

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Orthodontic Treatment and Psychological Well-being: Clinical Effectiveness – An Update

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Authors: Yan Li, Charlene Argáez

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Research Questions

1. What is the clinical effectiveness of orthodontic treatment to improve psychological well-being and increase self-esteem?
2. What is the effectiveness of orthodontic treatment to prevent suicide in patients with malocclusion?
3. What are the evidence-based guidelines for the use of orthodontic treatment to improve psychological well-being and increase self-esteem?

Key Findings

One overview of reviews, four systematic reviews (two with meta-analyses), one randomized controlled trial, and fifteen non-randomized studies were identified regarding the clinical effectiveness of orthodontic treatment to improve psychological well-being and increase self-esteem.

Methods

This report makes use of a literature search developed for a previous CADTH report. The original literature search was conducted in January 2017 on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were orthodontics and psychological well-being/suicide prevention. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The initial searches were also limited to English-language documents published between January 1, 2017 and November 13, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Children (<18 years old) and adults (18+) Subgroup of interest: First Nations and Inuit, Indigenous, Aboriginal populations
Intervention	Orthodontic treatment
Comparator	No treatment

Outcomes	Changes in psychological well-being and self-esteem, quality of life, suicide prevention, guidelines and recommendations
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, and evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One overview of reviews¹, four systematic reviews (two with meta-analyses)²⁻⁵, one randomized controlled trial⁶, and fifteen non-randomized studies⁷⁻²¹ were identified regarding the clinical effectiveness of orthodontic treatment to improve psychological well-being and increase self-esteem. No relevant literature was identified regarding the effectiveness of orthodontic treatment to prevent suicide in patients with malocclusion. No evidence-based guidelines were identified regarding the use of orthodontic treatment to improve psychological well-being and increase self-esteem.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Overview of Reviews

1. Yassir YA, McIntyre GT, Bearn DR. The impact of labial fixed appliance orthodontic treatment on patient expectation, experience, and satisfaction: an overview of systematic reviews. *Eur J Orthod*. 2019 May 31. [PubMed: PM31147683](https://pubmed.ncbi.nlm.nih.gov/31147683/)

Systematic Reviews and Meta-analyses

Pediatric Population and Non-Surgical Treatment

2. Ferrando-Magraner E, Garcia-Sanz V, Bellot-Arcis C, Montiel-Company JM, Almerich-Silla JM, Paredes-Gallardo V. Oral health-related quality of life of adolescents after orthodontic treatment. A systematic review. *J Clin Exp Dent*. 2019 Feb;11(2):e194-e202. [PubMed: PM30805125](https://pubmed.ncbi.nlm.nih.gov/30805125/)
3. Javidi H, Vettore M, Benson PE. Does orthodontic treatment before the age of 18 years improve oral health-related quality of life? A systematic review and meta-analysis. *Am J Orthod Dentofacial Orthop*. 2017 Apr;151(4):644-655. [PubMed: PM28364887](https://pubmed.ncbi.nlm.nih.gov/28364887/)

Pediatric Population and Surgical Treatment

4. Yi J, Lu W, Xiao J, Li X, Li Y, Zhao Z. Effect of conventional combined orthodontic-surgical treatment on oral health-related quality of life: a systematic review and meta-analysis. *Am J Orthod Dentofacial Orthop*. 2019 Jul;156(1):29-43.e25.
[PubMed: PM31256831](#)

Adult Population and Surgical Treatment

5. Zamboni R, de Moura FRR, Brew MC, et al. Impacts of orthognathic surgery on patient satisfaction, overall quality of life, and oral health-related quality of life: a systematic literature review. *Int J Dent*. 2019:2864216.
[PubMed: PM31316563](#)

Randomized Controlled Trials

Pediatric Population and Non-Surgical Treatment

6. Pithon MM, Magno MB, da Silva Coqueiro R, et al. Oral health-related quality of life of children before, during, and after anterior open bite correction: a single-blinded randomized controlled trial. *Am J Orthod Dentofacial Orthop*. 2019 Sep;156(3):303-311.
[PubMed: PM31474260](#)

