EFFECTIVE COMMUNICATION METHODS OF DENTAL HEALTH EDUCATION

A COMMUNITY DENTISTRY RESEARCH PROPOSAL SUBMITTED IN PARTIAL FULFILLMENT OF THE BACHELOR OF DENTAL SURGERY DEGREE AT THE UNIVERSITY OF NAIROBI.

INVESTIGATOR: NGUGI MAISEY N.
BDS LEVEL III
2002-2003

SUPERVISORS: DR. GATHECE L.W. BDS (UON), MPH (NRB.)
DEPARTMENT OF PERIODONTOLOGY/COMMUNITY AND PREVENTIVE DENTISTRY.
FACULTY OF DENTAL SCIENCES, UON.

DR. MUTARA L.N. BDS (UON), MPH (NRB.)
DEPARTMENT OF PERIODONTOLOGY/COMMUNITY AND PREVENTIVE DENTISTRY.
FACULTY OF DENTAL SCIENCES, UON.

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SUMMARY

Objective: To establish which communication media among posters, leaflets and a lecture is most effective in providing dental health education to children aged 11-13 years.

Design: A pretest - post test study.

Sample and method: Standard six students in three primary schools, namely: Mbagathi, Shadrack Kimalel and Toi Primary schools. Sample size is 196. The subjects will fill identical closed ended questionnaires on two visits, before the dental health education and two weeks after the dental health education. Different communication media will be used in each school.

Data analysis: Data will be analyzed manually.
INTRODUCTION

The sole purpose of health education is to improve health through education. Dental health education thus aims at improving oral health. It would mainly involve promoting prevention of dental diseases such as periodontal disease and dental caries, which eventually lead to tooth loss. Schools have been the traditional focus of community based oral health education. They provide a setting for the efficient delivery of health education programmes because of access to a large numbers of children. It is also easier to change habits in children than in adults. A study done by Soraya Coelho et al on children aged 3-6 years in Brazil demonstrated that the children's oral health improved after dental health education. Many dental health education programmes have been employed with a view to reducing dental diseases. Various communication media has been employed such as theatre, mass media, and audiovisual methods.

The aim of this study is to establish which communication media among posters, leaflets and lectures, is most effective in providing dental health education to children aged 11-13 years.
LITERATURE REVIEW

It has been proved that dental health education results in positive dental habits that lead to improved oral health. Worthington H.V. et al did a study that tested the effectiveness of a dental health education program that was designed to improve the oral hygiene and dental knowledge of 10-year-old children. 32 schools in the north west of England participated. The schools were randomly divided to active groups and control groups after baseline assessment of plaque and completion of a dental knowledge questionnaire by the children. The children in the active group received the dental health program while those in the control group did not receive the program. At the end of 4 months, the children were examined clinically and a second questionnaire was administered. The active group had 20% lower mean plaque score as compared to the control group. The children's knowledge on which type of toothbrush should be used and the role of disclosing tablets improved in the active group when compared to the control group. The study concluded that the children receiving the program had significantly lower mean plaque scores and greater knowledge about toothbrushes and disclosing tables than the control children who did not receive the program.

Various methods have been used to provide dental health education. O'Neill P et al conducted a study to assess the influence of an information leaflet for patients attending oral surgery clinic at a local dental hospital. There were four groups. The 1st group was given the leaflet and prompted to read it. The 2nd group was given the leaflet but not prompted to read it. The 3rd group was provided with the dental health education leaflet without prompting. The 4th group was not given any leaflets but was given verbal information. The 3rd and 4th groups were the control groups. After one month, a questionnaire was issued to the patients. The 1st group showed increased knowledge on retest. The 2nd group showed a trend to greater knowledge. The control groups showed no improvement. This study thus showed that the leaflet was effective in providing dental health education.

Glavind L. et al did a study to evaluate the effect of two types of instructions: personal instruction from the dentist and self-teaching manuals. An identical improvement in oral
hygiene and gingival health was recorded in both treatment groups after 3 and 6 months. The finding indicates that the self-educational programs were as effective in changing the oral hygiene habits of the patients, as was personal oral hygiene instruction by dental personnel.9

Williford et al reported that educational lectures result in highly significant improvements in oral health when applied in adolescents. The study concluded that it is necessary to find which method of oral hygiene instruction is more adequate for each child considering age.10

Comparative studies have been done to compare effectiveness of various communication media in providing dental health education. Lim L.P. et al conducted a study on the effects of various modes of delivery of oral hygiene messages on their gingival health. Subjects were allocated to one of the following modes of oral hygiene education:

