

Use of social media by parents as a resource for knowledge on children's dental health: a systematic review

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ABSTRACT

Objective: This review aims to explore how parents employ social media as an educational platform for their children's oral health and to review the content quality shared across different social media platforms. **Method:** PubMed, Google Scholar, Scopus, Web of Science and Embase databases from 1998 to 2023 were used to conduct a literature search. With the use of inclusion and exclusion criteria, the remaining articles were reviewed. **Results:** 26 studies met the inclusion criteria, out of which five studies (19%) suggested that active engagement of parents in social media based educational initiatives can enhance the oral health-related behaviours of their children. Nineteen studies (73%) recommended that efforts must be taken to generate instructive and standardized videos for use in social media by oral health professionals. Two studies (8%) suggested that social media platforms serve as a means for parents to promote oral health in children, fostering awareness and education in a widely accessible and engaging manner. **Discussion:** According to this review, social media is a driving force in distributing information to parents regarding children's oral health, but standardization of the information has to be implemented. **Conclusion:** Social media networks play crucial roles in informing, educating and motivating parents to improve the overall dental health of their children.

Keywords: children, internet, oral health, parent education, smartphone, social media

CDHA Research Agenda category: risk assessment and management

INTRODUCTION

Social media has been an excellent platform for information sharing and has enhanced the chance for parents to grow intellectually for more than a decade.¹ The evolution of information acquisition methods is evident, transitioning from traditional sources like papers and books to the Internet, and subsequently, to mobile phones primarily through the influence of social media. This transformative pattern is observable across clinical dentistry and dental education.²

Social media are characterized as follows: "a collection of Internet-based applications that are powered by Web 2.0 technology and give users the ability to generate and share their own content".³ The convenience with which WhatsApp, Facebook, YouTube, and Twitter allow users to connect with one another over great distances has contributed to the rise in popularity of these social media platforms.² Recently, social media has emerged as a brand new platform for sharing and even searching for information related to one's health. According to Fox S and Jones S⁴, 39% of online health information seekers utilize social media, and a fraction of these individuals follow their contacts' health experiences or updates, as well as publish their own health-related remarks, obtain health information, or join health-related groups. Tao et al.⁵ studied tweets for circulation of oral health information connected to COVID-19 on Chinese social media in 2020, and discovered that it is effective in offering greater facilitation of oral health related communication, thereby aiding policy decision and highlighting public concern. The Centers for Disease Control and Prevention actively uses social media for public health education.^{6,7}

The burden of oral diseases is a serious challenge to public health in both developed and developing countries, with children suffering from the highest rate of dental caries worldwide. Untreated dental caries has an impact on a child's overall growth and development,

and quality of life, in addition to the child's family and the child's social environment. Children with poor oral health are more prone to encountering dental pain during school hours and exhibiting academic underperformance. This implies that enhancing the oral health status of children could serve as a means to improve their overall quality of life.⁸ Early oral health promotion in children includes educating the parent with proper brushing technique, dietary practises, and oral health maintenance.⁸ According to Arrow et al.⁸, the hypothesis being examined suggests that implementing early intervention for oral health promotion will lead to improvement in oral health of children by changing individual's knowledge, behaviour, attitudes, self-efficacy, and parental stress levels.

It is now well established that poor dental health in children is linked to a variety of physical, psychological, and social issues.⁹ Children can experience a range of negative consequences as a result of oral pain, including disrupted sleep, hindered growth, behavioral issues, and difficulties with learning. Furthermore, recent research has established a correlation between oral health problems and other health complications such as low birth weight, preterm delivery, and iron deficiency.¹⁰ The availability of oral health care services for children is affected by a number of factors, including children's own personal circumstances, societal and cultural norms, economic circumstances, health care policy, and the accessibility of these treatments.¹¹

It has been proven that educating children and parents through various oral health awareness programmes, such as school oral health programmes has been effective and beneficial.⁸ Due to COVID-19 pandemic the access to oral health was greatly reduced as there was no access to school or community health services. Despite the numerous disadvantages and impact that use of smartphones and social media has on individuals, it has been one of the primary sources of teaching, learning and communication during the pandemic period. Hence, the public were exposed to various non-conventional learning modalities through social media

applications. As a result, social media can be used as one of the main influencers in educating and spreading oral health awareness among parents.¹¹

Parents are encouraged to engage with educational content on children's oral health to acquire the knowledge necessary for preserving their children's oral health status. Social media emerges as a powerful influencer in the realm of dental health profession.¹¹

A drawback of social media in oral health is the spread of inaccurate information to parents, potentially influencing misguided decisions and promoting unverified practices, emphasizing the need for ensuring accurate and reliable information to mitigate risks.^{12,13}

This review aims to explore how parents employ social media as an educational platform for their children's oral health and to review the content quality shared across different social media platforms.

METHODS

This systematic review adhered to the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), and its protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO).

Review question

The research question was “How does the use of educational content on social media by parents impact their knowledge regarding children's oral health compared to those who do not use such content?”

P-Parent

I-Use of educational content in social media

C-No use of social media

O-Improvement in parental knowledge regarding their child's oral health

The approach utilized to gather evidence on the topic involved conducting a literature search. The study team (N = 3) searched the PubMed, Google scholar, Scopus, Web of Science, Embase databases from 1998 to 2023 for relevant articles. This literature search comprises full-text articles written in English. The inclusion criteria encompassed clinical studies and observational studies focusing on parental access to oral healthcare for children, parental education, the promotion of children's oral health, and content quality. Exclusion criteria involved articles deviating from the current study's objectives. The initial search strategy in all databases was done in August 2022, while the second update encompassed all databases till December 2023.