Non-Randomized Studies

Pediatric Population and Non-Surgical Treatment

7. Jaeken K, Cadenas de Llano-Perula M, Lemiere J, Verdonck A, Fieuws S, Willems G. Reported changes in oral health-related quality of life in children and adolescents before, during, and after orthodontic treatment: a longitudinal study. *Eur J Orthod*. 2019 Mar 29;41(2):125-132.
[PubMed: PM29917078](#)
8. Abreu LG, Dos Santos TR, Melgaco CA, Abreu MHN, Lages EMB, Paiva SM. Impact of orthodontic treatment on adolescents' quality of life: a longitudinal evaluation of treated and untreated individuals. *Qual Life Res*. 2018 Aug;27(8):2019-2026.
[PubMed: PM29532318](#)
9. Agbaje HO, Kolawole KA, Otuyemi OD. Evaluation of early changes in oral health-related quality of life amongst Nigerian patients undergoing fixed orthodontic appliance therapy. *Int Orthod*. 2018 Sep;16(3):571-585.
[PubMed: PM30030000](#)
10. Deng X, Wang YJ, Deng F, Liu PL, Wu Y. Psychological well-being, dental esthetics, and psychosocial impacts in adolescent orthodontic patients: a prospective longitudinal study. *Am J Orthod Dentofacial Orthop*. 2018 Jan;153(1):87-96.e82.
[PubMed: PM29287660](#)

Adult Population and Non-Surgical Treatment

11. Demirovic K, Habibovic J, Dzemic V, Tiro A, Nakas E. Comparison of oral health-related quality of life in treated and non-treated orthodontic patients. *Med Arch*. 2019 Apr;73(2):113-117.
[PubMed: PM31391699](#)
12. Grewal H, Sapawat P, Modi P, Aggarwal S. Psychological impact of orthodontic treatment on quality of life - a longitudinal study. *Int Orthod*. 2019 Jun;17(2):269-276.
[PubMed: PM31028017](#)

Adult Population and Surgical Treatment

13. Agirnasligil MO, Gul Amuk N, Kilic E, Kutuk N, Demirbas AE, Alkan A. The changes of self-esteem, sensitivity to criticism, and social appearance anxiety in orthognathic surgery patients: a controlled study. *Am J Orthod Dentofacial Orthop*. 2019 Apr;155(4):482-489.e482.
[PubMed: PM30935603](#)
14. Ni J, Song S, Zhou N. Impact of surgical orthodontic treatment on quality of life in Chinese young adults with class III malocclusion: a longitudinal study. *BMC Oral Health*. 2019 Jun 13;19(1):109.
[PubMed: PM31196054](#)
15. Sun H, Shang HT, He LS, Ding MC, Su ZP, Shi YL. Assessing the quality of life in patients with dentofacial deformities before and after orthognathic surgery. *J Oral Maxillofac Surg*. 2018 Oct;76(10):2192-2201.
[PubMed: PM29684310](#)
16. Alanko O, Tuomisto MT, Peltomaki T, Tolvanen M, Soukka T, Svedstrom-Oristo AL. A longitudinal study of changes in psychosocial well-being during orthognathic treatment. *Int J Oral Maxillofac Surg*. 2017 Nov;46(11):1380-1386.
[PubMed: PM28579266](#)
17. Emadian Razvadi ES, Soheilifar S, Esmaeelinejad M, Naghdi N. Evaluation of the changes in the quality of life in patients undergoing orthognathic surgery: a multicenter study. *J Craniofac Surg*. 2017 Nov;28(8):e739-e743.
[PubMed: PM28922243](#)
18. Tamme JA, Rohnen M, Gassling V, et al. Correlation of general and oral health-related quality of life in malocclusion patients treated with a combined orthodontic and maxillofacial surgical approach. *J Craniomaxillofac Surg*. 2017 Dec;45(12):1971-1979.
[PubMed: PM29029997](#)

All Age Groups and Non-Surgical Treatment

19. Olkun HK, Sayar G. Impact of orthodontic treatment complexity on oral health-related quality of life in Turkish patients: a prospective clinical study. *Turk J Orthod*. 2019 Sep;32(3):125-131.
[PubMed: PM31565686](#)

