Review Article

Comparing hard and soft splint in the management of temporomandibular disorders: a systematic review and meta-analysis

Pratiksha Paradkar[1], Swapnil Parlani[2], Gaurav Majumdar[3], Ruhani Daulatani[4], Khushbu Gothwal[5], Shashank Bafna[6]

[1]Postgraduate student, Department of Prosthodontics, Crown and Bridge, People's College of Dental Sciences and Research Centre, People's University, Bhopal, drpratikshaparadkar@gmail.com
[2]Professor and Head, Department of Prosthodontics, Crown and Bridge, People's College of Dental Sciences and Research Centre, People's University, Bhopal swapnil.p@peoplesuniversity.edu.in
[3]Senior Lecturer, Department of Prosthodontics, Crown and Bridge, People's College of Dental Sciences and Research Centre, People's University, Bhopal, drgauravmajumdar@gmail.com
[4]Postgraduate student, Department of Prosthodontics, Crown and Bridge, People's College of Dental Sciences and Research Centre, People's University, Bhopal, drruhaniprostho@gmail.com
[5]Postgraduate student, Department of Prosthodontics, Crown and Bridge, People's College of Dental Sciences and Research Centre, People's University, Bhopal, drkhushbugothwal16@gmail.com
[6]Postgraduate student, Department of Prosthodontics, Crown and Bridge, Aurobindo Institute, Indore, bafnashashank65@gmail.com

Abstract

Background: Temporomandibular disorders (TMDs) are common conditions affecting the temporomandibular joint, masticatory muscles, and associated structures. Occlusal splints are widely used as a conservative and reversible treatment option. However, uncertainty remains regarding whether hard occlusal splints or soft occlusal splints provide better clinical outcomes. Hence, we undertook to systematically review and meta-analyze the available evidence comparing hard and soft occlusal splints in the management of temporomandibular disorders.

Materials and Methods: A systematic review and meta-analysis was carried out in accordance with PRISMA 2020 guidelines. Electronic databases were searched from inception to March 2026, along with manual screening of reference lists. Randomized controlled trials comparing hard and soft occlusal splints in patients with TMDs were included. Pain intensity was considered the primary outcome, while maximum mouth opening (MMO) was the secondary outcome. Data were synthesized using Review Manager (RevMan) version 5.4. Standardized mean difference (SMD) was used for pain intensity, and mean difference (MD) was used for MMO, both with 95% confidence intervals (CI). Heterogeneity was assessed using Cochran's Q test and the I^2 statistic. Risk of bias was assessed using the Cochrane RoB 2 tool.

Results: A total of 320 records were identified, of which 4 studies met the eligibility criteria and were included in the systematic review and meta-analysis. These studies involved 187 participants. Meta-analysis showed no statistically significant difference between hard and soft splints in reducing pain intensity at 1 month (SMD = -0.01; 95% CI: -0.70 to 0.67; p = 0.97), 2 months (SMD = -0.02; 95% CI: -0.39 to 0.34; p = 0.89), or 3 months (SMD = 0.36; 95% CI: -0.34 to 1.06; p = 0.31).

Received date: 21/1/2026
Accepted date: 10/2/2026
Published date: 09/4/2026

Conclusion: Both hard and soft occlusal splints were effective in improving pain and jaw function in patients with TMDs. However, current evidence does not support a clear superiority of one splint type over the other. Further high-quality randomized trials with larger sample sizes and standardized outcome measures are needed.

Keywords: Temporomandibular disorders; hard occlusal splint; soft occlusal splint; systematic review; meta-analysis; pain intensity; maximum mouth opening

INTRODUCTION:

Temporomandibular disorders (TMDs) are a group of conditions involving the temporomandibular joint, masticatory muscles, and related oral structures. They are among the most common causes of chronic non-dental orofacial pain and usually present with symptoms such as joint pain, muscle tenderness, clicking sounds, restricted mouth opening, and difficulty during chewing or speaking [1]. These symptoms may affect daily function and quality of life, especially when pain becomes persistent. Because TMDs include both muscular and joint-related conditions, proper diagnosis is important for selecting an appropriate treatment plan. The Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) have improved the consistency of diagnosis and are widely used in both clinical and research settings [2].

