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Evaluation of the quality of internet information using Discern tool and HON seal on primary teeth eruption

Shital Kiran D P[1], Vaishaki Kamath[2], Vinay Mulchandani[3], Shalin Shah[4], Vikram Jhamb[5], Mira Jani[6]

[2,]Postgraduate student,[6]Senior Lecturer, [3,4,5] Reader,[1]Professor & Head of Department, Department of Pediatric & preventive Dentistry, College of Dental Sciences, Amargardh, Bhavnagar, Gujarat -364210, India

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ABSTRACT

Aim: This study aims to assess the validity and efficacy of information on primary tooth eruptions that parents can get on the internet.

Materials and Method: Websites with information on primary tooth eruption were found using an Internet search engine (www.google.com). The first 100 dynamic linkages for primary teeth eruption were examined in depth and then evaluated using the DISCERN instrument and the HON seal. Only relevant websites that satisfied the inclusion criteria were assessed after the first 100 were analysed. The existence or absence of the HON seal was assessed on all relevant websites using the DISCERN tool rating methodology. The websites that received the highest and lowest scores with the discern tool were noted.

Results: According to the Discern tool, most sites scored considerably below the average. With 46.2 %, the website my.clevelandclinic.org received the maximum score of 37. The lowest scores were given to 14 sites that all received the same score of 16. Only two sites, www.medicinenet.com and www.webmd.com, had the HON seal.

Conclusion: Clinicians should guide patients to validated websites for accurate information to make the best treatment decisions possible.

Keywords: *Primary teeth, HON seal, DISCERN, Eruption.*

Address for Correspondence:

Dr. Shital Kiran D. P.
Professor and Head, Department of Pediatric and Preventive Dentistry
College of Dental Sciences
At. Amargardh, Tal. SihorDist. Bhavnagar
Gujarat -364210, India
Email: drskiran@gmail.com
Phone: +919586116160

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INTRODUCTION

Primary teeth erupt and present as local and systemic symptoms in youngsters, a contentious topic among dentists. Hippocrates was a Greek physician who lived in the 5th century B.C. During tooth eruption, symptoms such as gingival itching, convulsions, fever, and diarrhea were reported. During primary tooth eruption, changes include increased salivation, irritability, fever, gingival irritation, restless sleep, diarrhea, and loss of appetite[1]. However, these symptoms may not be the same for every child during or before tooth eruption. Massage of the gums is the most generally recommended non-pharmacological approach among the numerous measures[2]. Because eruption is regarded as a developmental milestone, most parents are concerned and perplexed about its timing and symptoms. Different populations, racial, and ethnic groups have demonstrated substantial variability in primary tooth eruption patterns and time[3]. All deciduous teeth begin erupting at 6-7 months, and a set of deciduous dentition is complete by 36 months.[4] Parents' awareness is directly proportionate to their children's oral health status[2]. Communication between health professionals and patients is difficult and not always possible. A variety of barriers exist from the standpoint of a health practitioner, including the usage of technical terminologies, the volume of information to be provided, time limits, and a lack of familiarity with the patient's understanding of the material. The internet has several advantages over other sources for communicating health information, including providing an early and simple path to medical knowledge that was previously only available through specialist libraries[5]. It also provided related links to other websites, increasing the speed and range of information obtained in a single search. Because of the knowledge available on the internet, the number of parents seeing a pediatric dentist may decrease[6]. Studies have assessed the quality of Web information related to various other health conditions [6,7]. Due to concerns about the validity and authentication of online information, many healthcare professionals believe that getting health advice from the internet can be deceptive[8]. There are a few studies on the quality of dental treatment information online. However, according to Nilchian[7], the quality of web-based information was not complete. To our knowledge, no studies have been conducted on the availability of information on primary tooth eruption on the internet for parents. As a result, we have evaluated these searches utility and potential efficacy on primary teeth eruption as a source of information for parents under current policies and standards.

MATERIALS AND METHODS

An internet search engine was used to look up information about primary tooth eruption (www.google.com). Websites that contained information about "Primary teeth eruption" were examined. On August 24, 2021, 6,89,000 links for primary teeth eruption were examined. At one point in time, the first 100 were thoroughly examined. The websites that were found to be relevant to the search and appropriate for patients were assessed. Websites included provided information on the eruption of primary teeth in English. Websites that were not included consisted of websites that were unrelated to the search term, websites that gave a list of links to other websites, advertisements on banners and sponsored links, a website that were "for profit", websites that promised quick and unrealistic dramatic results, Journal articles, news, video streams, academic press, abstracts listings, identical sites, discussion groups, and duplication sites.