20. Paes da Silva S, Pitchika V, Baumert U, et al. Oral health-related quality of life in orthodontics: a cross-sectional multicentre study on patients in orthodontic treatment. *Eur J Orthod*. 2019 Oct 12.
[PubMed: PM31605613](#)

Age Group Unclear and Surgical Treatment

21. Al-Asfour A, Waheedi M, Koshy S. Survey of patient experiences of orthognathic surgery: health-related quality of life and satisfaction. *Int J Oral Maxillofac Surg*. 2018 Jun;47(6):726-731.
[PubMed: PM29373200](#)

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Previous CADTH Reports

22. Clark M, Ford C. Orthodontic treatment in patients with malocclusion: clinical effectiveness and guidelines (*CADTH rapid response: reference list*). Ottawa (ON): CADTH; 2017 Jun.
<https://www.cadth.ca/sites/default/files/pdf/htis/2017/RA0910%20Orthodontic%20Care%20Age%20Limits%20Final.pdf> Accessed 2019 Nov 20.
23. Banerjee S, Grobelna A. Orthodontic treatment and psychological well-being: a review of the clinical effectiveness (*CADTH rapid response report: peer-reviewed summary with critical appraisal*). Ottawa (ON): CADTH; 2017 May.
<https://cadth.ca/sites/default/files/pdf/htis/2018/RD0038%20Orthodontics-Final.pdf> Accessed 2019 Nov 20.

Health Technology Assessments – Alternative Comparator

24. Prajapati P, Esfandiari S. Periodontal health among orthodontic treatment patients; clear aligners treatment versus fixed orthodontic treatment: a health technology assessment. Montreal (QC): School of Dentistry, McGill University; 2018 Apr.
https://www.mcgill.ca/dentistryohs/files/dentistryohs/hta_priyanka_prajapatia.pdf Accessed 2019 Nov 20.

Systematic Reviews – Alternative Comparator

25. Khalaf K, Mando M. Removable appliances to correct anterior crossbites in the mixed dentition: a systematic review. *Acta Odontol Scand*. 2019 Sep 11:1-8.
[PubMed: PM31509048](#)

Randomized Controlled Trials – Alternative Comparator

26. Hanafy M, Abou-Elfetouh A, Mounir RM. Quality of life after different approaches of orthognathic surgery: a randomized controlled study. *Minerva Stomatol*. 2019 Jun;68(3):112-117.
[PubMed: PM31014060](#)
27. Lai TT, Chiou JY, Lai TC, Chen T, Chen MH. Oral health-related quality of life in orthodontic patients during initial therapy with conventional brackets or self-ligating brackets. *J Dent Sci*. 2017 Jun;12(2):161-172.
[PubMed: PM30895043](#)
28. Saleh M, Hajeer MY, Muessig D. Acceptability comparison between Hawley retainers and vacuum-formed retainers in orthodontic adult patients: a single-centre, randomized controlled trial. *Eur J Orthod*. 2017 Aug 1;39(4):453-461.
[PubMed: PM28430890](#)