Conservative and reversible therapies are generally considered the first line of management for TMDs. These include patient education, behavioral advice, physiotherapy, medications, and occlusal splint therapy [1,2]. Among these, occlusal splints are commonly prescribed because they are non-invasive, reversible, and relatively easy to deliver. Splints are thought to reduce parafunctional loading, improve muscle balance, stabilize the occlusion, and decrease pain, although their exact mechanism of action is still not fully understood [1,3]. Earlier evidence reviews have suggested that stabilization splints may help reduce symptoms in some patients, but they have also noted that the strength of evidence has been limited by differences in study design, outcome measures, and follow-up periods [3,4].

In recent years, systematic reviews and meta-analyses have reported that splint therapy may provide pain relief in TMD patients, but the certainty of evidence remains variable, ranging from moderate to low [5]. In addition, many reviews have assessed splint therapy as a broad category without focusing specifically on the clinical comparison between **hard** and **soft** occlusal splints. This distinction is important in routine practice. Hard splints are traditionally preferred for their stability and controlled occlusal design, while soft splints are often viewed as more comfortable and easier for patients to accept [3,5].

Direct comparative trials between hard and soft splints have shown mixed findings. Seifeldin and Elhayes reported improvement with both appliances, with greater benefit from soft splints after prolonged use [6]. In contrast, a more recent randomized controlled study by Poorna et al. found that both splints were effective, but hard splints produced earlier symptomatic improvement, while long-term differences were not statistically significant [7]. These inconsistent findings create uncertainty for clinicians when selecting the most appropriate splint material for patients with TMD. Therefore, a systematic review and meta-analysis comparing hard and soft splints is needed to provide clearer evidence regarding their effectiveness in reducing pain and improving mandibular function.

MATERIALS AND METHODS:

Study design and reporting framework

This study was designed as a systematic review and meta-analysis to compare the effectiveness of hard occlusal splints and soft occlusal splints in the management of temporomandibular disorders (TMDs). The review was planned and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement, which provides updated guidance for the transparent reporting of systematic reviews and meta-analyses [8,9]. A PRISMA flow framework was followed during study identification, screening, eligibility assessment, and final inclusion.

Review question

The review question was framed according to the PICO format:

Population (P): patients diagnosed with temporomandibular disorders, particularly painful muscular or myofascial forms of TMD

Intervention (I): hard occlusal splint therapy

Comparison (C): soft occlusal splint therapy

Outcomes (O): pain intensity and maximum mouth opening (MMO)

The main purpose of the review was to determine whether hard splints were superior, inferior, or comparable to soft splints in reducing pain and improving mandibular function in patients with TMD.

Eligibility criteria

Studies were selected according to predefined inclusion and exclusion criteria.

Inclusion criteria

Randomized controlled trials were included if they:

1. enrolled patients with clinically diagnosed temporomandibular disorders;
2. directly compared hard and soft occlusal splints;
3. reported at least one clinically relevant outcome related to pain intensity or maximum mouth opening;
4. provided sufficient quantitative data for effect size calculation; and
5. were available in full text.

Exclusion criteria

Studies were excluded if they:

1. were case reports, case series, review articles, narrative reviews, conference abstracts, letters, or editorials;
2. did not directly compare hard and soft splints;
3. evaluated splints together with another active intervention in a way that prevented separate assessment of splint effect;
4. lacked usable outcome data; or
5. included duplicated patient samples from another publication.

Information sources

A comprehensive electronic literature search was planned across major biomedical databases, including PubMed/MEDLINE, Scopus, Web of Science, Cochrane CENTRAL, and Google Scholar. In addition, the reference lists of all included studies and relevant review articles were hand-searched to identify any additional eligible studies. The search covered studies from database inception to March 2026.

Search strategy

The search strategy combined controlled vocabulary terms and free-text keywords related to temporomandibular disorders and occlusal splints. Search terms included combinations of:

“temporomandibular disorder”, “temporomandibular joint disorder”, “TMD”, “myofascial pain dysfunction”, “occlusal splint”, “stabilization splint”, “hard splint”, “soft splint”, and “resilient splint”.

