International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Social Messaging Apps as a Tool for Oral Health Promotion Among Young Adults: A Systematic Review Protocol

INPLASY202470012
doi: 10.37766/inplasy2024.7.0012
Received: 04 July 2024
Published: 04 July 2024

Mohd Nor, NA; Zaberi, ZS.

Corresponding author:
Nor Azlida Mohd Nor

azlida@um.edu.my

Author Affiliation:
Department of Community Oral Health and Clinical Prevention, Faculty of Dentistry, University of Malaya, 50603, Kuala Lumpur, Malaysia.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202470012

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 July 2024 and was last updated on 04 July 2024.

INTRODUCTION

Review question / Objective This review aimed to explore the characteristics of social messaging apps used for oral health promotion activities, and the impact of their implementation on oral health knowledge, attitude, behaviour and oral health condition outcomes among young adults.
This review focused on answering the following research questions:
1) What are the characteristics of oral health promotion activities using social messaging apps?
2) What are the impacts of using social messaging apps for oral health promotion activities on oral health knowledge, attitudes, behaviour and oral health outcomes among young adults?

Rationale This systematic review aims to synthesise evidence on the use of social messaging apps for oral health promotion interventions. Whilst traditional methods of oral health promotion have been widely used, the digital age presents new opportunities to leverage social media platforms, particularly social messaging apps, for health communication. The findings of this review will contribute to the growing body of knowledge on digital health interventions and provide valuable insights for healthcare professionals, policymakers, and researchers in the field of oral health.

Condition being studied Despite technological advancements, oral diseases remain a significant global public health challenge. Previous reviews have explored the broader impact of social media on oral health outcomes, but there are notable gaps in the literature specifically examining interventions using social messaging apps. For instance, studies have examined oral health promotion impact based on a mixture of broad digital platforms, whilst some focused on, mass media without including social media platforms. Meanwhile, a recent study took a broad approach, covering non-specific internet-based social media applications without distinguishing between the unique features of different platforms.

Given the ubiquity of social messaging apps among younger generations and their potential for personalised health communication, it is crucial to consolidate the existing evidence on their effectiveness in oral health promotion. This review will focus on interventions utilising popular social messaging apps such as WhatsApp, Telegram, and WeChat, examining their impact on oral health knowledge, behaviours, and oral condition outcomes. By synthesising this evidence, we aim to address the identified gaps in previous studies and inform the development of effective, technology-driven strategies for oral health promotion, particularly targeting young adults.

METHODS

Search strategy A preliminary limited search of SCOPUS and the PUBMED will be conducted to identify appropriate keywords and Medical Subject Headings (MeSH) terms. A comprehensive search strategy will be developed for four electronic databases (PUBMED, SCOPUS, Web of Science and Medline) using the MeSH terms and identified keywords. This includes a combination of the terms in the titles, abstracts, and index terms of relevant articles by utilising the Boolean operators OR/AND. The keywords and combinations derived from the research will be included in the search strategy for each database (e.g. social networking website, Web 2.0, WhatsApp, Telegram). The concept and keywords used are described below:
Social messaging apps: Social networking, online social network, Web 2.0, Social network sites, Instagram, Facebook messenger, instant messaging, chat, WhatsApp, Telegram, Snapchat, WeChat.
Oral Health Promotion: Oral health education, Oral health promotion, Dentistry, Dental, oral health information Dental informatics, oral health campaign, social media campaign.
Oral health impacts: Oral health literacy, oral health knowledge, oral health attitude, oral health behaviours, oral health practice, oral hygiene, oral healthcare. Toothbrushing.
Young Adult: Young adults, young people, youth, adolescents, college students.

Participant or population This review will focus on young adults aged 17-35 years old or studies that reflect this age group as most participants. No restriction will be placed in terms of socio-demographics, gender or health backgrounds. This age group is selected to represent the largest demographic of social media and messaging app users.

Intervention Studies on oral health promotion incorporate the utilisation of social messaging apps for continuity of care for oral health services and oral health intervention, primarily in delivering oral health information or education. Social messaging apps refer to readily available online communication services primarily accessed through mobile devices, allowing for instantaneous connection and information exchange. Examples of such apps include, but are not limited to, WhatsApp, WeChat, Telegram and Facebook Messenger.

Comparator In the experimental study, the comparison will be derived from changes in oral condition and KAB outcome from utilising social messaging application compared to another approach such as no treatment or other form of treatment like usual oral care. In the study without a control group, the comparison of KAB outcome will be derived from pre- and post-exposure to oral health promotion efforts using social messaging apps.

Study designs to be included Primary quantitative experimental studies including randomised controlled trials or non-randomised controlled trials and quasi-experimental designs with pre- and post-comparison will be included in this review. No restriction will be placed regarding the duration of follow-up.

Eligibility criteria This systematic review will include peer-reviewed journal articles published in English between 2004 and December 2023 that focus on oral health promotion activities conducted via readily available social messaging apps or instant messaging applications (e.g., WhatsApp, Snapchat, Telegram, WeChat). Studies must evaluate oral health promotion efforts aimed at this non-dental personnel group. Primary outcomes of interest include oral health status, knowledge, attitudes, behaviours, and self-reported oral health behaviours. Secondary outcomes will also include challenges, limitations, and areas for improvement in the interventions. The review will focus on interventions delivered through free, widely accessible social messaging platforms to ensure the broad applicability of findings.

