequence and not the cause of pain," *Journal of Neuroscience*, vol. 29, no. 4 4, p. 13746, 2009.

[36] L. Mordasini, C. Weisstanner, C. Rummel et al., "Chronic pelvic pain syndrome in men is associated with reduction of relative gray matter volume in the anterior cingulate cortex compared to healthy controls," *The Journal of Urology*, vol. 188, no. 6, p. 2233, 2012.

[37] T. Chen, W. Taniguchi, Q. Y. Chen et al., "Top-down descending facilitation of spinal sensory excitatory transmission from the anterior cingulate cortex," *Nature Communications*, vol. 9, no. 1, p. 1886, 2018.

[38] G. Paulis, "Inflammatory mechanisms and oxidative stress in prostatitis the possible role of antioxidant therapy," *Research and Reports in Urology*, vol. 10, p. 75, 2018.

[39] D. C. Hetrick, H. Glazer, Y.-W. Liu, J. A. Turner, M. Frest, and R. E. Berger, "Pelvic floor electromyography in men with chronic pelvic pain syndrome: a case-control study," *Neurourology and Urodynamics*, vol. 25, no. 1, pp. 46–49, 2006.

[40] C. C. Yang, J. C. Lee, B. G. Kromm, M. A. Ciol, and R. E. Berger, "Pain sensitization in male chronic pelvic pain syndrome: why are symptoms so difficult to treat?" *The Journal of Urology*, vol. 170, no. 3, pp. 823–827, 2003.

[41] Z. Qin, J. Wu, J. Tian, J. Zhou, Y. Liu, and Z. Liu, "Network meta-analysis of the efficacy of acupuncture, alpha-blockers and antibiotics on chronic prostatitis/chronic pelvic pain syndrome," *Scientific Reports*, vol. 6, no. 1, Article ID 35737, 2016.

[42] J. C. Nickel, J. N. Krieger, M. McNaughton-Collins et al., "Alfuzosin and symptoms of chronic prostatitis-chronic pelvic pain syndrome," *New England Journal of Medicine*, vol. 359, no. 25, pp. 2663–2673, 2008.

[43] R. B. Alexander, K. J. Propert, and A. J. Schaeffer, "Ciprofloxacin or Tamsulosin in men with chronic prostatitis/chronic pelvic pain syndrome," *Annals of Internal Medicine*, vol. 141, no. 8, pp. 581–589, 2004.

[44] J. Wazir, R. Ullah, S. Li et al., "Efficacy of acupuncture in the treatment of chronic prostatitis-chronic pelvic pain syndrome: a review of the literature," *International Urology and Nephrology*, vol. 51, pp. 2093–2106, 2019.

[45] Y. D. Zhao and D. Y. Han, "The effect of warming-promotion needling on the TNF-a,IL-6 in rats with chronic non-bacterial prostatitis[J]," *Journal of Gansu University of Chinese Medicine*, vol. 31, no. 04, pp. 1–3, 2014.

[46] L. He, Y. Wang, Z. Long, and C. Jiang, "Clinical significance of IL-2, IL-10, and TNF-α in prostatic secretion of patients with chronic prostatitis," *Urology*, vol. 75, no. 3, p. 654, 2010.

[47] X. Li, X. Tian, B. Zhang, and J. Chen, "Polymorphisms in microRNA-related genes are associated with survival of patients with T-cell lymphoma," *The Oncologist*, vol. 19, no. 3, p. 243, 2014.

[48] G. Penna, N. Mondaini, S. Amuchastegui et al., "Seminal plasma cytokines and chemokines in prostate inflammation: interleukin 8 as a predictive biomarker in chronic prostatitis/chronic pelvic pain syndrome and benign prostatic hyperplasia," *European Urology*, vol. 51, no. 2, pp. 524–533, 2007.

[49] T. T. Liu, H. Jin, and W. B. Gao, "Effect of electroacupuncture on the expression of adhesion molecule-1 in chronic

abacterial prostatitis model rats [J]," *Journal of Clinical Acupuncture and Moxibustion*, no. 09, pp. 63-64, 2007.

[50] S. Gao and G. F. Cai, "Therapeutic observation of acupuncture-moxibustion for chronic non-bacterial prostatitis 2 [J]," *Shanghai Journal of Acupuncture and Moxibustion*, vol. 34, no. 09, pp. 66–68, 2015.

[51] G. Ye, J. P. Chi, and Y. L. Li, "Effect of acupuncture on histology and serum TNF-α and IL-6 in rats with chronic prostatitis," *Chinese Journal of Gerontology*, vol. 34, no. 05, pp. 1330-1331, 2014.

[52] L. Z. He, J. W. Li, K. Q. Huang, and L. L. Qian, "Effect of electroacupuncture plus Chinese herbal medicine fumigation on IL-8 and TNF-in prostatic secretions of patients with chronic non-bacterial prostatitis," *Shanghai Journal of Acupuncture and Moxibustion*, vol. 31, no. 03, pp. 154–156, 2012.

[53] G. D. Li, S. Y. Li, and C. P. Han, "Effect of ginger-partitioned moxibustion on immunocytokines in patients with chronic nonbacterial prostatitis," *Journal of Acupuncture and Tuina Science*, vol. 13, no. 2, pp. 116–120, 2015.

[54] R. Rodriguez-Raecke, A. Niemeier, K. Ihle, W. Ruether, and A. May, "Brain gray matter decrease in chronic pain is the consequence and not the cause of pain," *Journal of Neuroscience*, vol. 29, no. 44, pp. 13746–13750, 2009.

[55] Y. Bai, D. G. Ding, and P. Liu, "Mechanisms of pain regulation in chronic pelvic pain syndrome: an fMRI study based on regional homogeneity method," *Chinese Journal of Behavioral Medicine and Brain Science*, vol. 26, no. 01, pp. 27–31, 2017.

[56] R. Liu, S. Li, Y. Liu et al., "Acupuncture analgesia in patients with postoperative neck pain: a protocol for systematic review and meta-analysis," *Evid Based Complement Alternat Med*, vol. 2022, Article ID 1226702, 2022.

[57] Q. Y. Wang, Y. Y. Qu, C. W. Feng et al., "Analgesic mechanism of acupuncture on neuropathic pain," *Zhongguo Zhen Jiu*, vol. 40, no. 8, pp. 907–912, 2020.

[58] T. Roumeguère, J. Sfeir, E. El Rassy, and S. Albisinni, "Oxidative stress and prostatic diseases," *Mol Clin Oncol*, vol. 7, no. 5, pp. 723–728, 2017.

[59] H. Du and W. M. Zhao, "Pain pathogenesis of chronic prostatitis," *Journal of Modern Urology*, vol. 22, no. 01, pp. 76–78, 2017.

[60] P. Xu, Sikandaer, and Y. J. Wang, "Correlation analysis of the expression of SP and β-endorphin with chronic pelvic pain syndrome [J]," *Chinese Journal of Human Sexuality*, vol. 27, no. 07, pp. 91–94, 2018.

[61] A. R. Shahed and D. A. Shoskes, "Correlation of beta-endorphin and prostaglandin E2 levels in prostatic fluid of patients with chronic prostatitis with diagnosis and treatment response," *The Journal of Urology*, vol. 166, no. 5, pp. 1738–1741, 2001 Nov.

[62] Y. Ma, X. Li, F. Li, W. Yu, and Z. Wang, "Clinical research of chronic pelvic cavity pain syndrome treated with acupoint catgut embedding therapy," *Zhongguo Zhen Jiu*, vol. 35, no. 6, pp. 561–566, 2015 Jun.