Boolean operators such as AND and OR were used to combine terms appropriately. The search strategy was adjusted according to the syntax of each database. A manual search was also performed to reduce the chance of missing relevant studies.

Study selection

All records identified through the database search were imported into a citation management system, and duplicate records were removed. The titles and abstracts of the remaining studies were screened independently by two reviewers. Full texts of potentially eligible articles were then retrieved and assessed in detail against the predefined eligibility criteria. Any disagreement between the two reviewers was resolved through discussion, and when required, a third reviewer was consulted for final decision. The complete study selection process was documented using a PRISMA flow diagram.

Data extraction

Data extraction was carried out independently by two reviewers using a predesigned data extraction form. The following information was collected from each included study:

- author name and year of publication
- country of study
- study design
- sample size
- patient characteristics
- diagnostic criteria used for TMD
- type of hard and soft splint used
- duration of splint therapy
- follow-up intervals
- pain outcome data
- maximum mouth opening data
- information required for risk-of-bias assessment

Any disagreement in extracted data was resolved by checking the original article and discussing it until consensus was achieved.

Outcome measures

The primary outcome of the review was pain intensity, measured at different follow-up intervals. Because pain was assessed using different scales across studies, this outcome was synthesized using standardized mean difference (SMD) with 95% confidence intervals. The secondary outcome was maximum mouth opening (MMO), measured in millimeters, which was synthesized using mean difference (MD) with 95% confidence intervals. This outcome structure was kept consistent with your uploaded results section, which pooled pain and MMO separately at 1-, 2-, and 3-month follow-up periods.

Risk of bias assessment

The methodological quality of the included randomized controlled trials was assessed using the Cochrane Risk of Bias 2 (RoB 2) tool, which is the recommended tool for randomized trials. The following five domains were evaluated:

1. bias arising from the randomization process
2. bias due to deviations from intended interventions
3. bias due to missing outcome data
4. bias in measurement of outcomes
5. bias in selection of the reported result

Each domain was judged as low risk of bias, some concerns, or high risk of bias, and an overall risk-of-bias judgment was assigned for each study. In this review, the RoB 2 approach was selected to remain consistent with the uploaded results section, where the same five-domain structure was used [10,11].

Statistical analysis and meta-analysis

Quantitative synthesis was performed using Review Manager (RevMan) version 5.4, following the same analytical direction as shown in your uploaded results. Forest plots were generated to display individual study effects and pooled estimates. Continuous outcomes were entered as mean, standard deviation, and sample size for each group. For pain intensity, pooled analysis was performed using standardized mean difference (SMD) because the included studies used different pain scales. For maximum mouth opening, pooled analysis was carried out using mean difference (MD) because the measurement unit was the same across studies, namely millimeters.

A random-effects model was used as the main analytical model because some degree of clinical and methodological variation among studies was expected, especially in terms of patient characteristics, splint wear protocols, and pain measurement methods. However, where heterogeneity was minimal, a fixed-effect model could also be applied if appropriate for that outcome. The pooled effect estimates were reported with 95% confidence intervals, and a p value below 0.05 was considered statistically significant. This approach was also in agreement with the analysis style shown in the uploaded results section.

Assessment of heterogeneity

Statistical heterogeneity among included studies was assessed using Cochran's Q test and quantified using the I^2 statistic. In general, an I^2 value above 50% was interpreted as indicating substantial heterogeneity. The extent of heterogeneity was taken into account when choosing the most appropriate meta-analytic model and when interpreting pooled findings. Possible reasons for heterogeneity, such as variation in splint type, follow-up duration, study population, and pain assessment method, were considered during result interpretation.

Assessment of publication bias

Publication bias was explored by visual inspection of the funnel plot and by supplementary statistical methods. These included Egger's regression test, Begg and Mazumdar rank correlation test, Rosenthal's fail-safe N, and the Trim and Fill method of Duval and Tweedie [11,12]. These methods were chosen because they matched the publication-bias framework already used in your uploaded results section.

Egger's regression test was used to detect possible funnel-plot asymmetry and small-study effects, while Begg and Mazumdar's test was used as a rank-correlation approach to assess possible bias. Rosenthal's fail-safe N was used to estimate how many theoretically missing null studies would be required to make the pooled finding non-significant. The Trim and Fill method was used to estimate the possible influence of missing studies on the overall pooled effect.