Information sources Electronic databases (PUBMED, SCOPUS, Web of Science, MEDLINE) will be used to identify eligible studies. Only peer-reviewed primary articles published in English will be included. The reference list of randomly selected included studies will also be searched to identify additional relevant articles.

Main outcome(s) Strategies that have been used to execute oral health promotion across these social messaging apps. The review will also examine the impact of such implementation on 1) oral health knowledge, attitude and behaviour and 2) oral condition outcomes. For knowledge, attitude and behaviour outcomes, the review will focus on comparing initial assessments to post-intervention scores, means, or perceived enhancements of knowledge, attitude and behaviour elements. Meanwhile, impact on oral conditions focuses primarily on outcomes such as improvements or changes in oral hygiene practices, reduced plaque accumulation (e.g., plaque scores), decreased incidence of dental caries (cavities), improved gum health (e.g., gingivitis index or bleeding index), or overall enhancement of other oral health indicators like decreased dental caries or improved oral hygiene status.

Data management Following the search, all identified articles will be collated and uploaded into Rayyan, a cloud-based software application that was developed to assist in article screening. If similar articles are presented in more than one publication, a report with more comprehensive data/findings will be considered and a duplicate will be removed. To ensure acceptable inter-rater reliability and consistency of data extraction, a screening form will be developed by the research team and piloted on 25 articles by two reviewers as part of the screening exercise. Following the screening exercise, the same reviewers will screen and analyse the title and abstract from the list of electronic searches independently using a developed screening form. References that provide insufficient data for a clear decision, and which appear to meet the inclusion criteria, will be included in the full article screening stage. The full text will be screened independently by two reviewers and disagreements will be resolved through a discussion with a third reviewer.
Information from the included study will be collected to address the research questions and study objectives that involve categorising data into three main sections, namely characteristics of the study, features of social messaging apps used for oral health promotion, and the impact of such interventions on oral health knowledge, attitude, and behaviour. The data extraction form will be developed based on the outcomes of interest by the main researcher and reviewed by another reviewer. The data extraction form will be piloted on five papers to ensure that it records all relevant information from each study. Necessary adjustments will then be made before it is used to screen all included studies. The review authors will extract the data independently. Any conflict or uncertainty during data extraction will be resolved through discussion, and if necessary, a third reviewer will be consulted.

Quality assessment / Risk of bias analysis The quality of the primary studies will be appraised using the Quality Assessment Tool for Quantitative Studies, developed in Canada by the Effective Public Health Practice project. The tool assesses the risk of bias and evaluates the methodological quality of the studies according to eight domains: study design, blinding, selection bias, withdrawals/dropouts, confounders, data collection, data analysis, and reporting. Upon completing the assessment, each domain is assigned a rating ranging from “strong”, “moderate”, or “weak”. It was reported that the EPHPP tool has a robust methodological rating, making it suitable for assessing public health studies and interventions. Two reviewers will assess each study independently, and the details of the study’s quality will be noted. Should any discrepancies arise, the reviewers will engage in discussions until a consensus on the final scores is reached. If necessary, a third reviewer will be consulted.

Strategy of data synthesis The data obtained from the extraction form will be merged within a spreadsheet document. This will involve organising the data thematically and aligning findings on topics. The review will structure the studies data according to the following characteristics:
- Type of social messaging apps used for oral health promotion.
- Methods of oral health promotion activities (e.g. video sharing, infographics, chat box, reminder messages etc).
- The impact of such implementation on oral health knowledge, attitude and behaviour.
- The impact of such implementation on oral health conditions (related to plaque index, gingival index other oral health measurable index).
Other relevant supplementary information (e.g. participant details, data collection tools, research environment) will also be reported to examine similarities and differences among the studies. The data will be described using frequency count through descriptive statistics to give a general overview of the key features of the included studies.
The summary of the impact of interventions will be based on the calculation of standardised mean differences (for continuous outcomes). These calculations will utilise the data presented within the published studies or will obtained directly from the study authors (whenever possible).

Subgroup analysis Not applicable - The included study has selected a particular age group with a focused/narrowed outcome of interest.

Sensitivity analysis Not applicable – No meta-analysis was performed within this study.

Language restriction English.

Country(ies) involved Malaysia.

Keywords social media messaging, oral health promotion, knowledge, attitude, behaviour.

Dissemination plans The findings of this study will be published in a peer-reviewed journal.

Contributions of each author

Author 1 - Nor Azlida Mohd Nor - Author 2 provides expertise in the development of selection criteria, risk of assessment bias expertise and strategy, revising the draft, and supervising the project.
Email: azlida@um.edu.my
Author 2 - Zarikh Hafizah Saqina Zaberi - Author 1 derived conception of the study, development of selection criteria, and drafting of the protocol.
Email: zarihzaberi@gmail.com