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## RESEARCH ARTICLE

### CONTENT ANALYSIS OF HEALTH MESSAGES IN INDIAN SCHOOL TEXTBOOKS

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#### ABSTRACT

**Objectives:** To identify the health messages based on scientific evidence and the priorities of health messages among Indian school textbooks. **Materials and Methods:** The health messages published in primary and secondary schools of CBSE and AP syllabus were included. The quality of content was compared with best health care practices which included EBM, EBD and consensus-based practices from the Trip database containing information that was classified in terms of evidence, such as clinical practice guides and systematic reviews. **Results:** 51 messages were identified among 179 textbooks used in primary and secondary schools. Among the books, there was a top priority for messages related to human health and related diseases (30%) followed by messages related to food and its habits, hygiene, nutrition and storage (25%). Around 69% of the messages were based on evidence without assigned level, and 21% were based on unknown evidence. Oral health messages occupied 6% of the total messages and most of them were based on evidence with assigned level. **Conclusion:** Majority of the health messages included in the textbooks were based on scientific evidence without assigned level and coverage on oral health, tobacco and alcohol abuse was found to be very minimal.

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## INTRODUCTION

The analysis of content is a central topic in all of the sciences dealing with man. Content analysis is a method of analyzing written, verbal or visual communication messages. i.e. it is a method of systematic, objective, qualitative analysis of message characteristics. The content of what comes in school texts is too important to be ignored since textbooks are the important basic learning tool and a primary source of health information which constitutes an essential component of the teaching process. Over the past few year concerns about the changes in the curriculum and content has been the major focus of attention since they tend to change the way the future generations will think and respond. Improving the quality of schools is a difficult challenge, and one of the more popular solutions resides in strengthening the quality of take away home messages taught via the textbooks. The precise instructions which the textbooks give reduce the role of parents or teachers in educating the right things and behaviors to be adapted by the growing children (Perrin, 2002). The United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasize improving the quality of textbooks as one of its policy recommendations within the Education for All Framework (Falk Pingel, 2010). Children are a popular target group for health education. Though disparities in health exist between rich and poor, it has to be minimized especially for school going children.

Investments in schools are intended to yield benefits to individuals, communities and nation through improved social and economic development, increased productivity and enhanced quality of life. Schools can provide a supporting platform for promoting health. School policies and education for health are imperative in the attainment of health and control of risk behaviors contributing to the leading causes of morbidity and mortality like - poor dietary habits, physical inactivity, unintentional injuries, violence, tobacco and alcohol abuse. Proper awareness developed in the tender minds of the school children, may foster them to develop healthy habits and behaviors, in turn promoting the overall health and standard of life. The use of EBM methodology may prove extremely useful when selecting health contents to be included in school texts. Textbooks should only contain the most reliable affirmations in relation to health, i.e. statements that are solidly based on scientific evidence. From this perspective, health related messages in textbooks should also be filtered via EBM. Certain studies have evaluated the quality of this information, measuring the effectiveness of messages aimed at illness prevention within the school or the fostering of healthy habits. Extracurricular programs that have been set in motion in schools by third parties have also been evaluated. On other occasions, studies have focused on identifying the health areas addressed in the books or the didactic methodology employed to expound such content. Majority of the studies in developed countries have covered on specific health topics like nutrition,

STD, reproduction etc with only few studies covering all health topics (Marino Nomoto, 2011). In India, the ministry of education through national curriculum framework has been in efforts continuously to revise and address the multiple issues concerned to health in the school textbooks. The Indian Ministry of Health and Family Welfare is planning with the National Council of Educational Research and Training (NCERT) for introduction of health education as a subject in schools. Reviews of school textbooks and the inclusion of priorities of national health policies are recommended, yet no individual Indian studies so far have assessed school textbooks in terms of their health information content or examined their accuracy based on scientific evidence. The objective of the study was to identify the accuracy (quality) of the health information messages provided in terms of scientific evidence, and the health information priorities conveyed among the primary and secondary school textbooks of AP and CBSE syllabuses in order to evaluate the extent to which these textbooks promote healthy life styles, as well as risk behavior avoidance among the students.