Only relevant websites were shortlisted and evaluated using the DISCERN instrument and the HON seal code. The DISCERN instrument has 16 questions, with the first eight assessing the reliability and the last eight analyzing the quality of the consumer information. Each question is evaluated from 1 to 5, with 1 indicating "no," 2 to 4 indicating "partially," and five indicating "yes." The last question is about the overall quality of the website and is graded from 1 (poor) to 5, indicating "excellent" (good quality)[9]. Each site was evaluated for the presence or absence of the HON seal code. This HON seal will necessitate adherence to the following eight criteria: authority, justifiability, complementarity, transparency, confidentiality, attribution, financial disclosure, advertising and confidentiality. The HON website was used

to verify the legitimacy of each site that displayed the HON seal[10]. The websites that received the highest and lowest scores were recorded.

RESULT

The total google search links provided on August 24, 2021, was 6,89,000. Only 48 of the first hundred sites were deemed to match the criteria for inclusion. The other 52 sites, which comprised article abstracts and duplicates, did not meet the criteria for inclusion. With 56% of respondents answering "complete yes," questions 1 and 2 received the most "complete yes" responses, followed by 46% for question 3. In all of the websites assessed, no questions were answered for questions no. 6, 8-14. Only 45.8% of websites did not respond to question 15. Questions 1 and 2 received the most responses. Questions nos. 7 and 15 were only partially answered (Table 1).

SR NO	QUESTIONS	ANSWERS		
		NO	PARTIAL	YES
1.	ARE THE AIMS CLEAR?	29	14	56
2.	DOES IT ACHIEVE ITS AIMS?	29	14	56
3.	IS IT RELEVANT?	43	20.75	46.25
4.	IS IT CLEAR WHAT SOURCES OF INFORMATION WERE USED TO COMPILE THE PUBLICATION?	87.5	10.4	2.08
5.	IS IT CLEAR WHEN THE INFORMATION WAS USED OR REPORTED AND/OR PUBLICATION WAS PRODUCED?	95.8	2.08	2.08
6.	IS IT BALANCED AND UNBIASED?	100	0	0
7.	DOES IT PROVIDE DETAILS OF ADDITIONAL SOURCES OF SUPPORT AND INFORMATION?	93.7	6.25	0
8.	DOES IT REFER TO AREAS OF UNCERTAINTY?	100	0	0
9.	DOES IT PROVIDE DETAILS OF ADDITIONAL SOURCES OF SUPPORT AND INFORMATION?	100	0	0
10.	DOES IT REFER TO AREAS OF UNCERTAINTY?	100	0	0
11.	DOES IT DESCRIBE HOW EACH TREATMENT WORKS? DOES IT DESCRIBE THE BENEFITS OF EACH TREATMENT?	100	0	0
12.	DOES IT DESCRIBE THE RISK OF EACH TREATMENT? DOES IT DESCRIBE WHAT WOULD HAPPEN IF NO TREATMENT IS PERFORMED?	100	0	0
13.	DOES IT DESCRIBE HOW THE TREATMENT CHOICES AFFECT OVERALL QUALITY OF LIFE?	100	0	0
14.	IS IT CLEAR THAT THERE MAY BE MORE THAN ONE POSSIBLE TREATMENT CHOICE?	100	0	0
15.	DOES IT PROVIDE SUPPORT FOR SHARED DECISION-MAKING	45.8	37.5	0

For each question, the greatest percentage of the score that could be attained was 240, accounting for 100%. Questions 1 and 2 had a score of 70.4%, while question 3 received a score of 39.16%. Questions 4 and 5 received 27.5% and 22%, respectively. Question 7 received 21.6% of the score. The percentage of websites that answered yes to questions 6 and 8 to 15 was 20%. Question 16 received 29.16% of the vote (Table 2).

QUESTION NO:	OBTAINED SCORES	MAXIMUM SCORE	PERCENTAGE OF SCORE
1.	169	240	70.4
2.	169	240	70.4
3.	34	240	39.16
4.	66	240	27.5
5.	55	240	22.9
6.	48	240	20
7.	52	240	21.6
8.	48	240	20
9.	48	240	20
10.	48	240	20
11.	48	240	20
12.	48	240	20
13.	48	240	20
14.	48	240	20
15.	48	240	20
16.	70	240	29.16
Total	1105	3600	30.69

According to the Discern tool, most sites scored considerably below the average. For example, 46.2% of the website my.clevelandclinic.org received the highest score of 37% &wikipedia.org comes in second with 36 out of 80 and 45%. The website www.betterhealth.vic.gov.au came in third place with a score of 34 out of 80 and 42.5%, followed by www.webmd.com and www.mymed.com with scores of 32 and 31 and 40% and 38.7%, respectively (Table 3).