Data presentation

The results of the review were presented in descriptive and quantitative forms. A summary table was prepared for the characteristics of included studies. Forest plots were used to show pooled effect estimates for pain intensity and maximum mouth opening at different follow-up periods. Risk-of-bias judgments were presented graphically using RoB 2 summary figures, and publication bias was illustrated through a funnel plot.

RESULTS:

Study selection

Literature search identified 312 records through electronic databases and 8 additional records through manual searching of reference lists. After removal of 54 duplicate records, 266 titles and abstracts were screened. Of these, 242 records were excluded because they were unrelated to the review question, were review articles, case reports, or did not compare hard and soft occlusal splints.

The full texts of 24 articles were assessed for eligibility. After full-text evaluation, 20 studies were excluded for reasons such as wrong comparator, non-randomized design, absence of usable outcome data, or evaluation of splints without a direct hard-versus-soft comparison. Finally, 4 studies were included in the systematic review, and these studies were considered for quantitative synthesis.

Study characteristics

Across the four included trials, a total of 187 participants were enrolled. Two studies directly compared hard and soft splints in a two-arm design, while two studies were three-arm trials in which only the hard- and soft-splint groups were relevant to the present review. Pain-related outcomes were reported in all four studies, whereas maximum mouth opening was reported in two studies. Follow-up periods ranged from 3 months to 4 months.

Table 1. Characteristics of included studies

Study	Setting and design	Sample size	Intervention/comparator	Follow-up	Outcomes relevant to this review
Alencar Jr and Becker, 2009	Double-blind controlled clinical trial; affiliation reported from Marquette University School of Dentistry, USA	42	Hard splint, soft splint, and non-occluding splint, all associated with counselling and self-care	90 days	Modified Symptom Severity Index (Mod-SSI), tenderness to palpation
Seifeldin and Elhayes, 2015	Clinical trial; affiliations linked to King Saud University, Saudi Arabia, and Cairo University, Egypt	50	Soft occlusal splint versus hard flat occlusal splint	4 months	Pain VAS, muscle tenderness, TMJ tenderness/clicking, mouth opening
Amin et al., 2016	Randomized clinical trial; SDM College of Dental Sciences and Hospital, India	45	Hard splint, soft splint, and liquid oral splint	3 months	Mod-SSI, muscle palpation
Khan et al., 2018	Clinical trial; Khyber College of Dentistry, Peshawar, Pakistan	50	Soft splint versus hard splint	4 months	Pain VAS, maximum mouth opening

Brief description of included studies

Alencar Jr and Becker (2009):
This was a double-blind controlled clinical trial that enrolled 42 patients with myofascial pain. Participants were randomly assigned to hard, soft, or non-occluding splint groups, and all groups also received counselling and self-care advice. The outcomes were symptom severity and tenderness to palpation during a 90-day follow-up. The authors reported improvement over time in all groups, without clear superiority of one splint design over another.

Seifeldin and Elhayes (2015): This study included 50 patients diagnosed with myofascial pain dysfunction or internal derangement of the temporomandibular joint. Patients were treated for four months with either a vacuum-formed soft splint or a hard acrylic occlusal splint. The study assessed pain, joint tenderness, clicking, and range of mouth opening at monthly follow-up visits. Both groups improved, but the authors reported a significant difference between groups at the 4-month visit, favouring the soft splint.

Amin et al. (2016): This randomized clinical trial enrolled 45 patients with myofascial pain and allocated them into three groups: hard splint, soft splint, and liquid oral splint. Patients were followed for three months, and pain was assessed subjectively by Mod-SSI and objectively by muscle palpation. All three appliances reduced pain by the end of follow-up. However, the authors noted that hard splints produced earlier pain relief than soft splints.

Khan et al. (2018): This clinical trial included 50 patients with myofascial pain dysfunction or internal derangement of the temporomandibular joint. Twenty-five patients received soft splints and twenty-five received hard splints, with follow-up over four months. Pain scores and mouth opening were recorded at regular intervals. The study reported better pain relief with soft splints at some follow-up points, while improvement in mouth opening did not differ significantly between the two groups.

