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Response Letter Mota-Júnior and colleagues regarding:

Benson et al Extraction vs nonextraction of premolars for orthodontic treatment: A scoping review examining the extent, range, and characteristics of the literature.

We thank Dr Mota-Júnior and colleagues for their kind words about our article. We agree with the authors that, as with all aspects of orthodontic treatment planning, the decision whether or not to extract premolars should only be undertaken after a careful and comprehensive assessment and diagnosis of each patient.

In regard to esthetics and facial profile, as we state in our article, current evidence suggests that there are only minor, clinically insignificant differences in the post-treatment appearances between patients treated with and without premolar extractions. The two completed RCTs included in our review would potentially have accounted for those confounding clinical factors mentioned by Dr Mota-Júnior and colleagues, by randomly allocating participants to either the extraction or non-extraction groups. However, the sample sizes in the two studies are probably not large enough to detect a significant difference in all these factors, if any differences actually exist. The much larger number of retrospective cohort studies (n=102) could possibly account for some of these factors in their statistical analysis, but again the sample size of each individual study is almost certainly too small to account for all the factors mentioned. In addition, the studies are at a potential high risk of selection and allocation bias, due the participants being chosen after they have been treated.

We identified 10 published systematic reviews in this area (one article was a dataset for one of the completed reviews). Table I shows whether or not the systematic review undertook a meta-analysis (MA), the reported outcomes in the MA and the minimum and maximum number of included articles in each MA. As previously stated, the current evidence from these meta-analyses suggest that any differences in the post-treatment appearance between patients treated with and without premolar extractions are minor and clinically insignificant.

Clinical studies involving a large number of prospectively recruited participants, from multiple treatment centres and followed to the end of their orthodontic treatment (and for a significant amount of time post-treatment), with dropouts and withdrawals accounted for, are required to further investigate if there are any differences in outcomes between those treated with and without extraction of premolars. It would also be helpful if the orthodontic profession, with the help of patients and possibly lay people would identify a core set of outcomes to collect in these studies. This would assist the pooling of data from many studies, in future meta-analyses, to increase the certainty of the findings from individual studies.

Table I – A summary of the systematic reviews to-date in the area of Esthetics, including facial profile or cephalometric changes, whether or not the review undertook a meta-analysis (MA), the reported outcomes in the MA and the minimum and maximum number of articles included in the MA.

Authors	Yes/No	Meta-Analysis (MA)		Nos of Included Articles in MA	
		Outcomes		Min	Max
Janson 2011 ¹	No				
Dai 2015 ²	Yes	Front smiling esthetics		4	4
Cheng 2016 ³	Yes	Esthetic score, intercanine width:smile width, last visible teeth width:smile width		4	4
Iared 2017 ⁴	Yes	Esthetic impact, preference for the posttreatment facial profile; dentists and lay assessors and lay assessors alone		4	4
Janson 2017 ⁵	Yes	Mean change ANB angle		13	13
Almurtadha 2018 ⁶	Yes	Facial convexity angle, nasolabial angle, superior sulcus depth, upper lip thickness, labrale superioris to E-line, labrale inferioris to E-line		2	5
Konstantonis 2018 ⁷	Yes	Lower lip to E-line, upper lip to E-line, nasolabial angle, soft tissue profile convexity excluding nose		6	26
Kouvelis 2018 ⁸	No				
Moon 2021 ⁹	Yes	SNA, SNB, ANB, FMA, IMPA, Overjet, Overbite, nasolabial angle, upper lip to E-line, lower lip to E-line,		2	4
Quinzi 2021 ¹⁰	No				

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