## METHODOLOGY

This was a descriptive study carried out in Andhra Pradesh, India in the month of July 2012, wherein recent published school textbooks of Central Board for Secondary Education and Andhra Pradesh state syllabus were obtained from the concerned authorities. The textbooks were hand searched and thoroughly reviewed in order to identify any health-related messages. The inclusion criteria were textbooks used in primary and high schools of CBSE and AP state syllabus (1<sup>st</sup>-10<sup>th</sup> standard), in English language, containing health related information. The exclusion criteria were textbooks content unrelated to health and textbooks other than English languages. Within the framework of the study, a health-related message refers to any statement within a school textbook that addresses any health-related subject in the form of recommendations or advice. Messages (not eligible) relating to four areas was excluded: a) Aspects of anatomy or physiology. b) Respect for the environment as it is currently difficult to evaluate the scientific evidence and effects on health of recommendations in this area; c) Psychological and social well-being, d) Messages that emphasized the norms of urbanity or courtesy. A table was drawn to classify messages, recording information relating to the school year and subject matter of the textbook containing each message.

The content analysis included the quality of health related topics. The quality was based on the scientific evidence on which the health messages in the textbooks are based in congruence with best health care practices which included evidence-based medicine/dentistry and consensus-based practices. Each health-related message in the school books was transformed into a research question. In order to transform the messages into interrogations, wherever possible, the Patient-Intervention-Comparison-Outcomes (PICO) scheme was employed. P: the individual or group targeted by the health-related message (school children); I: the area of health that the message focuses on, normally in the form of advice or recommendations (the consumption of fruit and vegetables, physical exercise, road safety, etc); C: comparison with behavior that is detrimental to health or with the failure to abide by the advice (the absence of fruit and vegetables in the diet leading to anemia, a sedentary lifestyle leading to obesity, failure to wear a helmet leading to head injuries, etc); and O: associated beneficial effects where the advice is followed. For

obtaining the best available evidence for the health topic questions, the Trip Database was used which is one of the most important internet resources for searches related to evidence-based medicine and dentistry. Searches were carried out using search terms relating to question content. From the results obtained via the Trip Database, we only considered those documents containing information that was classified in terms of evidence, such as clinical practice guidelines and systematic reviews. The full texts of the documents were located and thoroughly reviewed, searching for a response to each research question. In each case the institution that published the document was identified and the uniform resource locator (url) providing a link to the full text.

## Results relating to the level of evidence were classified into three categories:

- Messages with a level of evidence: wherein the research question is answered in at least one of the consulted documents that also report on the level of evidence. This was again classified into three groups - high, medium and low according to the level of evidence followed by relevant institutions.
- Messages based evidence without assigned level: wherein the research question is answered in at least one of the consulted documents, but fail to report on the level of evidence.
- Messages with no known evidence: wherein the research question is not addressed in any of the consulted documents.
- A simple descriptive analysis was carried out for the obtained data.

## RESULTS

**Textbooks and Messages Studied:** A total of 179 textbooks used in primary and secondary schools were identified. 42 of them met the inclusion criteria. All the books were manually revised and 113 health-related messages were identified. Subsequent to the elimination of messages that did not meet the criteria for inclusion, 51 messages were studied. Table 2 displays the characteristics of all messages according to subject matter obtained from the texts. Around 62, not eligible messages were found. Of these, 45 were of anatomy and physiology, 15 about Respect for the environment and one each about social and psychological well-being, and of norms of urbanity or courtesy. Messages related to human anatomy and physiology were the most frequent subject of the messages (45), followed by respect for the environment (15).

## DISCUSSION

The health and well-being of our nation's young people must be a planned outcome thus necessitating for well-designed, well-resourced, and sustained health education in the nation's schools. With very few studies focusing on content analysis of health messages in school textbooks, this study is a first of its kind focusing on Indian context. In our study, human health and related diseases (30%) occupied a top priority of the health messages in the majority of school texts followed by messages regarding food habits, hygiene and food preservation (26%). Among the diseases, focus was on AIDS, communicable viral and bacterial diseases, skin diseases, cancer, deficiency diseases due to malnutrition and vitamins. Studies have shown that the children are most vulnerable to morbidity such as

malnutrition, worm infestation, dermal, ocular and dental diseases. There is a high morbidity rate within the age group of 0-5 years due to malnutrition and infection. Beyond poverty, ignorance of nutritional facts, under feeding, undesirable practices and religious beliefs are considerable reasons behind poor health and mortality. A similar study conducted by Barrio-Cantalejo et al. (2011) among Spanish textbooks showed that balanced diet and malnutrition was the most frequent subject of the messages (31.3%), followed by protection against environmental agents (11.4%). A systematic review conducted by Marino Nomoto et al<sup>2</sup> in textbooks of Spain and the United States revealed that most contents were related to sexuality, STDs, and nutrition. In an era of rapidly changing demographics, social and economic environments, with the emerging AIDS pandemic and other consequences of premarital sexual activity, investing in policies for young children, especially their reproductive health, will be most beneficial and worthy (De Irala, 2008). Educating children on sexuality and reproductive health will have long-term effects not just in saving young people from STD's, unwanted pregnancy, maternal morbidity and mortality, unsafe abortion and early marriages, but also a investment in the future so that young children become knowledgeable parents who can educate their children on these issues (Iwu Dwisetyani Utomo et al., 2010).