Overall systematic review findings

The four included studies showed that both hard and soft occlusal splints were associated with clinical improvement over time in patients with temporomandibular disorders, especially in pain-related symptoms. None of the studies suggested that either splint type was completely ineffective. However, the direction of comparative benefit was not uniform across studies. Alencar Jr and Becker found that hard and soft splints performed similarly when used along with counselling and self-care. Amin et al. observed that all splints reduced pain, but hard splints appeared to act faster. In contrast, Seifeldin and Elhayes reported better results with soft splints after four months, and Khan et al. also found better pain relief with soft splints at selected follow-up periods. Overall, the qualitative evidence suggested that both splint types are beneficial, but no single splint showed consistent superiority across all studies and outcomes.

Quantitative synthesis

Meta-analysis showed that, for pain intensity, the pooled standardized mean difference was not statistically significant at 1 month, 2 months, or 3 months, indicating no clear difference between hard and soft splints at any of these time points. The heterogeneity was high at 1 and 3 months, but low at 2 months, suggesting that study results were more consistent at the intermediate follow-up. Based on these pooled findings, both hard and soft splints appeared to be similarly effective for pain reduction in patients with myofascial pain dysfunction.

Figure 1- Forest plot of comparison between hard and soft occlusal splints on pain intensity at 1-month follow-up

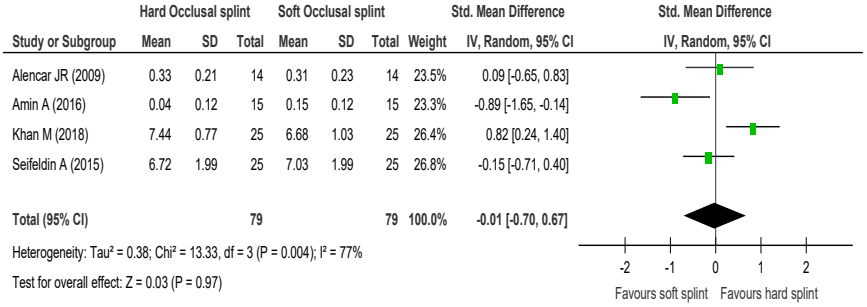


Figure 2- Forest plot of comparison between hard and soft occlusal splints on pain intensity at 2-month follow-up

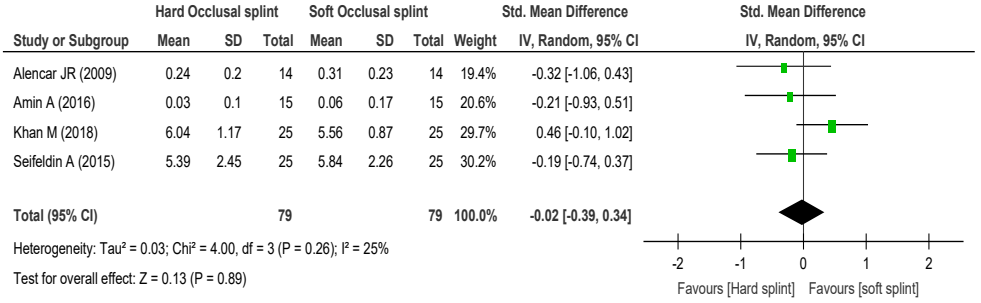


Figure 3- Forest plot of comparison between hard and soft occlusal splints on pain intensity at 3-month follow-up

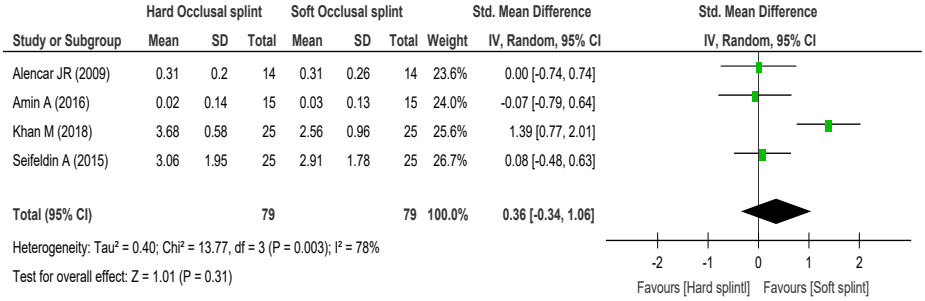


Figure 4- Forest plot of mean difference in maximum mouth opening at 1 month (MD in mm; hard – soft; random-effects).