1) Personal instruction
2) Self-education manual
3) Video
4) A combination of 2 or more of these modes of instruction

No significant differences were found between the groups given the various modes of oral hygiene education. The study does confirm the effectiveness of oral hygiene alone in improving gingival health, but the lack of difference in the outcome of various oral education approaches indicates that the modes of instruction is not crucially important to the end result. However, it has to be acknowledged that improvement in oral hygiene may be related to other factors than the oral hygiene program itself. It could also be argued that the subjects were from a single company and could have shared the various modes of instruction with one another thus resulting in no significant differences in the various modes of oral hygiene education.
STUDY JUSTIFICATION
No research has ever been carried out in this country to find out which media is most effective in teaching dental health education to primary school children.

OBJECTIVE
To establish which communication method is most effective in teaching dental health education to children aged 11-13 years.

HYPOTHESIS
There is a significant difference in the various methods of communication in providing dental health education.

VARIABLES
1. Independent Variables
   • Communication methods i.e.
     • (a) Posters
       This is a communication media that passes on information by use of illustrations and pictures. The written information is very brief.

       Advantages
       □ The pictures and illustrations imprint a lasting image in the mind thus information is easily remembered.
       □ The children may be motivated to read the posters because of the illustrations.

       Disadvantages
       □ The posters are pasted on the wall so the children may choose to read or not to read.
       □ The children may just look at the pictures and fail to read the written information, thus may not get the entire message.
(b) **Leaflets**

This communication media contains more detailed information than a poster. It has a lot of written material.

**Advantages**
- The child takes the leaflet home and thus has time to go thru it carefully.
- The leaflet contains more information, thus the child gains more knowledge.
- The child can refer back to the leaflet when needed.

**Disadvantages**
- The children may take the leaflets but may not actually read them.
- Children get bored easily and may not finish reading the material.

(c) **Lecture**

This will be a talk based on the information contained in the posters and the leaflets. It will be short and simple.

**Advantages**
- The lecturer can simplify the information to contend with the children’s understanding.
- The children have a chance to ask questions or to clarify points they did not understand.

**Disadvantages**
- Children have a low concentration span thus may fail to pay attention after a short while.
- The children will not remember all the information later on if notes are not taken.
2. Dependent variables

- Level of knowledge of pupils.

**Indicators of knowledge**

- Dental diseases
  - Dental caries
  - Gum disease
- Types of teeth
  - Incisors, canines, premolars and molars.
- Parts of a tooth
  - Crown, neck, root.
- Tooth brushing technique
- Tooth brushing frequency
- Foods to avoid to prevent dental disease
- Foods to eat to prevent dental disease
- Frequency of visiting the dentist
- Reasons for visiting the dentist.
MATERIALS AND METHODS

STUDY AREA

Three schools have been selected to take part in the study.

- Shadrack Kimalel Primary
- Mbagathi Primary
- Toi Primary

These schools are located near Kibera slum, which is the largest slum in East Africa. The schools enroll most of the children from Kibera slum and a few from the neighboring middle class areas.

STUDY POPULATION

The study group comprises of all the standard six pupils in these schools because they comprise of the targeted age group of 11-13 years.

SAMPLING METHOD

The schools have been chosen by convenience because:

i) All three schools are in the same location.
ii) Easy access to the schools.

INCLUSION CRITERIA

- All standard six students in the three schools.

EXCLUSION CRITERIA

- Standard six students who do not consent to the study.
- Standard six students who will be absent on the day of data collection.
STUDY DESIGN

The study will be a pretest - post test study.

SAMPLE SIZE

\[
N = \frac{Z^2 P (1-P)}{C^2}
\]

C = 1 - Confidence level
P = Prevalence
Z = Z Value

\[
N = \frac{1.96^2 \times 0.5(1-0.5)}{(1-0.95)^2}
= \frac{3.8416 \times 0.25}{0.0025}
= 384
\]

nf = n
\[
\frac{1+n}{N}
\]

N = Population size
n = desired sample size for population greater than 10,000.
nf = desired sample size for population less than 10,000.

\[
nf = \frac{384}{1+\frac{384}{400}}
= 196
\]
DATA COLLECTION INSTRUMENTS AND TECHNIQUES

Instruments to be used include: -

- Closed ended questionnaires
- Posters
- Leaflets
- Lecture

See appendix.

METHOD

A different communication method will be used for each school. There will be 2 visits to each of the schools.

