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Original Research

Effectiveness of Providing Dental Health Education to Mothers in Controlling Dental Diseases in Children

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Abstract:

Background: Mothers can play an important role in preventing oral disease in children and should thus be well-informed about dental health issues and preventive strategies. The objective of the study is to explore the effectiveness of educating mothers on oral health care practices and its influence on promoting good oral health in their children.

Materials and Methods: A total of 60 literate mothers were recruited for the study from Riyadh city, Saudi Arabia. A pre-test questionnaire was applied along with an assessment of skills in detecting dental caries and dental plaque. After the training session the questionnaire was again applied to assess the difference in knowledge and skill acquired through the training session. The results were compiled and analyzed statistically.

Results: A statistically significant difference was noted among mothers ability to detect dental caries in children. The percentage of plaque identified by mothers after the training session was close to the scores recorded by the dentist. The post-training questionnaire revealed considerable gain in knowledge and understanding of the dental health issues.

Conclusion: The findings point to the importance of educating the mothers in detecting and preventing dental caries and associated problems in children. The study emphasizes the importance of dental health education for promoting children's oral health.

Key Words: Children, dental caries, mothers' knowledge, oral health, oral health promotion, prevention

Introduction

It is widely acknowledged that the attitudes and behavior of parents, and in particular mothers, affects their children's health.[1] The adoption of good oral health habits in childhood often takes place with parents, especially with mothers.[2] Childhood caries is more prevalent in low-income populations due to the lack of knowledge about the caries and its consequences. Such parents often wait until caries in primary teeth become symptomatic and subsequent visit to a dentist.[3-5] Management of such conditions are invasive, and parents tend to avoid subsequent treatment until their children's needs again become extreme. The etiology of the condition is a combination of frequent consumption of fermentable carbohydrates as drinks, with on-demand breast- or bottle-feeding, oral colonization by cariogenic bacteria, poor oral hygiene, and poor parenting.[6,7]

Prevention of nursing caries can be achieved mainly by the education of parents and by the identification of "high-risk" children.[8] The common approach in caries prevention is educating the parents, however, traditional health education may be insufficient to change parents' behavior in relation to their high-risk children, as parents do not go to health professionals in a state of readiness to change patterns of behavior that are well-established.[9] Community-based approaches have also been attempted, but none has achieved any long-term effect.[10,11]

Dental health education is more focused and goal-directed. The technique relies on counseling session and to explore and motivate the parents to overcome the misconception and attitude toward children's health issues.[12] The evaluation of the effectiveness of dental health education is rarely studied and evaluated in a randomized way.[13] Hence, the present study is undertaken to evaluate the effectiveness of educating mothers and their role in identification and prevention of dental diseases in children.

Materials and Methods

The study population was derived from the mothers living in Riyadh city, Saudi Arabia. The study was approved by the Institutional Review Board. 60 mothers who can read and write were selected for the study. All mothers included were having at least one child aged 4 years or below.

- Pre-test questionnaires: The participants completed a pre-test questionnaire consisting of 22 multiple choice questions and five open-ended questions
- Oral screening: All the 60 mothers did an oral examination for their children to recognize dental caries and dental plaque. The data were recorded in the examination form. After all mothers had done the oral examination for the children, the dentist made another oral examination for all the 60 children.

Criteria for oral examination

- Score 0: Means no dental caries or no dental plaque

- Score 1: Means one decayed tooth or dental plaque present. "If any doubt exists caries will not be recorded as present."

Education and training program

Active learning, training program following topics: All 60 mothers took part in a 1 day program. The scope of the training included:

A. Normal tooth and gum tissues; anatomy of normal teeth and oral structures
B. Etiology of dental caries and periodontal diseases and their clinical features
C. The influence of nutrients on oral health status, and mother's role in providing proper nutrition
D. Dentofacial anomalies and oral habits
E. Role of mothers in assessing the oral health status of their children and other family members
F. General discussion and practicing plaque control program.

Post-test questionnaires

The same pre-test questionnaire was applied after 1 week of training.