Non-Randomized Studies

No Comparator

29. Alqefari J, Albelaihi R, Elmoazen R, Bilal R. Three-dimensional assessment of the oral health-related quality of life undergoing fixed orthodontic therapy. *J Int Soc Prev Community Dent.* 2019 Jan-Feb;9(1):72-76.
[PubMed: PM30923697](#)
30. Avelar RL, Silva PGB, Magalhaes MTC, Parente AEA, Alencar NMC, Barros LO. Quality of life assessment for elderly patients treated with orthognathic surgery. *J Craniofac Surg.* 2019 Oct;30(7):e633-e637.
[PubMed: PM31490437](#)
31. Ghorbani F, Gheibollahi H, Tavanafar S, Eftekharian HR. Improvement of esthetic, functional, and social well-being after orthognathic surgical intervention: a sampling of postsurgical patients over a 10-year period from 2007 to 2017. *J Oral Maxillofac Surg.* 2018 Nov;76(11):2398-2403.
[PubMed: PM29792834](#)
32. Imani MM, Jalali A, Dinmohammadi M, Nouri P. The effect of orthodontic intervention on mental health and body image. *Open Access Maced J Med Sci.* 2018 Jun 20;6(6):1132-1137.
[PubMed: PM29983816](#)
33. Schilbred Eriksen E, Moen K, Wisth PJ, Loes S, Klock KS. Patient satisfaction and oral health-related quality of life 10-15 years after orthodontic-surgical treatment of mandibular prognathism. *Int J Oral Maxillofac Surg.* 2018 Aug;47(8):1015-1021.
[PubMed: PM29426739](#)
34. Choi SH, Cha JY, Lee KJ, Yu HS, Hwang CJ. Changes in psychological health, subjective food intake ability and oral health-related quality of life during orthodontic treatment. *J Oral Rehabil.* 2017 Nov;44(11):860-869.
[PubMed: PM28853165](#)
35. Eslamipour F, Najimi A, Tadayonfard A, Azamian Z. Impact of orthognathic surgery on quality of life in patients with dentofacial deformities. *Int J Dent.* 2017:4103905.
[PubMed: PM29090006](#)
36. Garg K, Tripathi T, Rai P, Sharma N, Kanase A. Prospective evaluation of psychosocial impact after one year of orthodontic treatment using PIDAQ adapted for Indian population. *J Clin Diagnos Res.* 2017 Aug;11(8):zc44-zc48.
[PubMed: PM28969272](#)
37. Zingler S, Hakim E, Finke D, et al. Surgery-first approach in orthognathic surgery: psychological and biological aspects - a prospective cohort study. *J Craniomaxillofac Surg.* 2017 Aug;45(8):1293-1301.
[PubMed: PM28684072](#)

Alternative Comparator

38. Barros LAN, Jesuino FAS, de Paiva JB, Rino-Neto J, Valladares-Neto J. An oral health-related quality of life comparison between adults with unilateral cleft lip and palate and class III malocclusion. *Cleft Palate Craniofac J*. 2019 Nov;56(10):1359-1365.
[PubMed: PM31170804](#)
39. Brucoli M, Zeppego P, Benech R, Boffano P, Benech A. Psychodynamic features associated with orthognathic surgery: a comparison between conventional orthognathic treatment and "surgery-first" approach. *J Oral Maxillofac Surg*. 2019 Jan;77(1):157-163.
[PubMed: PM30599884](#)
40. Corradi-Dias L, Paiva SM, Pretti H, Pordeus IA, Abreu LG. Impact of the onset of fixed appliance therapy on adolescents' quality of life using a specific condition questionnaire: a cross-sectional comparison between male and female individuals. *J Orthod*. 2019 Sep;46(3):195-204.
[PubMed: PM31144564](#)
41. Filius MAP, Cune MS, Creton M, Vissink A, Raghoobar GM, Visser A. Oral health-related quality of life in Dutch children diagnosed with oligodontia. A cross-sectional study. *Int J Environ Res Public Health*. 2019 Jul 4;16(13).
[PubMed: PM31277355](#)
42. Elmouden L, Ousehal L. Assessment of the quality of life in Moroccan patients undergoing orthognathic surgery. *Turk J Orthod*. 2018 Sep;31(3):79-85.
[PubMed: PM30206566](#)
43. Flores-Mir C, Brandelli J, Pacheco-Pereira C. Patient satisfaction and quality of life status after 2 treatment modalities: Invisalign and conventional fixed appliances. *Am J Orthod Dentofacial Orthop*. 2018 Nov;154(5):639-644.
[PubMed: PM30384934](#)
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[PubMed: PM28408807](#)
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[PubMed: PM28885441](#)
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[PubMed: PM28257741](#)

Review Articles

49. Ashton-James CE, Chemke-Dreyfus A. Can orthognathic surgery be expected to improve patients' psychological well-being? The challenge of hedonic adaptation. *Eur J Oral Sci.* 2019 Jun;127(3):189-195.
[PubMed: PM30869174](#)