Search strategy

The literature was searched using the following MeSH terms: ("social media"[All Fields] OR "digital media"[All Fields] OR "facebook"[All Fields] OR "Instagram"[All Fields] OR "youtube"[All Fields] OR "twitter"[All Fields] OR "telegram"[All Fields] OR "whatsapp"[All Fields] OR "social media impact"[All Fields]) AND ("children oral health"[All Fields] OR "child oral health"[All Fields] OR "dental trauma"[All Fields] OR "dental caries"[All Fields] OR "space maintainer*"[All Fields] OR "oral habits"[All Fields] OR "health care"[All Fields] OR "online health"[All Fields] OR "oral health care"[All Fields])) AND ("oral health professional"[All Fields] OR "dental health professional"[All Fields] OR "dentist"[All Fields] OR "pediatric dentist"[All Fields] OR "pedodontist"[All Fields] OR "pediatric preventive dentistry"[All Fields] OR "pediatric dentistry"[All Fields] OR "public engagement"[All Fields] OR "patient knowledge"[All Fields] OR "parent education"[All Fields] OR "promoting oral health"[All Fields] OR "dental education"[All Fields] OR "tiktok"[All Fields] OR "snapchat"[All Fields] OR "reddit"[All Fields] OR "twitter"[All Fields] OR "flickr"[All Fields] OR "linked in"[All Fields] OR "google plus"[All Fields]). We explored these networks as they are presently the most widely used Online Social Media

platforms on the internet and are utilized by official channels of government agencies globally.^{14,15}

Study selection

Titles and abstracts of potential articles were initially assessed by two team members (DS and PN) based on the inclusion criteria. Full-text publications were then assessed by 3 (DS, PN and JMF) members and excluded if they failed to match the inclusion criteria. The team separately examined each study thoroughly and its completeness was assessed; following that, sources agreed upon by all team members were reviewed (Figure 1).

Data collection

The data from the selected articles were extracted by 3 reviewers independently using Excel spreadsheet. Any conflicts were resolved through discussion until consensus was reached. A pre piloted data extraction sheet was used to extract the data from the included studies. The data extraction sheet has the following details: 1. Author information, 2. Type of study design, 3. Aim of the study, 4. Focus area and 5. Major conclusion

Risk of bias assessment

The risk of bias for three randomized control trials (RCT) included in the current systematic review were evaluated using Cochrane ROB 2.0 tool. There are totally six domains in Cochrane ROB 2.0 tool. All the domains were graded as either high or low or unclear. The quality assessment for two of the included cross-sectional surveys was assessed using Crombie's tool. There are totally seven domains in Crombie's tool for cross sectional survey. All the domains were graded as either yes or no or unclear. The quality assessment for other descriptive cross-sectional studies was assessed using AHRQ tool. There are totally 11 domains for AHRQ methodology for descriptive cross-sectional studies. They were graded as yes or no or unclear. All the 11 domains were found to be applicable only for descriptive cross sectional

studies involving participants. For descriptive cross-sectional studies in which the investigators self-searched the social media for relevant topics, only the first three domains from AHRQ tool were applicable.

RESULTS

Literature search and selection of studies

The initial literature search found 917 distinct studies from which 653 records were screened. Three team members preliminarily assessed all study titles and abstracts, resulting in the exclusion of 599 investigations and then they studied the complete text of all 54 research articles, resulting in the elimination of 28 studies due to irrelevance (i.e., articles aimed at educators or practitioners, adolescents and adults, studies not involving social media as a resource). The remaining 26 studies fulfilled the inclusion criteria (Table 1).

Inter-rater reliability for content quality, parental education, and oral health promotion was assessed using Cohen's kappa. Inter-rater reliability for content quality was computed to be 0.7647 (95% confidence interval = 0.5285, 1.0000) which indicates substantial agreement. Inter-rater reliability for parental education was computed to be 1.0000 (95% confidence interval = 1.0000, 1.0000) which indicates almost perfect agreement. Inter-rater reliability for oral health promotion was computed to be 1.0000 (95% confidence interval = 1.0000, 1.0000) which indicates almost perfect agreement.

Characteristics of included studies

Among 26 articles, 21 (81%) was descriptive cross-sectional studies, 2 (7%) were cross sectional surveys and 3 (12%) were randomized control trials. The main emphasis of each article was identified and categorized into 3 focused areas: 1) Content quality; 2) Parental education; and 3) Oral health promotion. Five studies (19%) on Parental education, nineteen studies (73%) on Content quality, and two studies (8%) on Oral health promotion are focused.

All 26 studies highlighted the importance of oral health and how parents leverage social media to enhance their awareness of their children's oral well-being. This utilization aims to improvise and alleviate the burden of dental issues in children through the proactive prevention of oral diseases. Five studies (19%) suggested that active engagement of parents in social media based educational initiatives can enhance the oral health-related behaviours of their children. Nineteen studies (73%) recommended that efforts must be taken to generate instructive and standardized videos for use in social media by oral health professionals. Two studies (8%) suggested that social media platforms serve as a means for parents to promote oral health in children, fostering awareness and education in a widely accessible and engaging manner.

