

Dental Health Knowledge and Attitudes of Primary School Teachers toward Developing Dental Health Education

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ABSTRACT

Objective: To assess the dental health knowledge of primary school teachers, their attitudes toward the prevention of dental diseases and to identify any barriers to the implementation of oral health promotion programmes in schools.

Method: Teachers' knowledge of the causes and prevention of dental decay and gum disease, their attitudes toward oral health and barriers to the implementation of dental health education programmes were assessed using a self-administered questionnaire.

Results: School teachers were generally very well informed about the causes and prevention of dental decay and gum disease. Knowledge of the appropriate management of serious dental trauma was very poor among this group although they seemed to have greater awareness of the appropriate management for less serious dental injuries. The majority of teachers demonstrated positive attitudes toward dental health and its incorporation into the school curriculum.

Teachers' attitudes to their own involvement in school-based dental health education were also positive. Lack of training and resources and time within the curriculum were identified as major barriers to the implementation of a dental health education programme in primary schools.

Conclusion: Developing teacher training programmes that include oral health knowledge and an evidence-based approach to dental health education within a school setting could enable primary school teachers to play a significant part in oral health promotion for young children in Trinidad.

Keywords: Dental health, oral health promotion, schoolchildren, teachers.

Conocimiento de la Salud Dental y Actitudes de los Maestros de la Escuela Primaria hacia el Desarrollo de la Educación de la Salud Dental

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RESUMEN

Objetivo: Evaluar el conocimiento de los maestros de escuela primaria sobre salud dental, y sus actitudes hacia la prevención de enfermedades dentales, e identificar cualquier barrera a la implementación de programas de promoción de la salud oral en las escuelas.

Método: Haciendo uso de un cuestionario auto-administrado, se evaluó el conocimiento de los maestros sobre las causas y prevención de las caries dentales, y las enfermedades de la encía, así como las actitudes de aquellos hacia la salud oral y las barreras a la aplicación de programas de educación de salud dental.

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Resultados: *Los maestros escolares estaban generalmente muy bien informados acerca de las causas y prevención de las caries dentales y las enfermedades de la encía. El conocimiento sobre el tratamiento apropiado del trauma dental serio era muy pobre entre este grupo, aunque parecían tener mayor conciencia del tratamiento apropiado para las lesiones dentales menos serias. La mayoría de los maestros demostró poseer actitudes positivas hacia la salud dental y su incorporación en el plan de estudios. Las actitudes de los maestros hacia su propia participación en la educación para la salud dental con base en la escuela, fueron también positivas. La falta de entrenamiento, así como de recursos y tiempo dentro del plan de estudios, fueron identificados como las barreras principales a la implementación de un programa de educación de salud dental en las escuelas primarias.*

Conclusión: *El desarrollo de programas de entrenamientos para los maestros, que incluyan conocimientos de salud oral y un enfoque de la educación para la salud dental, basado en evidencias, dentro del contexto de la escuela, podría permitirles a los maestros escolares primarios desempeñar un papel significativo en la promoción de la salud oral entre los niños jóvenes en Trinidad.*

Palabras claves: Salud dental, promoción de la salud oral, escolares, maestros

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INTRODUCTION

The number of teachers worldwide at the primary school level has been reported to be around 23.9 million (1). By virtue of their opportunity to influence large numbers of children and their parents, teachers represent a significant resource in implementing the recommendation for the use of alternative personnel in the struggle against preventable diseases such as oral diseases (2).

The use of teachers in school health education and health promotion holds many advantages including continuity in instructions being given, integration of general and oral health with other activities as well as the overall low costs associated with such programmes (3). In addition to the direct benefits to students, school health education and health promotion programmes which include health promotion for staff have been shown to have beneficial effects for teachers in terms of reduced teacher absenteeism and improved morale and quality of classroom instructions (4).

The use of teachers in health education, however, carries certain disadvantages, the major one being that teachers may be insufficiently trained to deliver such messages. This lack of training on aspects of oral health has been shown to prevent teachers from participating in teaching pupils effectively (5). In addition, lack of resources (6), lack of time, and failure to incorporate oral health into the curriculum has been implicated as barriers to teaching oral health education in schools (7).

Lack of teacher training may be a significant barrier to the success of health-promoting school programmes and may in fact have resultant unfavourable repercussions on the pupils' health (8). Several international studies have been conducted to investigate elementary school teachers' oral health knowledge, attitude and willingness to participate in dental health programmes (9–14). Evidence from the majority of developing countries where these studies have been conducted have shown that teachers, though deficient in their knowledge of oral health, have still shown interest in

providing oral health education to their pupils (13–15). These studies also indicate that while the majority of the teachers were interested in participating in dental health education, they were less motivated to participate in those activities which involved the use of school time and which required their direct supervision. Other studies have shown that some teachers, though quite knowledgeable with respect to oral health, had poor levels of motivation and behaviour related to oral health (9).

