



## EVALUATION OF EFFECTIVENESS OF AN AUDIO-VISUAL AID FOR ORAL HEALTH EDUCATION IN SAUDI ARABIAN CHILDREN.

### Dental Science

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### ABSTRACT

Audiovisual aids are valuable tools in education, especially in the field of health education. The aim of the study is to evaluate and compare the effectiveness of audiovisual and pamphlet aids for improving oral health practices in children. 5 to 6 year old children were included. Two sets of self-administered same questionnaire with ten multiple choice questions was distributed to all participants before and after giving oral health information. Participants were randomly divided into three groups on the basis of oral health information namely video learnt, pamphlet learnt and control group with no learning tool and the children's responses were obtained through parents by marking their answers. The present study revealed that a simple audio-visual aid is useful to motivate the children as an oral health education tool to improve their oral hygiene practices.

### KEYWORDS

Audio Visual Tool, Oral Hygiene Information, Pediatric Health Education

### INTRODUCTION

Early tooth decay is a predictor of future dental caries<sup>1</sup>. The American Academy of Pediatric Dentistry and the American Academy of Pediatrics suggest that early dental care is important to prevent dental caries in future<sup>2</sup>. The importance of oral health education is essential for the independent life of the child and for gaining the responsibility and autonomy regarding oral health<sup>3</sup>.

Traditional educational approaches are helpful but inadequate to change behavior of children nowadays<sup>4</sup>. Audiovisual aids in education are highly important in that they make learning permanent<sup>5</sup>. They like to listen and watch videos when made to their level. Thus a simple audio-visual aid is useful to motivate the children as an oral health education tool for brushing and oral hygiene<sup>6</sup>.

### Objectives

The objectives of the study are to assess the impact of the AV aid and traditional educational material on motivation of the children for brushing and to evaluate the practices related to children's oral hygiene.

### Materials and Methods

The study was conducted in 5 to 6 year old school going children. This age group was selected for many reasons such as the parents have a better control and command over the brushing methods of these children, the children develop learning and understanding at this age and more over early caries prevention is necessary for future oral health.

Children aged 5-6 years old and parents who gives voluntary written consent were included and children with hearing and learning disabilities (The Wechsler Preschool and Primary Scale of Intelligence 2002)<sup>7</sup>, medically compromised children and the illiterate parents were excluded.

This is a prospective interventional study of oral health assessment. Parents (N=125) of children whose ages range from 5-6 yrs were selected for the study. 23 parents were excluded because they did not fill the post intervention questionnaire.

Two sets of self-administered same questionnaire consisting of ten multiple choice questions was distributed to all participants before and after giving oral health information. The questions are related to oral hygiene practices, frequency and time of brushing, the motivation of visiting the dentist and the frequency and quality of the diet. Parents were asked to mark correct option of every item of the questionnaire. After receiving response of pre intervention questionnaire, 102 participants were divided into three groups by random sampling using a table of random numbers. For the first group, a 4-minute cartoon video in the Arabic language was given to parents to show their children once daily for two weeks. For second group, Pamphlets were given to parents to deliver oral health information to their children. An

instruction was given for the parents to read the pamphlet over two weeks. No oral demonstration was performed. Third group was the control group in which no oral health information was given.

After two weeks, the parents in all three groups were expected to fill the same questionnaire after obtaining their child's response to assess the impact of the AV aid and conventional educational material on motivation of the children for brushing, and to evaluate the practices related to children's oral hygiene. The video and oral health education pamphlet in the present study explains the importance of baby teeth, brushing and oral rinsing practices, limiting snacks, encourage taking fruits and vegetables and importance of early dental visit.

### Results:

A score of 1 was assigned to every correct answer thereby the maximum score possible was 10. Equal weightage was given to all the questions. Out of 125 children, 102 children whose parents given response for both pre and post intervention remained available for the analysis.

**Table 1: #One-Way ANOVA; \$Paired 't' test**

Group	Total Score (Pre)		Total Score (Post)		Change		P value <sup>3</sup>
	Mean	SD	Mean	SD	Mean	SD	
Video	4.59	1.635	8.41	1.019	3.82	1.866	<0.001**
Pamphlet	5.26	1.639	7.38	1.015	2.12	1.719	<0.001**
Control	4.79	1.343	4.79	1.343	0.00	0.000	-
Total	4.88	1.556	6.86	1.899	1.98	2.139	
P value <sup>4</sup>	0.186		<0.001**		<0.001**		

\*p<0.05; Significant; \*\*p<0.001; Highly significant

Table 1 represents the analysis of the results of the study based on the questionnaire given to all three groups.