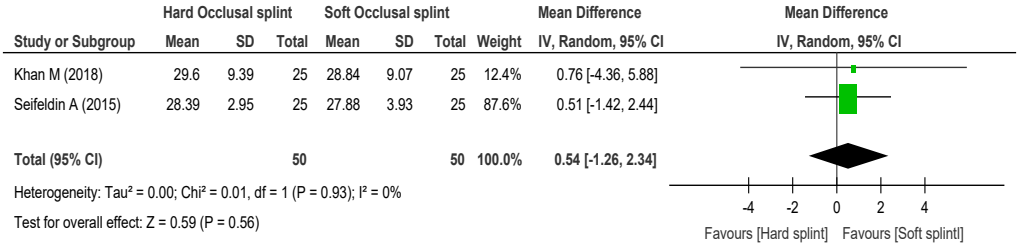


Figure 5- Forest plot of mean difference in maximum mouth opening at 2 months (MD in mm; hard – soft; random-effects).

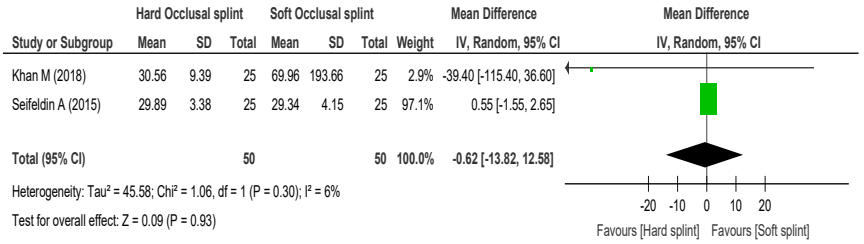
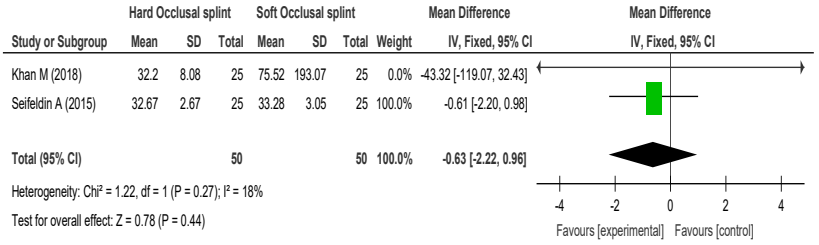


Figure 6-Forest plot of mean difference in maximum mouth opening at 3 months (MD in mm; hard – soft; fixed-effect)



The meta-analysis compared the effectiveness of hard versus soft occlusal splints in reducing pain intensity among patients with myofascial pain dysfunction (MFPD) at 1-, 2-, and 3-month follow-ups, using standardized mean difference (SMD) as the outcome measure due to variations in pain assessment scales across studies. At the 1-month interval, the pooled SMD was -0.01 (95% CI: -0.70 to 0.67

For maximum mouth opening, only two randomized controlled trials contributed data, namely Khan (2018) and Seifeldin (2015). The pooled mean differences at 1 month, 2 months, and 3 months were all non-significant, showing no measurable advantage of one splint type over the other in improving mouth opening. Heterogeneity for this outcome was minimal, indicating relatively consistent findings between the two contributing studies.

Publication bias and risk of bias

The funnel plot was broadly symmetrical, and the statistical tests for publication bias, including Egger's regression, Begg and Mazumdar rank correlation, and Rosenthal's fail-safe N, were all non-significant. This suggests that major publication bias was not detected in the present meta-analysis, although the small number of included studies should be kept in mind when interpreting this finding.