AIM

The aim of the study was to investigate the oral health knowledge and attitudes of primary school teachers and their perceived barriers to the implementation of a school-based oral health promotion programme in Trinidad, a developing country in the West Indies.

SUBJECTS AND METHOD

The study was a cross-sectional questionnaire survey of primary school teachers in Trinidad. The questionnaire was designed to explore teachers' knowledge of dental diseases, their attitudes to oral health and to identify perceived barriers to the implementation of school-based oral health promotion programmes. A two-stage sampling process was used which involved the sampling of schools within the educational district followed by sampling of teachers in the selected schools, yielding a total of 246 teachers from 21 schools in the Caroni Regional Education district. Permission was sought from the Ministry of Education to visit the schools and informed oral consent for completion of the questionnaire was obtained from each teacher. Data from the questionnaires were coded and analysed using the Statistical Package for the Social Sciences (SPSS). Stratification by age and by number of years as a teacher was undertaken for level of knowledge. The level of knowledge was also analysed by school denomination, first aid training, training in health education, training in teachers' college and experience dealing with dental injuries.

RESULTS

Characteristics of the participants

The study achieved a 100% response rate. The mean age of respondents was 41 years and 75% were female. The number of years in teaching ranged from 1 year to 40 years (mean 19). Almost all respondents (96%) received training in Teachers' Colleges. Sixty-five per cent reported that they had no first aid training and training in health education was reported by 28.9%. Only 6.9% of participants had received any training in dental health education. Similarly, only 11.2% had experience dealing with dental injuries.

Dental health knowledge

Dental caries

While the majority of teachers (92%) identified irregular tooth brushing as an important cause of dental disease, only 65% and 53% respectively identified the amount and frequency of sugar consumption as important causative factors (Table 1). Almost all participants (97%) reported that decay

Table 1: Knowledge of causes of dental decay (n = 246)

Causative factor	(%)	(n)
Amount of sugar consumed	65%	(160)
Number of times sugar is consumed	52%	(127)
Bacteria in the mouth	77%	(189)
Lack of vitamin D/calcium	48%	(117)
Irregular tooth brushing	92%	(227)

could be prevented by regular tooth brushing but only 68% thought that eating less sugar could prevent dental decay (Table 2).

Table 2: Knowledge of prevention of dental caries (n = 246)

Method of prevention	(%)	(n)
Regular tooth brushing	97%	(238)
Eating less sugar	68%	(166)
Using a fluoride paste	84%	(207)
Visiting the dentist	88%	(216)
Eating fibrous foods	35%	(86)

Gingivitis

Most of the respondents (85%) believed that gum disease was caused by bacteria and 67% thought it was caused by lack of vitamins. Only 39% thought smoking was related to gum disease. Most thought that regular tooth brushing (90%), visiting the dentist (89%) and eating a good diet (79%) would prevent gum disease (Tables 3 and 4).

Fluoride

Eighty-six per cent of teachers claimed to know what fluoride was with 83% suggesting that it helped prevent tooth decay and 20% were aware that fluoride could help repair small cavities.

Table 3: Knowledge of causes of gum disease (n = 246)

Causes of gum disease	(%)	(n)
Bacteria in the mouth	84.6%	(208)
Eating sugary foods	39.8%	(98)
Lack of vitamins	67.1%	(165)
Poor general health	72.4%	(178)
Smoking	39.0%	(96)
Do not know	1.6%	(4)

Table 4: Knowledge of prevention of gum disease (n = 246)

Methods of preventing gum disease	(%)	(n)
Eating a good diet	78.9%	(194)
Regular tooth brushing	89.8 %	(221)
Visiting the dentist	89.0%	(219)
Taking vitamins	47.6%	(117)
Do not know	2.8%	(7)

Dental trauma

When asked what they would do if a child fell and broke a small piece of front tooth, 83% teachers said that they would contact the parents immediately and advise them to go to the dentist. If a tooth was knocked out, 4.5% of teachers claimed that they would replant the tooth before sending the child to the dentist. Twenty-seven per cent claimed they would put the tooth in water or milk and then send the child to the dentist and 74% opted to send the child immediately to the school nurse if there was one available.

Attitudes toward dental health and dental health education

The respondents were uncertain as to whether general health was more important than oral health. Almost all (97%) agreed that dental health education should be included in the school curriculum and 86% thought that teachers should have training in dental health education (Table 5).