Post-training oral examination

The same group of the children was assigned for post-training oral examination. The same forms were used to record the results. After all mothers had finished with the examination of their children; the dentist evaluated the post-training plaque scores. General discussion included presentation of some children's cases, oral hygiene instruction, and distribution of parent's instructions forms.

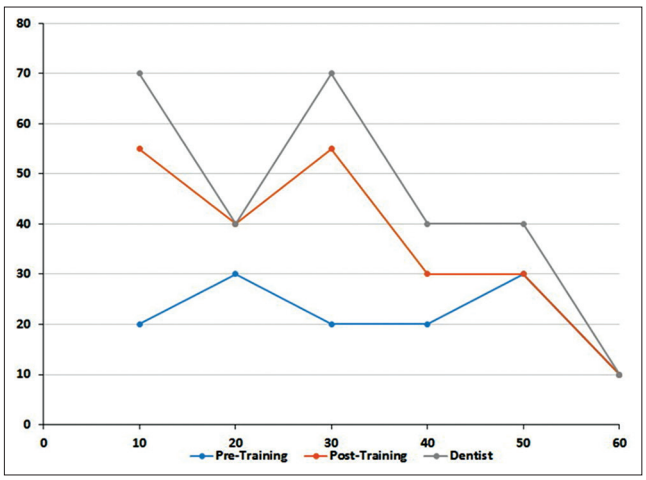
Results

The mother's ability to detect dental caries was assessed before and after the training session. A statistically significant difference was noted among mothers ability to detect dental caries in children (Graph 1). The percentage of plaque identified by mothers before training session was 60% (36). Dentist identified plaque in 80% (48) of the children. After the training mother's detected dental plaque in 12 (20%) children that is closer to 25% by the dentist (Graph 2).

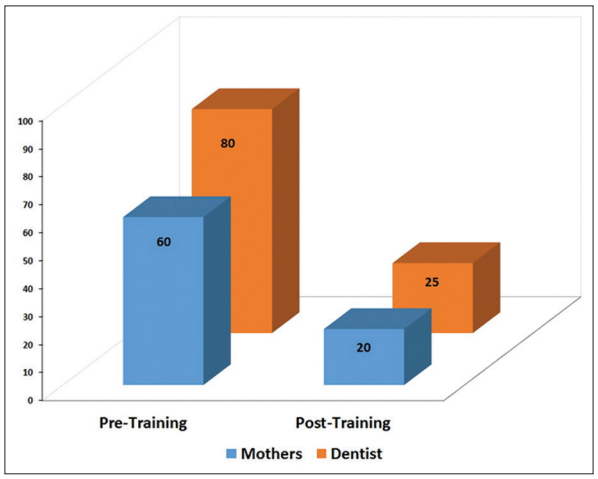
The written responses were scored from 0 to 4 with the positive answer receiving the highest score. The mean difference between the first and second written responses scored was 4.1, and the standard deviation of the different scores was 0.861 (Graph 3). Statistical analysis of the pre-test and post-test scores showed an improvement of mother's behavior ($P < 0.01$). A series of open-ended questions concerning oral diseases prevention revealed a marked change in understanding the problem after training (Table 1).

Discussion

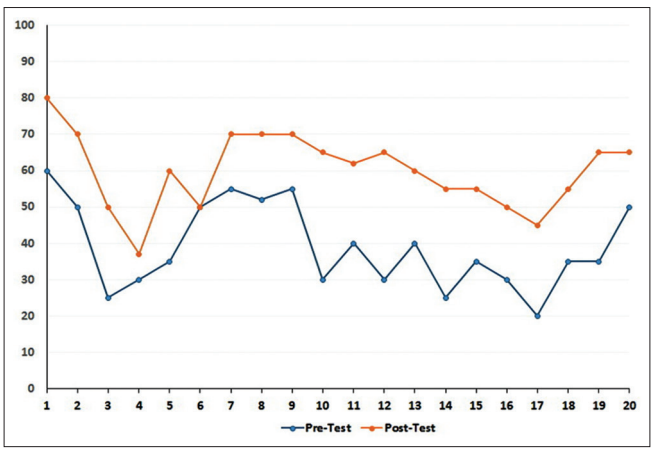
Children are very susceptible to oral diseases, which could be prevented if their caregivers were sufficiently informed about their causes and treatments and were motivated to engage in appropriate oral health promotion. Early childhood caries



Graph 1: Comparison of the ability of pre and post-training skills of mothers to detect dental caries in comparison to the dentist.