Figure 7- Funnel plot assessing publication bias for studies comparing hard and soft occlusal splints

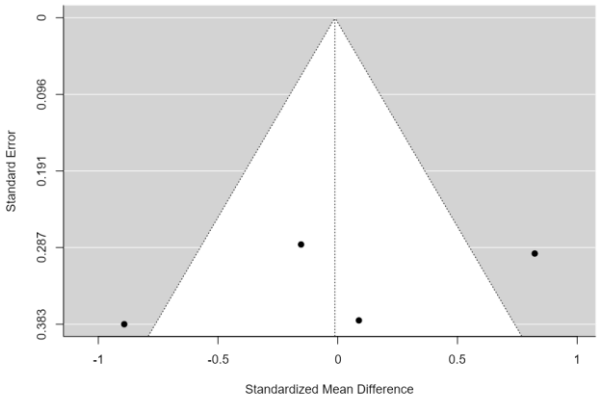


***Table* 2- Publication Bias Assessment**

Publication Bias Assessment		
Test Name	**value**	**p**
Fail-Safe N	0.000	0.469
Begg and Mazumdar Rank Correlation	-0.333	0.750
Egger's Regression	-0.946	0.344

Trim and Fill Number of Studies	1.000	.
Note. Fail-safe N Calculation Using the Rosenthal Approach		

Risk of bias was assessed with the RoB 2 tool. The uploaded analysis showed that Seifeldin (2015) and Amin (2016) had high risk of bias in the domain of deviations from intended interventions, while the remaining domains across studies were judged as having some concerns. None of the included studies was rated as having an overall low risk of bias. This hence indicates that the pooled evidence should be interpreted with some caution.

Overall interpretation of the results

Overall, the findings of this systematic review and meta-analysis suggest that both hard and soft occlusal splints are useful conservative treatment options for temporomandibular disorders, particularly for reducing pain and improving jaw function over time. However, the current evidence does not support a clear overall superiority of one splint type over the other. The variation in study design, patient selection, follow-up duration, and outcome measurement may explain the inconsistent direction of effect seen in the individual trials.

DISCUSSION

The present systematic review and meta-analysis was conducted to compare hard and soft occlusal splints in the management of temporomandibular disorders, with pain intensity as the primary outcome and maximum mouth opening as the secondary outcome. Based on the four included clinical trials, the main finding of this review was that both hard and soft splints were associated with clinical improvement, but the pooled analysis did not show a statistically significant difference between them at 1, 2, or 3 months. This suggests that both appliances may be useful as conservative treatment options for painful TMD, but the currently available evidence does not clearly support the superiority of one over the other. These findings are in agreement with the overall direction of your uploaded results, where pooled estimates for both pain and maximum mouth opening remained non-significant across the studied follow-up periods.

Pain reduction is one of the most important goals in the treatment of temporomandibular disorders, especially in patients with myofascial pain dysfunction. In the present review, all four included studies reported improvement in pain-related symptoms after splint therapy, which indicates that occlusal splints, regardless of material type, can be beneficial in reducing symptoms over time [13-16]. However, the pattern of improvement was not exactly the same across individual studies. Alencar Jr and Becker found that patients improved with hard splints, soft splints, and even non-occluding splints when treatment was combined with counselling and self-care, suggesting that behavioral support may have contributed to symptom reduction alongside the splint itself [13]. Amin et al. also reported improvement in all appliance groups, but noted that hard splints appeared to provide earlier relief [15]. On the other hand, Seifeldin and Elhayes observed more favorable long-term outcomes with soft splints [14], and Khan et al. reported better pain reduction with soft splints at some follow-up visits [16]. These mixed findings from individual trials explain why the pooled meta-analysis did not demonstrate a consistent advantage of either splint type.

The absence of a clear difference between hard and soft splints may have several explanations. First, both appliances may act through similar basic mechanisms, such as reducing abnormal muscle activity, minimizing parafunctional loading, improving mandibular stability, and increasing patient awareness of harmful oral habits [1,3]. It is also possible that part of the benefit arises from non-specific therapeutic effects, such as patient reassurance, reduced jaw overuse, better compliance with advice, and natural symptom fluctuation over time. This is particularly important in TMD, where symptoms are influenced not only by occlusion, but also by muscular, behavioral, emotional, and functional factors [1,2]. Because of this multifactorial nature, it is reasonable that two different splint materials may produce similar overall clinical outcomes.