Addressing basic needs in terms of food, its habits, hygiene and preservation is seen as an integral part of the school curriculum. The disease prevention benefits associated with 'healthy eating' provide an important impetus for its promotion amongst children (Irina Pop-Pacurar, 2010). An international consensus has emerged linking diets high in fruit and vegetables with reductions in a range of diseases including certain cancers, cardiovascular heart disease, hypertension and tooth decay. Promoting healthy eating amongst children is a logical response to research evidence about the prevalence of disease related to poor diet with the belief that they would be benefitted from the long-term physiological consequences of a good diet which likely leads to healthy eating in later stages of life.<sup>9</sup> In the present study, it was found that among the textbooks studied, messages focusing on the abuse of tobacco, alcohol and oral health/hygiene have been an area minimally stressed. Since teens are most prone to hook onto abuse of gutkha and other tobacco products which are easily available in local Indian markets these, it is the need of the hour to focus health education mainly over this high risk group (Rita, 2012). Teenagers should be discouraged of the fastly spreading western culture of consumption of cigarettes and alcoholic beverages as a fashion and educated about their adverse effects via more detailed information with pictures. Also the growing body of research linking poor oral health to systemic diseases merits the need for added emphasis on the provision of oral hygiene education (Beryl Levinger). The health promotion activities – tooth brushing with fluoridated dentifrices, flossing and mouth rinsing can be depicted via pictures labeled with simple self perform steps.

In the present study, among the textbooks reviewed it was found that the messages with high and medium level of evidence recorded were for oral health (4%), medium level of evidence with balanced diet and malnutrition (2%) and low level of evidence with messages related to sexual behavior and AIDS (4%). Almost a quarter (21%) of the messages studied were not based on any documentary evidence (guidelines and systematic reviews), which suggests a certain degree of

arbitrariness and a lack of clearly defined criteria to evaluate the importance of a health-related message. The limitations of the study are worthwhile to be mentioned. The presence of health-related messages in guides and systematic reviews cannot be used as the only means of justification for their inclusion in school books since clinical practice guides and systematic reviews entail a long preparation period which may significantly delay the publication and circulation of health information based on evidence. But the psychology of learning suggests that directing a health-related message towards children, even where the message is not based on sufficient scientific evidence, may aid the consolidation of healthy habits. Also, considering the comparison with clinical practice guides and systematic reviews as the only source of evidence may limit the scope of the study. However, the doctrine of health care practice considers observance of the recommendations of a high quality systematic reviews or clinical practice guides to represent the most efficient method of ascertaining the best clinical course to be followed. Also another limitation is considering trip database as a sole evidence search engine in this study since other search engines and strategies would have produce different results. However, we considered to use the TRIP database as evidence ensuring that all documents consulted were based on evidence that has been rigorously verified. Thus, a considerable number of health messages should be included in school texts based on updated scientific evidence which are exclusively written or advised by medical and dental experts. Health and environmental problems can be added for group activities or discussions at the end of lessons, so that the students take active participation in this process and express their personal views. The concept of health education or health promotion should be included in the school curriculum at every stage and selected topics have to be introduced through different subjects according to the mental and cognitive development of the learner. The authors of the texts should focus messages on the current alarming health risk behaviors like tobacco consumption, alcohol abuse and unprotected sexual activity. Also addressing messages on oral health and hygiene should attain a significant gain.

## Conclusion

The results of our study showed that almost a quarter (21%) of the health messages included have unknown scientific evidence. Children receive all these messages and are unable to identify the importance of a given message or the extent to which it is based on evidence. Thus there is a need for revision of texts so that more number of health messages with assigned level of scientific evidence is incorporated. It is essential that textbooks empower children to make healthy decisions through the promotion of useful life skills that provide a more integrated concept of healthy wellbeing. The school teachers and parental cooperation could be of immense value in emphasizing healthy behaviours. Some of the problems like lack of uniform patterns and standards in implementation of the textbook curriculum, inadequate links between the health and education sectors, lack of sufficient resources, a low priority of health education via schools and lack of nationwide research in school health would be challenges to be tackled towards achieving the health via textbooks.

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