Quality assessment of the included studies

Two studies out of the three randomized control trials, Riberio et al.³² and Quazi et al.⁴⁰ had unclear risk of bias with respect to selective reporting domain. One of the included RCT, Lotto et al.²⁵ had high risk of bias with respect to blinding of outcome assessment domain as well as incomplete outcome data domain. Out of the three randomized control trials, one of them Lotto et al.²⁵ had high overall risk of bias (Figure 2,3). A total of two cross sectional surveys included in the systematic review had judgement yes for all the seven domains in Crombie's tool (Figure 4). Among the 19 descriptive cross-sectional studies where researchers directly searched social media for pertinent content, it's notable that Basch et al.¹⁹ and Egil et al.²⁴ were two that omitted mention of their inclusion and exclusion criteria. Among the two descriptive cross-sectional studies involving participants, Kumar et al.²¹ failed to specify the time period used for identifying information or participants. Additionally, the evaluators were not blinded to other aspects of the participants' status, and the investigators did not conduct a test-retest of the primary outcome measurement to ensure assessment quality. In the study conducted by Almarshad et al.²⁶, "the investigators were not masked to other aspect of the participants" (Figure 5).

DISCUSSION

Oral health education: a need for society

Dental caries is a behavioural, preventable, multimodal disease that can last a lifetime if not treated.³¹ One of the innovative strategies that might significantly expand the accessibility to dental and oral healthcare services is the use of social media. Oral health solutions can benefit greatly from information that makes them more accessible, usable, and widespread across the primary, secondary, and tertiary care settings, as well as boost the efficacy and lower the cost of each strategy. Due to its evident benefits, social media has gained greater acceptance among both oral health professionals and parents as a means of educating individuals about children's oral health.⁴²

Oral health professionals suggest that children commence dental check-ups at an early age. However, this initial point of interaction is often overlooked by parents. Researchers are investigating the prospects of employing innovation to improve infant-juvenile health care as a result of the use of smartphone. Given their widespread use and simplicity of access to a variety of materials, social media platforms can be used to promote health through boosting parental knowledge, particularly that of mothers. It is well understood that parents are in charge for their children's health and dental hygiene. Moreover, parents typically oversee their children's oral hygiene habits as they grow up. Riberio YJS et al.³² hypothesised that in comparison to conventional health-promotion initiatives, educational videos distributed to mother-child pairs via the WhatsApp app could enhance oral hygiene behaviour and results.

According to Henry RK et al.⁴³ nearly half of all oral health professionals regularly used some form of social media in their work. Endodontists (33.6%) shared the most postings across all dental specialties, followed by paediatric dentists (28.8%) and restorative/aesthetic dentists (19%), in accordance with Topal BG et al.⁴⁴ Based on a study by Bafna Y et al.⁴⁵, more

than 80% of people use social media for both personal and professional purposes, with 50% of paediatric dentists using it for marketing. Most Oral health professionals use social media to promote their business (91%), connect with patients (73%), and increase their online visibility (73%).⁴⁶

Social media: a lifeline

Various social media platforms are extensively utilised for improving oral and systemic health because they provide resources for sharing and engagement in open access information, a channel for engaging conversations, and the ability for users to read topics of interest. Furthermore, the rapid and continuous communication between people from many cities and countries via social networks helps the search for various topics to clarify questions using alternative online resource.³¹ The majority of families, including those with low incomes, have access to the internet and consider it to be a helpful tool for getting health information.²⁶

Facebook is by far the most widely used social media platform, and its users are increasingly turning to it for health-related research. The greatest benefit is that it allows for more in-depth discussions than three classroom hours of health education programmes.^{2,47,48}

YouTube which debuted in 1997, is a unique platform that has become the most significant social media tool for educational reasons in the recent decade.⁴⁹ Since information is freely accessible, patients frequently use YouTube rather than professional scientific platforms. From the various social media sites because of its rich visual content. However, since sharing videos is so simple and the content of uploaded videos is not standardised, the veracity of information on YouTube has been questioned.²² Alraqiq HM et al.²⁷ found that top tooth brushing videos has not been uploaded by oral health professionals and the quality of the content is restricted. This result is contrast to the findings by Duman C²⁰ who discovered that academic and professional institutions, as well as health care practitioners, published the

majority of YouTube videos concerning oral hygiene; but he omitted all musical videos, cartoons, and commercial films from the analysis.

WhatsApp Messenger connects to the Internet, allowing users to communicate with one another via text, image, video, location, audio, and other media using their standard mobile phone numbers. Oral health professionals can be sent videos to parents demonstrating proper brushing techniques via WhatsApp, instructing them to brush their children's teeth according to the video's instructions in order to improve their children's oral health. Posts containing pictures and videos of procedures with post-operative instructions can be sent in a similar manner.