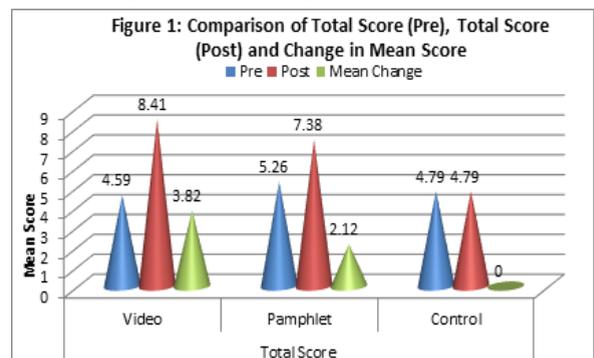
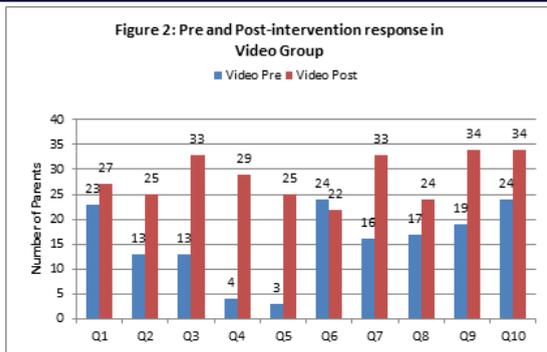


Figure 1 represents the mean score for pre-intervention was insignificantly different among three groups.



**Figure 2** depicts the pre and post intervention response of the number of parents for each question in video group.

### Discussion:

Dental caries is a major problem in Saudi Arabia affecting 80 to 96% of school children due to poor oral hygiene practices<sup>8</sup>. The late first dental visits may also be a factor for high caries prevalence. Al-Otaibi et al reported that 88% of Saudi children start brushing at 7 years of age showing lack of knowledge and awareness on oral health<sup>9</sup>.

In the present study, the questions were related to oral hygiene practices, frequency and time of brushing, the motivation of visiting the dentist and the frequency and quality of diet. The present study helps the parents and children to gain knowledge about cleaning of teeth after every meal. After showing video and pamphlet most of the parents came to know the importance of teeth for overall general health.

Parents and children understood that the frequency of eating snacks like candy and sweets should be occasional and frequency of intake of fruits and vegetables should be more. The present study with the help of AV tool changed parents thinking that the dental checkup is important even in the absence of dental problem. Based on the findings of the current study, the level of acceptance towards audiovisual aid was good.

The results of the present study coincided with the findings reported by Dumitrascu in 2009. There was a significant impact of audiovisual educational methods in changing children's attitude and behavior toward oral health compared to oral health education through oral communication alone<sup>10</sup>. A study conducted by Jawdekar in 2015 on 3 to 6 yr old children, Happy tooth song was used as an oral health promotion tool and it influenced children to know the importance of tooth brushing, the timing of tooth brushing and the understanding of the oral hygiene, healthy food habits and regular dental visits in children<sup>6</sup>.

Oral health education pamphlet in the present study focused on importance of baby teeth, timing and method of brushing, limit snacks, encourage taking fruits and vegetables, oral rinsing habits and importance of early dental visit. Although leaflets have been found to be effective in raising awareness, they need to be suitably written to be comprehended as stated by Weinman in 2011<sup>11</sup>. Danaei in 2016 conducted a study using leaflets for creating awareness of oral habits and dentofacial discrepancies. Other studies showed that educational pamphlets can be effective for educating people<sup>12</sup>.

The results were in accordance with other study which stated that the audiovisual aids are more effective than picture books and radio, especially in 3 to 6 yr old because it presents more lively and active images. Children of ages between 2 and 5 have the ability to imitate the incidents and behaviors they see (watch). Considering that the children of this age group are interested in cartoons which have scenes changing with fast effects, the importance of cartoons in the lives of children who 'imitate' them and learn from them.

Early oral health education creates knowledge and awareness on oral hygiene practices. Hence it is wise to educate the expectant mothers about anticipatory guidance to focus attention on positive oral health behaviors as shown in a study done by Alsada in 2005<sup>13</sup>.

The results of the present study revealed that the AV aid had highly significant impact on oral health education compared to pamphlet.

Parents or caregivers may not carefully mark their answers correctly in the assessment questionnaire as it is observed in similar study done by Peck in 2012<sup>14</sup>. This could be a limitation for the present study. The impact of an audiovisual aid may be more initially. Hence, future studies are required to evaluate the long-term effectiveness of the AV aids on oral health education.

There have been no reported studies of using AV aid in local Arabic language as an oral health educational tool for 5 to 6 yr old children in Saudi Arabia. Hence the current study motivated the parents and children to improve their oral hygiene practices. Extensive application of AV aid is favorable for expectant mothers, parents and young children as a comprehensive oral health intervention tool.

### Conclusion:

1. The level of acceptance towards audiovisual aid was good.
2. AV aid did have a significant impact on children's oral hygiene practices compared to pamphlet group.
3. There was significant difference between pre intervention and post intervention scores which indicates that oral health education through AV aid is necessary to motivate Saudi Arabian children to improve their oral hygiene practices.
4. The use of technology helps to change the knowledge, attitude and oral health behavior in children and their parents.

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