Barriers to the implementation of a dental health education programme

Lack of resource materials (77%), lack of adequate training (70%), staff attitude (53%), lack of time in school (47%) and lack of support from local administration (47%) were identified as the main barriers to the implementation of a dental health promotion programme. A smaller proportion (39%) felt that lack of proper school environment could be an additional barrier. In addition to addressing the barriers identified, the teachers thought that parental involvement was crucial in developing an effective dental health promotion programme in schools.

Table 5: Attitudes of teachers toward dental health and dental health education (n = 246)

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
General health is more important than oral health	9%	21%	30%	27%	13%
Children's teeth should be checked regularly by a dentist	79%	20%	0%	0%	1%
It is necessary to treat tooth decay in baby teeth	44%	39%	6%	10%	1%
Dental health education should be included in the primary school curricula	65%	32%	1%	2%	0%
All teachers should have training in dental health education	40%	46%	9%	5%	0%

DISCUSSION

The excellent response rate by teachers in this study could be an indication of a very high level of interest among this teacher population on issues concerning the oral health of the children they teach.

The last national oral health survey in Trinidad and Tobago (2004) reported a mean number of decayed, missing and filled teeth (DMFT) among 6–8-year olds of 2.54, much higher than the DFMT of 0.61 reported for 12-year olds (16). Also, the majority of cases presenting to a paediatric dental emergency clinic in Trinidad were for pain and infection from primary molar teeth among children in the mixed dentition (17), indicating that younger children were at greater risk for this disease.

Participants in this study had good knowledge about prevention of dental decay. Nearly all recognized the importance of regular tooth brushing and most were aware of the role of fluoride. Only two-thirds thought that dental decay could be prevented by eating less sugar. This was consistent with the findings of earlier studies (8) but significantly higher than that found in the study conducted by Petersen *et al* (13) where only 26 per cent of teachers cited sugar as a cause of dental decay. More than three-quarters of participants identified bacteria in the mouth as an important cause of tooth decay. This figure was much higher than those reported in other studies (3, 11).

Most participants correctly reported that bacteria in the mouth were important in the production of gum disease and believed that regular tooth brushing could prevent the disease from occurring. This is similar to the findings of earlier studies (3, 5, 12, 13). An interesting finding in this study is that two-thirds of the participants thought that lack of vitamins was an important cause of gum disease. While there is some evidence which links vitamin D (18), vitamin C (19) and serum folate levels (20) to periodontal disease, other causative factors such as poor plaque control and smoking are accepted to play a more important role.

Most participants thought that visiting a dentist would aid in the prevention of gum disease, however, the role of professional scaling and the removal of calculus in the prevention of periodontal disease have been a subject of much debate as calculus itself has little effect on the progression of the disease (21). In addition, regular professional cleanings for whole populations may not be economically feasible and should be discouraged and instead scarce resources should be directed toward the promotion of plaque reduction through self-care (22).

Few participants in this study claimed to have had any experience dealing with serious dental injuries which is considerably lower than that reported by teachers in Jordan where more than half had had exposure to such cases (23). This finding may suggest a lower incidence of dental trauma among school-aged children in Trinidad when compared with those from other countries, which is supported by the findings of Naidu *et al* (17).

Knowledge of the appropriate management of a tooth that was avulsed was also found to be low among teachers in this study; similar to the findings of other studies (24–26). This is probably as a result of low levels of first aid training and may well reflect a lower incidence of dental trauma in Trinidad (17). The majority of participants were aware of the appropriate management for a minor tooth injury which is consistent with the findings from China (24) and considerably higher than that found in Jordan (23) which reported that less than half of teachers could correctly manage a fractured tooth.

The high number of participants in this study expressing interest in further training in dental health education is consistent with the results obtained by other studies (23, 26) but is in contrast to the findings of Nyandini *et al* (9) where only 11 per cent perceived the need for further training despite low levels of knowledge.

Lack of training and resources were identified as major barriers to the implementation of a dental health promotion

programme, similar to findings in Tanzanian teachers (9). However, although the Tanzanian study also highlighted a lack of time and the size of the work load as a major barrier, less than half of participants in the present study regarded these as a barrier. This may reflect differences in the structure, organization and content of the school curriculum between countries as well as differences in attitudes to dental health. Overall, the findings of this study reflect a fairly good understanding and awareness of dental health and positive attitudes toward prevention among primary school teachers in Trinidad. This is encouraging as teacher involvement in health education can help to create a supportive environment in the school settings and forms part of a holistic approach to an oral health promotion (27).

CONCLUSION

Developing teacher training programmes that include oral health knowledge and approaches to dental health education within a school setting, together with collaboration between organizations involved in school health, the dental profession and those developing primary school curricula, could enable primary school teachers to play a significant part in oral health promotion for young children in Trinidad.

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