Instagram, launched in October 2010 and owned by Facebook, is becoming popular in the dental community. Users share photos and videos publicly or with followers, explore trending content, and engage with others through tags and locations.⁵⁰

Instagram's innovative educational potential and its capacity for visually attractive information dissemination make it a useful tool for dental practitioners to discuss clinical practise. To effectively use Instagram postings on trauma as an educational or instructive resource for parents and other medical or non-medical professionals, the case facts (etiology, treatment process, prognosis, etc.) and the importance of prevention should be included in the comments section.⁵¹

A picture is worth a thousand words, and in dentistry, sharing images and videos on user-friendly platforms like Instagram effectively communicates expertise. Oral health professionals can use social media to educate both children and parents with clinical images, radiographs, and short films, fostering learning and awareness.⁵¹

Viewers can easily flip between images in a social media post, which might make it possible to compile step-by-step procedures, like caries removal through final restoration, in an excellent manner. In cases involving interceptive orthodontics, it can quickly depict various

treatment phases at various points in time and display before and after pictures of the procedure. In endodontics, it can be used successfully to display issues prior to treatment, images during endodontic treatments, or postoperative radiography.⁵¹

The impact of social media on educating parents and promoting children's oral health

Social media has revolutionized how parents access oral health information for children. Platforms like Facebook, Twitter, Instagram, and YouTube offer a plethora of content on topics like toothbrushing techniques, fluoride importance, and effects of sugary drinks. This provides a convenient, cost-effective means for parents to connect with experts, including oral health professionals and pediatricians, who use these platforms to share educational materials, answer questions, and offer advice. Social media facilitates the formation of online communities focused on oral health, where professionals share experiences and tips. These platforms serve as forums for parents to seek advice. National organizations leverage social media campaigns to educate parents on oral health's significance for children's overall well-being.¹¹

Social media as a tool in pediatric dental public health

Since there is a sharp incline seen in the number of working parents in recent times, thanks to the development of social media apps and smartphones, the form of communication has changed from keeping diaries and sending handwritten notes and electronic emails to WhatsApp groups. Therefore, social media could be used as a primary method of dental education that can be instantly accessible to parents, teachers and caregivers in cases of crises and it reduces the burden on dental professionals on reaching parents and teachers about how to manage traumatic dental injuries in children. Furthermore, social media platforms have made it easier for oral health organizations and professionals to disseminate information on the latest research and best practices related to children's oral health. Social media campaigns enable prominent national and international organizations to effectively communicate evidence-based

recommendations, promote their work, and raise awareness among parents about the crucial role of oral health in promoting children's overall well-being.⁵²

Nearly 60% of parents feel that social media will enhance the attention on oral health and will influence parents' decisions to seek dental care for their children and they chose to receive reminders about home dental care via social media from their primary care physician's office.⁵² According to research conducted by Aboubakr RM et al.⁵³ in Riyadh, Saudi Arabia, students' oral health awareness was found to improve when they participated in an online Oral Health Education Programme and this was in accordance with Frey E et al.⁵⁴ who concluded that many parents seek additional health information on social media following clinical interactions. Sharma et al.⁵⁵ conducted a systematic review indicating that integrating digital media into contemporary lifestyles could enhance oral health literacy, improve oral health outcomes, and thereby play a crucial role in promoting overall health. De Oliveira Júnior et al.⁵⁶ found through a systematic review and meta-analysis that online social networks could effectively facilitate behavioral changes related to oral health prevention and promotion, potentially enhancing oral health outcomes among young individuals.

Crucial role of social media in dental trauma management

In the domain of pediatric dentistry, administering immediate first aid for severe dental injuries in children might influence the long-term prognosis and result of the treatment. For the therapy of dental trauma and to take preventative measures, it is essential to understand the location of the damaged teeth, the type of trauma, and the etiological variables. Today, social media is a driving force in the distribution of information regarding dental trauma and its management.⁴⁴ According to Al-Sane M et al.,⁵⁷ the most trusted information sources on the emergency management of dental trauma were found to be the television, healthcare professionals, and the Internet.

Therefore, increasing parents' and teachers' awareness is very important. According to Abu-Ghazaleh S et al.¹⁸, there is lack of high-quality material available in regard to oral and dental trauma on social media. Posting material that is accessible to laypeople and concerned with the fundamentals of dental trauma prevention and emergency management in children should be given more priority. This result is comparable to that of a study by Topal BG et al.,⁴⁴ which found that just 13% of shared posts had educational comments, suggesting that existing Instagram posts are insufficient to educate the public about dental trauma.

The ethics of social media in dental practice

In their 1994/2002 publication, Ozar DT and Sokol D⁵⁸ devised a valuable method for ethical decision-making. It created a collection of "central values" for the profession and placed them in the order. The central values arranged in order are:

1. Life and general health of the patient.
2. The patient's dental health.
3. The patient's individual rights.
4. The preferred styles of practice by the oral health professional.
5. Esthetic values.
6. Efficiency in utilizing the available resources.

This viewpoint implies that an oral health professional can choose his or her "preferred style of practise" (No. 4), which includes using social media and Internet technology, provided that they do not conflict with values higher on the list, such the patient's life and overall health (No. 1), dental health of the patient (No. 2), and patients individual rights (No. 3).

The phrase "false or misleading" appears in both legal and ethical rules. Oral health professionals should not transmit to the public anything that is dishonest or deceitful in any form.⁵⁹

The risks of social media in dental education

When practicing dentistry, it is important to have a good grasp of the evidence, or lack of evidence, that backs up the information that is used. When it comes to using social media for educational reasons, one of the most significant drawbacks is that it can be challenging to establish whether or not the content that is being offered is accurate. Incorrect information provided to patients might be misleading.

Misinformation emerged as the singular predictor of heightened user engagement with Facebook posts related to dental caries. There is a crucial need to advocate for targeted policies promoting high-quality information on social media, involving the creation of appropriate materials, enhancing critical health content consumption skills, and implementing digital solutions for information filtering.

