

INPLASY

A review of behavioural approaches to support oral hygiene in adolescent orthodontic patients

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Risk of bias assessment.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 October 2024 and was last updated on 24 October 2024.

INTRODUCTION

Review question / Objective The objective of this review is to explore the behavioural approaches and interventions for oral health behaviour in adolescent orthodontic patients to understand how interventions to improve oral hygiene are being framed and/or theorised for adolescents and to explore the potential for a holistic approach in adolescents to improve oral health and overall wellbeing.

Review Question:

What are the behavioural approaches adopted and interventions implemented to improve the oral health of adolescent orthodontic patients?

What types of interventions and approaches are described in the literature?

What are the aims and assessed outcomes of these interventions?

What is the evidence or theory underpinning this approach?

Rationale There is global health policy agenda to improve oral health in addressing the burden of

chronic disease and a directive to apply behavioural science in clinical care. Oral diseases typically present earlier in life than other chronic diseases and are often preventable. The concept of Making every contact count (MECC) promotes utilising healthcare visits for brief behavioural interventions to optimise health.

Many adolescents seek orthodontic treatment and their role in their own care influences their treatment outcome and their longer term oral health. The field of behavioural sciences provides evidence, theories and frameworks to optimise health behaviours, but it has also been acknowledged that there can be a gap between the evidence base and clinical practice. Patient centred models of care require novel approaches to supporting patients to be active participants in their own care.

Previous systematic reviews have explored the effectiveness or efficacy of interventions designed to improve oral hygiene in adolescent orthodontic patients. The heterogeneity of interventions and outcome measures limits the scope for meta analysis. This review will explore how interventions

to improve adolescent oral health behaviours during orthodontic treatment are being designed, framed or theorised and the potential for holistic approaches to oral health and overall wellbeing.

Condition being studied Oral hygiene in adolescent orthodontic patients. The review will explore all behavioural approaches delivered in clinical settings and through mHealth tools to adolescents during fixed appliance orthodontic treatment.

METHODS

Search strategy The review will be conducted using PRISMA guidelines. (2023). The search strategy was tested and revised using medical search terms from National Library of Medicine and from reviewing key words. The search included all studies, published in English in a 30 year range, from 16th May 1994 until 16th May 2024.

The Boolean Logic MeSH Terms or equivalent used:

adolescent* OR youth OR “young” OR teen* OR exp Adolescent/
AND
orthodontic* OR “fixed appliance*” OR exp Orthodontics/
AND
Intervention* OR psychol* OR model OR theory OR motivat* OR program* OR promot* OR educat* OR coach* OR therap* OR support OR counselling OR communicat* OR language* OR improv* OR behaviour* OR behavior* OR behavio* change OR compliance OR adherence OR effect* OR technique* OR exp Education/ OR exp Behavior/
AND
gingivitis OR plaque OR hygien* OR exp Hygiene/.

Participant or population Adolescents aged 10-19 during fixed orthodontic therapy.

Intervention Behavioural change approaches and interventions (clinical and mHealth) to improve oral hygiene through a behavioural intervention.

Comparator Standard care in clinical settings or via mHealth.

Study designs to be included Any study design testing a behavioural intervention.

Eligibility criteria There will be no restriction on the population size for included studies. Studies will be included if they are peer reviewed, published in English, empirical research (quantitative or qualitative), testing a behavioral

approach, and reported objective or subjective outcomes or effects.

The exclusion criteria will be studies where the participants are adults, where orthodontic treatment is provided using removable appliances or studies where no effect is reported.

Non-compliance approaches (photodynamic therapy)

Chemical aids (probiotic lozenges, mouthwashes and dentrifice)

Mechanical aids (electric brushes and flossers).

Information sources An electronic search strategy will be employed using MEDLINE., CONAHL and Web of Science for studies designed to improve dental hygiene during orthodontic treatment in adolescents. In addition, grey literature will be searched using google scholar search engine and a citation chaser for relevant papers.

Main outcome(s) Outcomes used to assess the effect or impact of the approach, such as clinical outcomes, patient reported outcomes or observed outcomes.

Data management Covidence software used for data extraction and synthesis.

Quality assessment / Risk of bias analysis The PRISMA guidelines will be followed . A Risk of Bias assessment will be completed using the Cochrane Risk of Bias tool (RoB2 checklist) within the Covidence software to track the assessment and reviewer agreement.

Strategy of data synthesis The proposed data to be extracted and recorded for each of the included studies was agreed by two of the authors (CS and EB). The first reviewer (CS) will extract the predefined data items according to the following categories.

A. Publication description (Title, first author, journal and year)

B. Study description (Aim of the study, study design, participant numbers and age)

C. Intervention description (rationale for intervention, content/type, location, outcomes assessed)

D. Behavioural approach (rationale, type, evidence/theory informed, communication/language used,positionality).

Subgroup analysis No subgroup analysis is planned.

Sensitivity analysis This review is a meta synthesis.

Language restriction Only studies published in English will be included.

Country(ies) involved Ireland.

Keywords orthodontics; health behaviour; oral hygiene; adolescents; motivation; health promotion.

Contributions of each author

Author 1 - Ciara Scott - Primary author. Responsible for development of the research question, selection criteria and search strategy.

Responsible for study selection and analysis, risk of bias assessment and the draft manuscript.

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Author 2 - Jolanta Burke - The author will provide support in refining the research question and objectives. The author will read, provide feedback and approve the final manuscript.

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Author 4 - Elaine Byrne - The author provides support in refining the research question and objectives, search strategy and data extraction plan. The author is the second reviewer for the study selection and risk of bias assessment. The author will read, provide feedback and approve the final manuscript.

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