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Evaluation of Relationship Between Malocclusions and Scoliosis: a Systematic Review

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Objectives Scoliosis is a medical condition identified by abnormal curvature of the spine resulting in postural distortion. Idiopathic scoliosis may affect the function of the stomatognathic system due to its clinical manifestations and potential contributing factors. The objective of this study was to examine the association between different types of malocclusions and scoliosis.

Methods The search was conducted in databases following PRISMA guidelines. To be included, the study had to be less than 5 years ago and written in English. The risk of bias of each study was assessed using the Cochrane Risk of Bias Tool (RoB-2).

Results Seven studies were included, comprising 1,575 subjects aged 5-30, along with one study involving subjects aged 5-60+. Compared to healthy individuals, patients with scoliosis have greater prevalence of malocclusions, 15.9 % of patients with jaw deformity had scoliosis. Except for the absolute values ($p=0.023$), there was no significant correlation between the Cobb and Me angles in the actual values ($p=0.606$). Malocclusion patients had significantly higher prevalence of postural pathologies (fusion C2-C3, kyphosis, lordosis, scoliosis) compared to normal occlusion ($p<0.001$). However, in another study correlation between trunk asymmetry and sagittal jaw relationship was not significant ($p=0.651$). Malocclusions are correlated with chewing patterns, therefore patients with scoliosis had a considerably higher proportion of reversal cycles when chewing on both sides, both with soft and hard bolus ($p<0.001$). Furthermore, scoliosis patients showed significantly more asymmetric canine and molar connections, midline deviations, deep overbite, unilateral posterior crossbite, canted occlusal plane ($p<0.05$), anterior partial open bite ($p=0.323$), lateral partial cross bite ($p=0.230$), scissors bite ($p=0.248$), and higher prevalence of deviated mandible ($p<0.05$).

Conclusions Scoliosis is related to various oral health issues, including malocclusions and jaw deformities. This underscores the importance of comprehensive interdisciplinary care to address both spinal and craniofacial health concerns in patients with scoliosis.