LIST OF THE SITES EVALUATED	SUM OF THE SCORE OUT OF 80	PERCENTAGE OF SCORE
https://www.mouthhealthy.org/	27	33.7
https://www.ada.org/	28	35
https://my.clevelandclinic.org/	37	46.2
https://www.munroesdental.com/	27	33.7
https://en.wikipedia.org/	36	45
https://www.fromthefirsttooth.org/	16	20
https://www.betterhealth.vic.gov.au/	34	42.5
https://www.childrensdent.com/	26	32.5
https://www.medicinenet.com/	26	32.5
https://foxkidsdentistry.com/	26	32.5
https://sim4kids.com/	26	32.5
https://bakerpediatricdentistry.com/	27	33.7
https://www.adc-fl.com/	21	26.2
ww.evansvillepediatricdentistry.com	28	35
https://www.mymed.com/	31	38.7
https://www.webmd.com/	32	40
https://www.algonquinkidsdentistry.com/	26	32.5
http://www.alderwoodsmiles.com/	16	20
ttps://littlesmilesofdelaware.com	26	32.5
https://www.smilesforlifeoralhealth.org/	19	23.7
https://www.kidztoof.com/	25	31.25
https://health.maryland.gov/	20	25
https://lifetimedentalcareva.com/	16	20
https://www.gd4kids.com/	16	20
https://www.stavespediatricdentistry.com/	16	20
https://www.mykidsteeth.com/	22	27.5

Only two sites, www.medicinenet.com and www.webmd.com, had the HON seal (Table 4). Top five sites after Discern tool evaluation were my.clevelandclinic.org (score 37), en.wikipedia.org (score 36), www.betterhealth.vic.gov.au (score 34), www.webmd.com (score 32) and www.mymed.com (score 31). The remaining 14 websites scored 16.

LIST OF THE SITES EVALUATED	HON SEAL
https://www.mouthhealthy.org/	ABSENT
https://www.ada.org/	ABSENT
https://my.clevelandclinic.org/	ABSENT
https://www.munroesdental.com/	ABSENT
https://en.wikipedia.org/	ABSENT
https://www.fromthefirsttooth.org/	ABSENT
https://www.betterhealth.vic.gov.au/	ABSENT
https://www.childrensdent.com/	ABSENT
https://www.medicinenet.com/	PRESENT
https://foxkidsdentistry.com/	ABSENT
https://sim4kids.com/	ABSENT
https://bakerpediatricdentistry.com/	ABSENT
https://www.adc-fl.com/	ABSENT
ww.evansvillepediatricdentistry.com	ABSENT
https://www.mymed.com/	ABSENT
https://www.webmd.com/	PRESENT
https://www.algonquinkidsdentistry.com/	ABSENT
http://www.alderwoodsmiles.com/	ABSENT
ttps://littlesmilesofdelaware.com	ABSENT
https://www.smilesforlifeoralhealth.org/	ABSENT
https://www.kidztoof.com/	ABSENT
https://health.maryland.gov/	ABSENT
https://lifetimedentalcareva.com/	ABSENT
https://www.gd4kids.com/	ABSENT
https://www.stavespediatricdentistry.com/	ABSENT
https://www.mykidsteeth.com/	ABSENT
https://childrensdentalcentersf.com/	ABSENT
https://www.playhousedentalkids.com/	ABSENT
https://www.barkoffdental.com/	ABSENT
https://www.greatgrinskids.com/	ABSENT
https://www.mdsmiles.com/	ABSENT
https://www.tendersmiles4kids.com/	ABSENT
https://www.mapleshadecenter.com/	ABSENT
https://www.yourdentistryguide.com/	ABSENT
https://nopokids.com/	ABSENT
http://www.namibiadent.com/	ABSENT
http://www.ctkidsdentist.com	ABSENT
https://riversidechildrensdentistry.com/	ABSENT
https://childrensdentalfunzone.com/	ABSENT
https://www.smiletownnorthdelta.com/	ABSENT
https://www.childrensdentistryoftrumbull.com/	ABSENT
https://www.starkidsdentist.com/	ABSENT

DISCUSSION:

Patients nowadays are increasingly worried about their ward's health and appearance, for which they turn to information readily available on the internet. However, the internet provides content that may not be instructional but rather promotional in character and may be outdated or contain inaccurate information, which is one of the disadvantages.

In our study, we studied only the first hundred web pages that came up while searching for "primary teeth eruption" on Google. BING (www.bing.com), AOL (www.search.aol.com), Yahoo, and Ask Jeeves are among the other search engines available. Google is the most popular search engine since it looks at all parts of the material and the content of the pages that link to it. It also identifies many more off-line sites for many other search engines. In addition, it regularly refreshes its index by recalculating the page rankings of each of the websites, with fluctuations typically occurring at the end of the month.