The General Dental Council has made it clear that all patient-related data must be anonymized. Although it is very difficult to take back information once it has been published, doing so could result in disciplinary action. This is why it is important, especially as a trainee, to create a professional online etiquette from the beginning, acquiring relevant written agreement, and not allowing patient identifiable information to be posted via social media.⁶⁰ Pediatric dental Professionals who utilise social media for professional purposes must be aware of the benefits as well as the drawbacks.⁵²

Study limitation

This review has thoroughly searched all the databases. The limitations of this systematic review include selection and screening bias which denotes that articles supporting the use of social media in pediatric oral health would have been included, while excluding those that do not. The findings of the review article may not be applicable to all populations, as the studies included in the review may have been conducted in specific settings or with specific demographics. The quality of the studies included in the review may vary, with some studies

having a higher risk of bias or lower methodological rigor. There may be a limited number of studies available on the use of social media in Pediatric oral health, which may limit the conclusions that can be drawn from the review. There may be a tendency for studies that report positive results to be published, while studies with negative or inconclusive results may not be published, which can affect the overall findings of the review.

Future scope

While social media is a wonderful resource, there are no solid guidelines for its use by dental health practitioners. Hence, a proper guideline should be created. It is necessary for leading organizations to create official Instagram and Facebook profiles so that the general public can rely on accurate information given about oral health. YouTube videos from trustworthy and legitimate sources, such as the many national and worldwide Paediatric and Preventive Dentistry organisations with in-depth information on oral health can be implemented. It is essential to examine whether traditional ethical principles can adequately support digital objectives or if new ones need to be proposed, given the intricate landscape of online misinformation.¹³

Further studies are needed to evaluate the quality and reliability of information, determine the extent of social media use, assess the effectiveness of social media interventions, identify potential risks, and investigate social media's impact on oral health disparities.

CONCLUSION

The future generation is increasingly becoming a cyber generation, therefore in order to stay up with it, we must recognise the significance of social media. Social media has had a positive impact on educating parents and improving the oral health status of children. It has made it easier for parents to access information, connect with experts, and stay informed about

the latest research and best practices related to oral health. While social media provides several benefits as a resource for oral health education for parents and children, there are also potential downsides such as quality control issues, misinformation, cyberbullying, privacy concerns and digital divide. It is essential to weigh the pros and cons and address the challenges to ensure that parents receive reliable, accurate and helpful information on children's dental health. As the use of social media in the field of Pediatric dentistry is booming, but more scientific research and implementation are needed.

PRACTICAL IMPLICATION OF THIS RESEARCH:

- Oral health professionals can utilize diverse social media platforms to educate both children and their parents, enhancing their knowledge and promoting good oral health practices.
- Oral health professionals can raise awareness among parents about the importance of utilizing standardized resources on social media to ensure effective and reliable oral health care for their children.
- Social media has become an essential component of an interconnected society, easily transmitting knowledge about oral health to children and parents all around the world.

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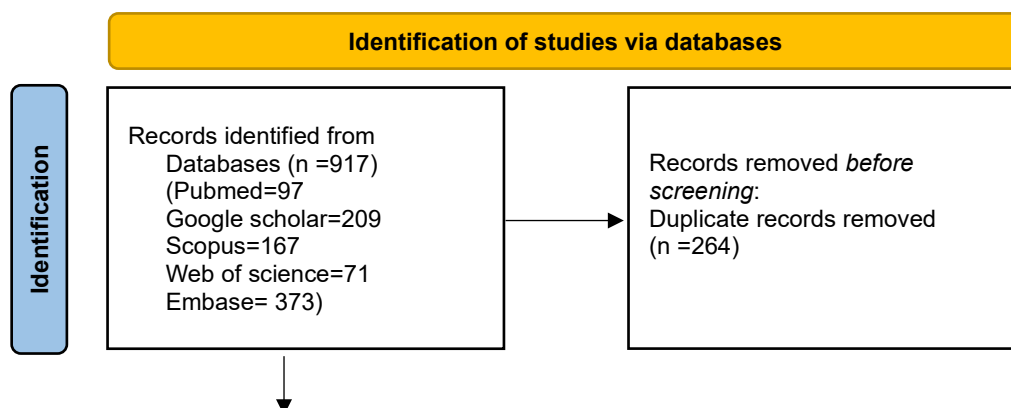
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Figure 1: PRISMA flowchart for systematic review



