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Reporting quality and risk of bias in adolescent idiopathic scoliosis brace studies: a systematic evaluation on behalf of the SRS comprehensive care committee

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Abstract

Background: Reporting quality in studies on brace treatment for adolescent idiopathic scoliosis (AIS) is highly variable, which limits the interpretability of outcomes and introduces potential sources of bias. In 2015, the Society on Scoliosis Orthopaedic and Rehabilitation Treatment (SOSORT) and the Scoliosis Research Society (SRS) issued recommendations to standardize research methodology and improve transparency in scoliosis bracing studies.

Aim: To evaluate the quality of reporting and risk of bias in AIS brace studies and to examine whether studies published after 2015 demonstrate adherence to SOSORT/SRS recommendations.

Design: Systematic evaluation of reporting quality and risk of bias.

Methods: PubMed, Embase, Medline, Web of Science Core Collection, and the Cochrane Central Register of Controlled Trials were systematically searched for studies reporting outcomes of specific brace treatments in AIS. Two independent reviewers screened studies according to predefined criteria. Reporting quality was assessed using a 19-item checklist derived from the 2015 SOSORT/SRS recommendations (score range 1-18).

Results: A total of 163 studies met inclusion criteria (129 published before 2015 and 34 after). The median reporting quality score was 6 (range 2-12), with no significant improvement in studies published after the SOSORT/SRS recommendations (median 6 vs. 7, $p = 0.53$). While most studies described the study population (75%), key elements with direct implications for risk of bias were consistently underreported: inclusion of "Risser 0-2, 25-40° curves" (31%), incorporation of skeletal maturity staging in analyses (1%), adherence monitoring (17%), patient-centered outcomes (13%), and standardized timepoint reporting (37%). Radiographic outcomes were commonly reported (93%), but validated quality of life measures were rarely used (13%).

Conclusion: Reporting quality in AIS brace studies remains low. This study identifies the persistent gaps that contribute to substantial risk of bias and limit comparability across studies. Despite the publication of SOSORT/SRS recommendations, adherence remains limited. A structured, standardized reporting framework is needed to improve transparency, reduce bias, and enhance the comparability of future research in AIS bracing.

Keywords: Brace; Quality; Review; SOSORT/SRS guidelines; Scoliosis.

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