According to our research findings, only a small percentage of sites meet the DISCERN tool's high standards. None of the websites received a perfect score of 5 points in any 16 questionnaires. None of the websites received five points in any 16 questionnaires, comparable to Kiran et al who reviewed material regarding thumb-sucking behaviour on the internet and determined that just a few sites met the discern tool's high standards. According to Nilufer et al, the teaching quality of videos connected to 'space maintenance' was inadequate and incomplete, according to a study he did.[5] Regarding quality and quantity, YouTube videos about space maintenance had insufficient info. Blizniuk et al showed that dental caries-related material on English websites is of poor quality, while Bargale[8] claimed that most websites fall short of the maximum DISCERN score.

The greatest percentage of score out of 80 was 46.2 for "my.clevelandclinic.org." The second highest score is 45% for "en.wikipedia.org," followed by 42.5% for betterhealth.vic.gov.au. There were many sites with a score of less than 20%, but the first three were www.fromthefirsttooth.org, www.alderwoodsmiles.com, and www.lifetimedentalcareva.com. The first question we asked in our research was, "Are the aims clear?" The highest score was 70.4. Question 2 does it achieve

its aims? Scored the second highest 39.16, followed by a question no 3: Is it relevant? Scoring 27.5 suggested that not all websites displayed the correct age of eruption and exfoliation time. The ethnic and gender differences were also not mentioned in most sites. Questions no 5 and questions no seven to fifteen yielded the lowest score of 20 percent, indicating no information on the relevance of the provided information and associated symptoms. The recommendations to visit a paediatric dentist were also lacking in many sites. Only the first five DISCERN questions had an answer of complete yes.

Nilchian et al did a study on the quality assessment of information about pit and fissure sealants in Persian websites, which found that the overall quality of the published content was moderate for 62.2% and low for 37.8% of websites.[7] The DISCERN project is based at the institute of health sciences of the university of Oxford's division of public health and primary care. It is funded by the British national health service executive research and development program. According to this study, the initial search results received higher DISCERN scores. The Health on The Net Foundation criteria were developed by a Swiss-based non-profit, non-governmental organization that certifies websites based on an "ethical standard aimed at offering quality health information." Health on the net was founded in 1995. It was one of the first uniform resource locators to guide laypeople and medical professionals to reliable sources of healthcare information on the internet. Seals are awarded to websites that follow the HON code of behaviour.[9] It was created to assist users in assessing the quality of written material on treatment alternatives and generating evidence-based data. The DISCERN is a well-tested and dependable tool.[10] According to one study, 33% of individuals believe health-related information on the most popular websites is accurate.[13] In Turkey, Aydin et al found that people in the 25 to a 34-year age group who were married, employed, and had a university degree were substantially more likely than their peers to seek health information on the internet.[14]

The DISCERN tool has been found to have strong internal consistency and is user-friendly compared to other tools, such as the Jama benchmarks.[15] As a result, a clinical team can utilize a DISCERN tool to evaluate the quality of information delivered to patients and the general audience. The DISCERN questionnaire is a viable and reliable tool for examining written consumer health information. It is the first standardized quality index of consumer health information that can be used as a critical appraisal tool by health professionals, patients, and the general public to evaluate health information.[16]
Haji Ahmadi et al compared paediatricians' and internet-based information on tooth eruption. There were substantial variations in tooth eruption symptoms, such as irritation and weeping, but no significant changes in salivation, gingival itching, inflammation, or pain. In addition, paediatricians and internet suggestions for pharmaceutical and non-pharmacological methods differed significantly, concluding that paediatricians' knowledge and experience cannot be replaced.[15]
Most web users lack the medical knowledge or scientific sense necessary to distinguish between genuine and promotional sites. As a result, numerous websites that internet users may come across may mislead them regarding their diagnosis, treatment, and treatment options. As a result, patients may experience a false sense of empowerment when diagnosing and may be hesitant to seek the necessary treatment.[16] Because the internet is the most powerful source of information, and because people are becoming more knowledgeable about how to use it, there is a fear that the general public will continue to rely on it in the future. As a result, patients must take caution when seeking health-related information on the internet.
Only two of the websites featured the HON seal. HON seal was available at www.medicinenet.com and www.webmd.com in our study. According to Leite, only 4 out of 75 Portuguese dental caries-related websites were approved by the health on the Net Foundation (HON) code.[17] Lopez-Jornet et al did a study on oral leukoplakia information and discovered that the HON seal appeared on four Google sites (19.1%), four Yahoo sites (20%), and two MSN sites (10.5%).[18]

CONCLUSION

According to the websites examined for primary tooth eruption on the Google search engine, not all websites are credible and effective in providing information. "my.clevelandclinic.org" received the maximum percentage of points, indicating that its material is more trustworthy than others. Only two websites, www.medicinenet.com and www.webmd.com, had the HON seal among the other examined sites. The contents, characteristics, and quality of information were all poor, including the sites with the highest score, implying that these websites should be used with caution. As a result, only a few sites with a good score can be recommended to patients by clinicians to refer to for the right information, but not rely on it.

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