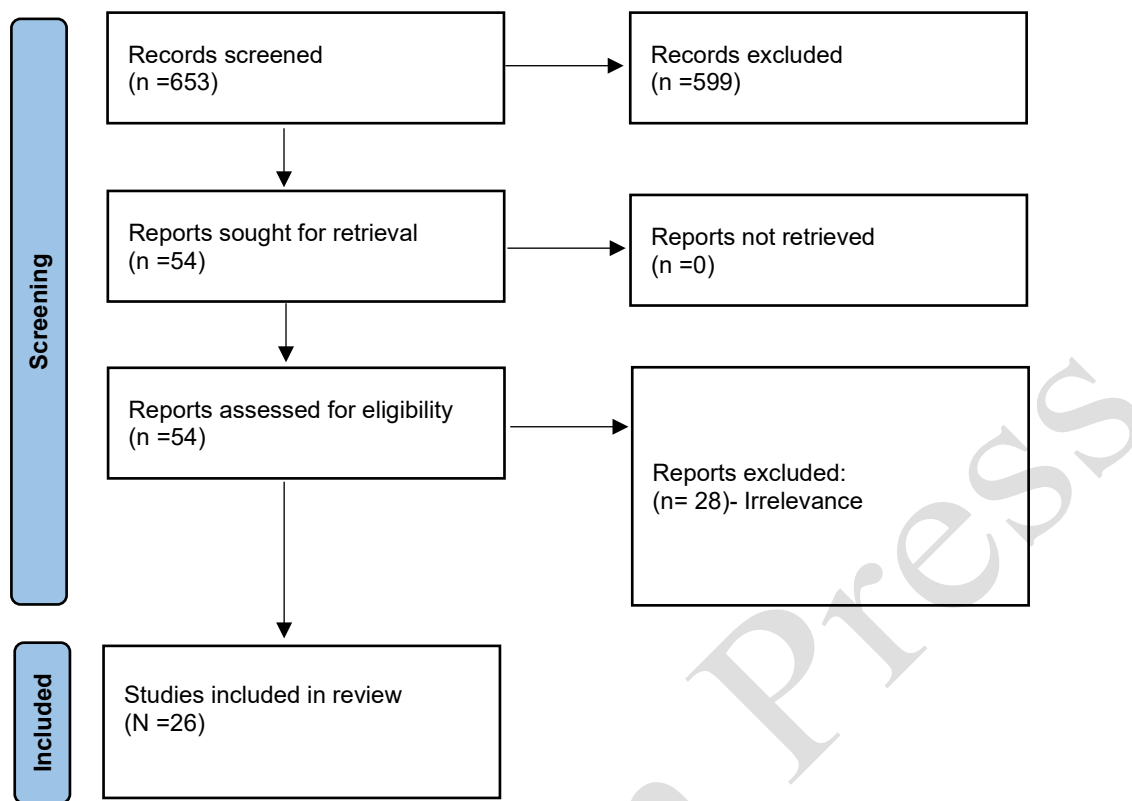


Figure 2: Risk of bias assessment for RCTs

Risk of bias - ROB2.0 tool for RCTs

	D1	D2	D3	D4	D5	D6	Overall
Study Lotto et al. 2020	+	+	+	X	X	+	X
Ribeiro et al. 2021	+	+	+	+	+	-	+
Quazi N et al. 2023	+	+	+	+	+	-	+

D1: Randomization
 D2: Allocation concealment
 D3: Blinding of participants and investigators
 D4: Blinding of outcome assessment
 D5: Incomplete outcome data
 D6: Selective reporting

Judgement
 X High
 - Unclear
 + Low

Figure 3: Risk of bias summary for randomized control trials

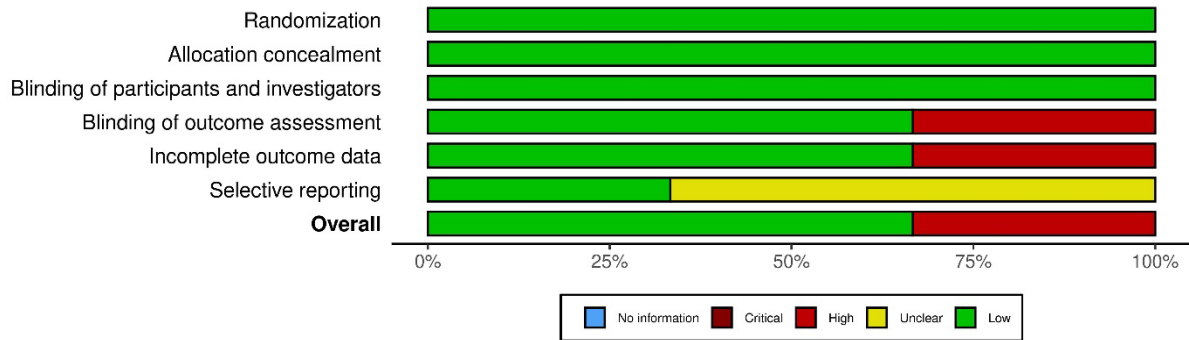


Figure 4: Risk of bias assessment for cross-sectional surveys

Risk of bias - Crombie's tool for cross-sectional surveys

		D1	D2	D3	D4	D5	D6	D7	Overall
Study	Albert et al. 2014	+	+	+	+	+	+	+	○
	Abu Ghazaleh et al. 2018	+	+	+	+	+	+	+	○

D1: Appropriateness of design to meet the aims
 D2: Adequate description of the data
 D3: Report the response rates
 D4: Adequate representativeness of the sample to total
 D5: Clearly stated aims and likelihood of reliable and valid measurements
 D6: Assessment of statistical significance
 D7: Adequate description of statistical methods