In the present review, the pooled results for pain intensity were not significant at any of the three time points. At 1 month and 3 months, heterogeneity was high, whereas at 2 months it was low. This pattern suggests that differences among studies had a greater influence at the early and later follow-up periods. Several reasons may explain this heterogeneity. The included trials differed in sample size, diagnostic profile, outcome scales, and splint protocols. Some studies included patients with myofascial pain dysfunction alone, while others also included internal derangement of the temporomandibular joint [14,16]. There were also differences in the duration of splint use, the way splints were fabricated, and whether co-interventions such as counselling or self-care were provided [13]. In addition, pain is a subjective outcome, and studies used different tools to measure it, including visual analogue scales and modified symptom severity indices [13-16]. These methodological differences could easily influence pooled estimates and may partly explain why the direction of effect varied across trials.

The results for maximum mouth opening were also important. Only two studies contributed data for this outcome, namely Seifeldin and Elhayes and Khan et al. [14,16]. The pooled mean differences at 1, 2, and 3 months were all small and statistically non-significant, with low heterogeneity. This indicates that hard and soft splints performed similarly in improving mandibular function, at least in terms of mouth opening. Clinically, this finding is meaningful because limitation in mouth opening is a frequent symptom in TMD patients, and both splint types appear capable of producing some degree of functional improvement. At the same time, because only two trials were available for this outcome, the strength of this conclusion remains limited.

The qualitative findings of this review are also supported by earlier broader evidence on splint therapy. Previous systematic reviews have suggested that stabilization splints may reduce symptoms in some patients with TMD, but the certainty of evidence has often been limited by small sample sizes, variation in study design, and inconsistent outcome reporting [3-5]. The present review adds to that body of evidence by focusing specifically on the comparison between hard and soft splints. This focused comparison is clinically relevant because both types are widely used in practice. Hard splints are often preferred because they provide better occlusal stability and controlled adjustment, whereas soft splints may be easier to fabricate, more comfortable, and better tolerated by some patients [3,5]. The current results suggest that the clinical choice between them may depend more on patient comfort, clinician preference, cost, and compliance than on strong evidence of superior efficacy.

Another important issue in the present review is the methodological quality of the included studies. According to the RoB 2 assessment, none of the included trials was judged to be at overall low risk of bias. Two studies, Seifeldin and Elhayes and Amin et al., showed high risk of bias in the domain of deviations from intended interventions, while the remaining domains were judged as having some concerns. This means that the findings should be interpreted with caution, because bias may have affected the observed estimates [10]. In addition, two of the included studies were multi-arm trials, and only the hard- and soft-splint arms were relevant for the present review [13,15]. Although this approach is methodologically acceptable, it further reduces the amount of directly comparable evidence.

The publication bias analysis in your results did not show major evidence of bias, and the funnel plot appeared relatively symmetrical. Egger's regression test, Begg and Mazumdar's test, and the fail-safe N were all non-significant.

However, these results should not be overinterpreted because publication-bias tests are known to have low power when the number of included studies is very small [11,12]. Since only four studies were included, the absence of statistical evidence of publication bias does not completely rule it out.

This review has some important clinical implications. Since both hard and soft splints showed broadly similar outcomes, clinicians may choose the splint type according to patient-specific factors such as comfort, adaptability, wear acceptance, cost, and ease of fabrication. Soft splints may be preferred by patients who are more sensitive or less tolerant of rigid appliances, while hard splints may still be useful when greater occlusal control is desired. At the same time, splint therapy should not be viewed as a stand-alone solution. TMD management often benefits from a broader conservative approach that includes explanation, reassurance, habit control, behavioral advice, and self-care measures [1,13].

CONCLUSION

Overall, the present systematic review and meta-analysis suggests that both hard and soft occlusal splints are effective conservative modalities for TMD, particularly for reducing pain and improving jaw function over time. However, the available evidence does not demonstrate a clear and consistent superiority of one over the other. Future randomized controlled trials with larger sample sizes, uniform diagnostic criteria, standardized pain scales, and longer follow-up periods are needed to provide stronger and more definite evidence.

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