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Oral health information in the Science, Tamil, and English samacheer textbooks of upper primary and secondary schools in Tamilnadu – A content analysis

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ABSTRACT

Background: Health education through school textbooks is effective in promoting knowledge, reforming, and improving health related behaviors among children. The study evaluated the amount of oral health information, readability and quality of contents in upper primary and secondary school samacheer textbooks, Tamilnadu.

Methods: Content analysis for the text books of 6 to 10th standard tamil medium samacheer syllabus were analysed by three examiners on the major health topics covered under Science, English and Tamil subjects. The contents were also assessed for the simplicity of the language using Flesch- Readability Ease (RE) Index.

Results: The results showed that the amount of oral health information given in the Science textbook was more than English and Tamil. In science, more amount of contents were found in the 9th standard textbooks, under the topic Tobacco and Oral diseases than others. The information was accurate (100%) mostly in the form of text (60.8%); they were very hard to understand (RE Score=14.03).

Conclusions: The potential of secondary school textbooks in delivering oral health messages is very little in samacheer school textbooks. Considering the critical importance of school students' age into account, incorporating health information in textbooks should be more strongly emphasized.

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1. Introduction

Dental caries and gingivitis are the two major burden of oral diseases among children globally. In India, the overall

prevalence of dental caries and gingivitis among children and adolescents was found to be as high as 63.20% and 57.01%, respectively.^{1,2} Children are thus, considered to be under a high-risk group for developing various oral diseases, due to their improper food habits, poor oral hygiene maintenance, and changing lifestyle, day-by-day. Hence, educating children about the proper oral hygiene becomes the need of the hour. Promoting health among children through health education

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empowers them to have a control over their oral health thereby improving it. Health education can be provided to children by various methods. The United Nations Children's Fund (UNICEF) considers schools as the widest world channel for broadcasting information to the school children and their families. It is evident that the most influential stages of children's development are the school days during which they attain lifelong beliefs, attitudes, and skills.³ Among the various health education methods in schools, school textbooks play an essential role. They act as primary tools for promoting knowledge, reforming, and improving health-related beliefs and behaviors among the children more economically. There are many health promoting schools (HPS) which aim at delivering health education to the children through the school curricula and other activities. Health education has been taught as a specific subject or as a part of other subjects. Nevertheless, through this method, the researchers have provided substantial evidence in the improvement of the children's general and oral health in India and around the globe.^{4,5} In Tamilnadu, 60% of the children are enrolled under a uniform system of education called Samacheer Kalvi (TamilNadu Uniform System of School Education) introduced by the Tamilnadu State board Education System in 2010. Providing health education through this method can create a great impact on a larger sector of children in Tamilnadu. Regular revisions of the contents of the samacheer textbooks are being conducted every year by the School Educational Department, Tamilnadu. However, analysis of the quality of contents by them is still a question of doubt. In an Indian scenario, though many studies have analyzed the contents on general health topics, studies evaluating the contents on oral health in school textbooks were found to be very scanty. Literature search suggests hardly any evidence in the analysis of contents of oral health-related information among the samacheer school textbooks. The study evaluates the amount of oral health information based on the accuracy and simplicity of the contents in the upper primary and secondary school textbooks of Tamilnadu.

2. Materials and methods

The textbooks of Tamil Nadu state board Tamil medium samacheer syllabus for the academic year 2014–2015 was downloaded from the official website of the Department of School Education, Government of Tamil Nadu (www.textbooksonline.tn.nic.in) and authenticated by the Headmistress of a Government school. The study was carried out for a period of 4 months (June–September 2016). 27 textbooks with 4135 pages from 6th to the 10th standard were selected on the following subjects: Science, Tamil, and English. Each of the textbooks was reviewed by 3 Dental Professionals for its content on oral health. The inter-examiner reliability was found to be good (97.2% agreement). The content analysis of the subjects was conducted based on: (1) content on core components; (2) mode of representation of the contents; (3) accuracy of Information given in the contents; (4) simplicity and ease of the language.

2.1. Content on core components

They were assessed by all the 3 Dental Examiners based on 5 core components coded as Component 1 – Anatomy, morphology, and functions of the tooth and other structure related to oral and maxillofacial region under the keywords: incisors, canine, premolar, molar, number of teeth, maxilla, mandible, facial bone, function of teeth (or) other oro-facial structures; Component 2 – Nutrition and diet relating to oral health and disease under the keywords: micro & macro nutrients, fruits and vegetables (antioxidants) good for oral health, sugar and acid containing food substances; Component 3 – Tobacco and its forms, components, consequences, and prevention under the keywords: chewing tobacco, cigar, cigarettes, dipping tobacco, pipe tobacco, snuff and other forms tobacco, tar, nicotine, oral, lung, head and neck cancers, tobacco cessation program, counseling; Component 4 – Oral Health – Disease and Prevention under the keywords: dental caries, gingival and periodontal diseases, dental trauma, tooth wear, dry mouth, tooth sensitivity, halitosis, mouth ulcer, brushing (or) other oral hygiene aid, mouth mask, hand wash technique, sportswear, helmets; Component 5 – Other contents relating to oral & maxillofacial region unspecified under the above categories. Keywords under each core component were distributed to all the examiners. The frequency of contents in every core component was determined based on the number of times the keywords appeared in each component, for every page. It was numbered once, if any of the keywords under the components, appeared in a paragraph and the frequency increased as the keywords appeared in the subsequent paragraphs of that particular page.

2.2. Mode of representation

They were categorized into 1 – Texts; 2 – Pictures; 3 – Pictures supported by texts; Their frequency under each category were enumerated for every page by all the 3 dental examiners.

2.3. Accuracy of information

The accuracy of contents given about oral health were dichotomized into 1 – Accurate; 2 – Inaccurate information by the principal investigator.

2.4. Simplicity and ease of the language

The simplicity and ease of the language in the contents were assessed by the Flesch Reliability Ease Index (1948) using the formula:

$$R.E = 206.835 - (1.015 \times ASL) - (84.6 \times ASW)$$

ASL: average sentence length: no. of words/no of sentences; ASW: average syllables per words: no of syllables/no. of words. Scores between 100 – 79 denotes that the contents are easily read understood by children; 60–69 denotes a standard level of reading; 50 – 0 denotes a difficulty in reading the contents among children.

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