Judgement
 + Yes
 ○ Not applicable

Figure 5: Risk of bias assessment for cross sectional descriptive studies

		Risk of bias - AHRQ methodology for cross-sectional descriptive studies											
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	Overall
Study	Elkarmi et al. 2017	+	+	+	○	○	○	○	○	○	○	○	○
	Basch et al. 2019	+	×	+	○	○	○	○	○	○	○	○	○
	Kumar et al. 2020	+	+	×	+	×	×	+	+	+	+	+	○
	Yilmaz et al. 2020	+	+	+	○	○	○	○	○	○	○	○	○
	Simsek et al. 2020	+	+	+	○	○	○	○	○	○	○	○	○
	Alraqiq et al. 2021	+	+	+	○	○	○	○	○	○	○	○	○
	Tozar et al. 2021	+	+	+	○	○	○	○	○	○	○	○	○
	Srivatsav et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Aksoy et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Dindaroglu et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Maganur et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Alraqiq et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Hakami et al. 2022	+	+	+	○	○	○	○	○	○	○	○	○
	Tripathi et al. 2023	+	+	+	○	○	○	○	○	○	○	○	○
	Duman et al. 2020	+	+	+	○	○	○	○	○	○	○	○	○
	Egil et al. 2020	+	×	+	○	○	○	○	○	○	○	○	○
	Almarshad et al. 2021	+	+	+	+	×	+	+	+	+	+	+	○
	Capan et al. 2021	+	+	+	○	○	○	○	○	○	○	○	○
	Grond et al. 2021	+	+	+	○	○	○	○	○	○	○	○	○
	Fratlicelli et al. 2021	+	+	+	○	○	○	○	○	○	○	○	○
Jorge et al. 2023	+	+	+	○	○	○	○	○	○	○	○	○	

D1: Define the source of information
 D2: List inclusion and exclusion criteria for exposed and unexposed subjects or refer to previous publications
 D3: Indicate time period used for identifying information/participants
 D4: Indicate whether or not subjects were consecutive if not population-based
 D5: Indicate if evaluators of subjective components of study were masked to other aspects of the status of the participants
 D6: Describe any assessments undertaken for quality assurance purposes (e.g., test/retest of primary outcome measurements)
 D7: Explain any patient exclusions from analysis
 D8: Describe how confounding was assessed and/or controlled
 D9: If applicable, explain how missing data were handled in the analysis
 D10: Summarize patient response rates and completeness of data collection
 D11: Clarify what follow-up, if any, was expected and the percentage of patients for which incomplete data or follow-up was obtained

Judgement
 × No
 + yes
 ○ Not applicable

Table 1: Studies included in this systematic review (N=26)

Author information	Type of study design	Aim of the study	Focus area	Major conclusion
Albert D et al. (2014) ¹⁶	Cross sectional survey	To determine the efficacy of a web-based educational programme in boosting mothers' and primary carers' knowledge, attitudes, and planned behaviour regarding dental health and caries transmission.	Oral health promotion	Web-based education for primary carers can be an effective and low-cost technique for improving maternal and child oral health.
Elkarmi R et al. (2017) ¹⁷	Cross sectional	To assess the standard of the early childhood caries (ECC) material provided by youtube for patients.	Content quality	Youtube shouldn't be regarded as a reliable resource for teaching people about Early Childhood Caries (ECC).
Abu -Ghazaleh S et al. (2018) ¹⁸	Cross sectional survey	To analyse dental trauma-related Facebook content and evaluate response from the public.	Content quality	The amount and quality of dental trauma information on Facebook is restricted. More emphasis should be placed on posting information that is accessible to the general public.

Basch CH et al. (2019) ¹⁹	Cross sectional	To evaluate information about fluoride on the well-known social media site, Instagram.	Content quality	Parents turn to the internet as a resource when making decisions about their children's oral health. Social media platforms like Instagram offer a simple and cost-free way to share one's health ideals. Yet, the possibility of inaccurate information comes along with this accessibility.
Duman C (2020) ²⁰	Cross sectional	To evaluate the efficacy of youtube videos on oral hygiene practises for children as a means of teaching parents.	Content quality	Youtube videos can be an excellent resource for parenting education.
Kumar G et al. (2020) ²¹	Cross sectional	To assess parental attitudes towards internet use in relation to their child's dental health and management.'	Parental education	It is necessary for paediatric dentist to make parents aware that the prescriptions provided on the internet are independent of the child's age and prior medical history and to help parents appreciate the need of

				regular dental visits and the authenticity of treatment recommendations made by professionals based on their education and experience.
Yilmaz H et al. (2020) ²²	Cross sectional	To evaluate the accuracy of the space maintainers-related information on youtube.	Content quality	Videos regarding space maintainers on youtube typically have poor content quality.
Simsek H et al. (2020) ²³	Cross sectional	To assess the information in youtube videos about oral habits.	Content quality	Videos on youtube about oral habits are typically poor, so patients should be cautioned about watching them. Professionals should upload high-quality and more enlightening videos regarding oral hygiene practises in dentistry to youtube.
Egil E et al (2020) ²⁴	Cross sectional	To evaluate the content of fluoride ion therapy videos on youtube.	Content quality	Youtube can be an excellent resource for learning about fluoride treatment.