Graph 2: Skills in detecting dental plaque by mothers (pre- and post-training) and dentist.



Graph 3: The level of understanding of various factors on dental health issues before and after the training.

Table 1: Percentage of response to the open-ended questions before and after dental health education.

Question	Pre-training responses	Score (%)	Post-training responses	Score (%)
1. Why do you brush your teeth	Prevention of caries	29.41	Prevention of caries	32.08
	Prevention of gum diseases	17.65	Prevention of gum diseases	24.73
	To avoid bad odor	11.76	To avoid bad odor	4.30
	To be white	11.76	To be white	8.60
	Preserve esthetic	11.76	Preserve esthetic	12.73
	Cleaning	5.88	Cleaning	13.04
	Prevent dental pain	5.88	Prevent calculus formation	8.60
	Protection from dental diseases	5.88		
2. What are the causes of dental caries?	No brushing	36	No brushing	36.00
	Sweets	21.05	Improper brushing	18.18
	Food debris	15.79	Sweets	18.18
	Soft drinks	16.53	No flossing	4.09
	Improper brushing	10.53	Bacteria	9.09
	Vitamin deficiency	5.26	Bottle feeding	9.09
3. What are the causes of periodontal diseases?	Improper brushing	25	Improper brushing	37.50
	Dental caries	16.60	Presence of	20.83
	Do not know	16.60	Calculus	
	No brushing	8.30	Caries	20.83
	Bacteria	8.30	Bacteria	16.67
	Psychological	8.30		
	Not sound teeth	8.30		
4. Do you think food can cause dental caries or gum diseases?	No, if proper brushing done	50	Yes, if not cleaned properly	70
	Yes	30	Only sweets	20
	Only sweets	20	Yes	10
5. What do you want your dentist do to you?	Treat decayed teeth	27.27	Examination	28.57
	Treat what needs treatment	27.27	Education	28.57
	Examination	18.18	Treat what needs treatment	28.57
	Education	9.09	Cleaning	14.28

remains a sizeable and significant public health problem in developing countries and among individuals in lower socioeconomic group.[14]

Earlier studies have shown that mothers' dental awareness has an important impact on their children's oral health and oral health-related behavior.[11,15,16] Mother's knowledge about oral health issues is crucial in order to modify their behavior and encourage good health promotion.[13] The importance of the awareness of the timing of basic oral health practices, such as the first visits to the dentist, knowledge about tooth brushing, and exposure to small amounts of fluoride has been highlighted by Hale *et al.*[17]

Studies also highlighted that the degree to which mothers understand oral health issues, is significantly related to better oral health in their children.[18] The observations of the present study are in agreement with the earlier researchers.[19,20]

It is important to educate all mothers about the prevention of dental caries and to promote good oral health of their children. The importance of oral health education has been highlighted in the past. The current study also supports the advantages of providing focused health care information to mothers, who has a greater influence on the children. The lack of knowledge about the causes of dental disease and oral health practices was associated with dental problems in children.[21]

A better understanding of what mothers and other primary caregivers know, and what they do not know about optimal oral health promotion for children, would be the first step to develop educational materials about oral health-related matters to educate caregivers.[22]

The observations of the present study and earlier reports highlight the advantage of implementing oral health education among mothers and the advantages of incorporating it in community health care projects.

Conclusion

Within the limitations of the study, it can be concluded that educating the mothers in detecting dental caries & dental plaque showed significant difference in preventing dental caries and associated problems in children. The study also emphasizes the importance of dental health education for promoting children's oral health.

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