Lotto M et al. (2020) ²⁵	Parallel single-blind randomized control trial	To assess the impact of educational messaging in the prevention of early childhood caries (ECC) in poor socioeconomic children.	Oral health Promotion	Whatsapp messages were successful in reducing the severity of ECC in preschoolers from low socioeconomic backgrounds, enhancing parental ehealth knowledge, and altering the eating habits of the kids.
Almarshad M et al. (2021) ²⁶	Cross sectional	To assess the impact of an educational video on improving children's oral hygiene, comparing pre- and post-intervention levels, and encouraging proper toothbrush and dental floss practices in parents and children through education and guidance.	Parental education	Active engagement of parents in video-based educational initiatives can enhance the oral health-related behaviors of their children.
Alraqiq HM et al. (2021) ²⁷	Cross sectional	The objective of this study was to analyse the descriptive features of the 100 most popular English-language youtube	Content quality	Health care workers did not upload the most popular toothbrushing videos on the Internet. Professional suggestions

		toothbrushing videos and assess their value in comparison to standard guidelines.		were substantially more prevalent in videos published by health care providers.
Capan BS et al. (2021) ²⁸	Cross sectional	To analyse the effectiveness of videos by parents and patients and to examine youtube's content as a source of knowledge on space maintainers.	Parental education	Parents should only use space maintainer youtube videos to comprehend and visualise their function. However, it does not give enough details regarding the different kinds of negative effects. Oral health professionals should advise their patients that online videos could provide incomplete or inaccurate information.
Grond SE et al. (2021) ²⁹	Cross sectional	To research and identify the concerns and opinions stated regarding ankyloglossia on social media by both parents and providers.	Parental education	There is a lot of non-scientific information and viewpoints out there that could be influencing the general public's incorrect choices.

Tozar KN et al. (2021) ³⁰	Cross sectional	To assess the quality of youtube video content about traumatic dental injuries in children using IADT information, and to determine whether it is valuable for patients and oral health professionals.	Content quality	The Content of youtube videos that oral health practitioners upload need to be of higher quality.
Fraticegli L et al. (2021) ³¹	Cross sectional	To evaluate the quality of TikTok videos associated with the hashtag #oralhealtheducation.	Content quality	TikTok's #oralhealtheducation videos may lack reliability due to varied professional and user opinions, urging caution and endorsing health professional involvement.
Ribeiro YJS et al. (2022) ³²	Parallel double-blind randomized clinical trial	To examine at the use of a smartphone app (whatsapp) to provide oral health awareness to mother-child groups, with the ultimate goal of managing biofilm on teeth and caries through digital oral hygiene practises.	Parental education	When compared to conventional health-promotion initiatives, educational videos provided to mother-child interactions via whatsapp may improve oral hygiene behaviour.

<p>Srivastav S et al. (2022)³³</p>	<p>Cross-sectional</p>	<p>–To evaluate the qualities and appropriateness of information supplied by popular youtube videos regarding feeding infants with cleft lip and palate (CLP).</p>	<p>Content quality</p>	<p>The majority of youtube videos relevant to the feeding of infants with Cleft lip and palate (CLP) had insufficient content adequacy, with just one-third obtaining optimal content adequacy. To guarantee that families with an infant with CLP receive adequate information, efforts must be taken to generate instructive and standardised videos for social media and video-sharing platforms, possibly through professional groups.</p>
<p>Aksoy M et al. (2022)³⁴</p>	<p>Cross-sectional</p>	<p>To examine the dependability, quality, and substance of youtube videos on paediatric oral health instructions; to evaluate the efficacy of these videos; and</p>	<p>Content quality</p>	<p>Poor content, average quality, and unreliable youtube videos were available that gave pediatric patients and their parents oral health advice.</p>

		to assist health experts in directing parents to accurate information on the subject listed		Dentists should improve the content of youtube videos on children' oral health in terms of reliability and quality.
Dindaroğlu FC et al. (2022) ³⁵	Cross sectional	To assess the accuracy of fluoride treatment information on youtube videos.	Content quality	Despite the fact that the majority of the videos were created by Oral health professionals and specialists, the content was inadequate.
Maganur PC et al (2022) ³⁶	Cross sectional	To assess the level of knowledge and instruction offered on youtube regarding stainless steel crowns (SSC).	Content quality	Videos' educational value and content quality are inadequate and lacking. The necessity of the SSC and its advantages in pediatric dentistry weren't addressed in any of the videos.
Alraqiq HM et al. (2022) ³⁷	Cross sectional	To analyze and evaluate the attributes, viewer engagement, and content of the highest-viewed YouTube videos concerning	Content quality	The top 100 most-watched videos seldom aligned with professional guidelines on children's oral health, especially concerning

		a child's initial dental appointment.		carries risk assessment and anticipatory guidance.
Hakami Z et al, (2022) ³⁸	Cross sectional	The objective of this study is to examine the content and utility of YouTube videos addressing thumb-sucking habits.	Content quality	The information available on YouTube regarding thumb-sucking habits is suboptimal and requires enhancement by oral healthcare professionals and organizations.
Tripathi S et al. (2023) ³⁹	Cross sectional	To assess the standard of youtube's information provided to parents searching for information about feeding plate obturators for CLP patients.	Content quality	Youtube videos are lacking in comprehensive information on the significance, manufacture, and technique of use of feeding plates and obturators.
Quazi N. (2023) ⁴⁰	Randomized control trial	To evaluate and compare the information shared on Instagram about bruxism by healthcare professionals (HP) and non-professional healthcare workers (NPHW), as well as the	Content quality	NPHW posts bruxism-related content on Instagram more frequently than HP. Hps must confirm that the information supplied by NPHW is appropriate and the

		public's response to this information.		problems mentioned in posts are related.
Jorge OS et al. (2023) ⁴¹	Cross sectional	This study identified Facebook posts containing inaccurate information regarding the effectiveness of amber necklaces in teething.	Content quality	Facebook posts promoting the effectiveness of amber necklaces in teething are driven by financial motives, employing psychological and social mechanisms to engage more effectively with their target audience.

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