- In the first visit, questionnaires will be administered to the children to assess their level of dental health knowledge.
- This will be followed by a delivery of dental health education using either of the methods on the same day.
- There will be an impromptu second visit after two when a second questionnaire, identical to the first one will be administered. This will help to assess if the children level of knowledge has increased after the dental education.
- Later an analysis will be done to compare the different methods of communication used.
- The questionnaires will be formulated from the information contained in the posters, leaflets, video and lecture.
- The information contained in the various communication methods is similar.
- Each question in the questionnaire will score one mark, so the total score will be out of ten.
LOGISTICS

- The school authorities have to give permission for the research.
- Transport arrangements have to be made.
- Research has to be carried out in a short period of time.

ETHICAL CONSIDERATIONS

1. The school authorities have to give consent.
2. The pupils will not be forced to take part in the study.

DATA ANALYSIS AND PRESENTATION

- Data analysis will be done manually.
- The collected data will be presented in form of tables and bar graphs.

PERCEIVED BENEFITS

- The pupils will gain increased dental health knowledge from the study.
- Partial fulfillment for award of a B.D.S degree of the University of Nairobi.
### BUDGET

#### Stationery
- Packet of Diskettes: 400/-
- 2 reams of printing paper: 600/-

#### Transport costs
- 1000/-

#### Production
- Posters: 4000
- Typing: 500/-
- Printing: 600/-
- Binding: 200

#### Miscellaneous
- 1000/-

#### Total
- 8300/-
REFERENCES


2. Community Oral Health by Cynthia M. Pine - Pg 246.


APPENDIX

QUESTIONNAIRE

Read each answer carefully. Then tick the box next to the one you think is right. Only one answer is correct in each case.

1. What is the name of the part of the tooth that you can see in the mouth?
   (a) Root
   (c) Crown
   (b) Gum
   (d) None of these

2. The teeth at the front of the mouth are called:
   (a) Incisors
   (c) Premolars
   (b) Canines
   (c) Molars

3. Dental decay is caused by:
   (a) Bacteria on the teeth
   (c) Both of these
   (b) Eating foods containing sugar
   (d) Neither of these

4. Gum disease can lead to:
   (a) Bad breath
   (c) Loose teeth
   (b) Bleeding gums
   (d) All of these

5. You should brush your teeth
   (a) First thing in the morning only
   (c) Before meals
   (b) Before going to bed only
   (d) After meals and at bedtime

6. A good brushing method makes sure that you:
   (a) Clean the front of the teeth
   (c) Clean the biting surface
   (b) Clean the back of the teeth
   (d) All of these

7. You should avoid eating sweets:
   (a) At all
   (c) During meals
   (b) Between meals
   (d) Every day

8. The following foods are good for your teeth:
   (a) Minerals
   (c) Sweets
   (b) Vitamins
   (d) (a) and (b) above
9. You should visit your dentist:
   (a) Only when your teeth hurt  
   (b) Only when you have your permanent teeth
   (c) At least once a year  
   (d) When you want your teeth removed

10. You should see your dentist for the following problems:
   (a) Toothache  
   (b) Bad breath
   (c) Loose teeth  
   (d) All of these
DR. RABBIT TELLS YOU HOW TO care for your teeth

DR. RABBIT AND DENTAL CARIES.

Bacteria on teeth combine with food particles to start the decay process...

Bacteria turns sugary foods into decay-acid that destroys the tooth enamel...

......creating a cavity. The cavity gets deeper causing pain and foul smell ...

DR. RABBIT TEACHES YOU HOW TO BRUSH TEETH THE CORRECT WAY.

Brush the outside of the teeth using small circular movements.

Brush biting surfaces in scrub-like way.

Use short strokes to clean the inner surfaces of the teeth.

• Remember to brush teeth thoroughly at least twice a day

• Don't forget to brush your tongue.

DR. RABBIT'S GOLDEN RULES FOR STRONG, HEALTHY TEETH AND A SMILE TO LAST A LIFETIME.

1. Do not eat too many sweets between meals.

2. Eat foods that contain Vitamins and minerals

3. Brush your teeth after every meal - the correct way.

4. Use a good toothpaste and toothbrush.

5. Visit your dentist at least once a year.

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SCHOOLS EDUCATION A CONTINUING DENTAL HEALTH PROGRAMME
GUM DISEASE
Gum disease begins with plaque formation on the teeth. Bacteria in the plaque can irritate the gums and cause them to become red and swollen. This gum disease is called Gingivitis. The gums bleed easily as a result of the bacteria growing under them. In severe cases of gum disease, the teeth may become loose and may fall out.

VISIT YOUR FRIENDLY DENTIST
If you have any of the following problems you should see your dentist immediately:
- Toothache
- Bleeding gums
- Bad breath
- Cavities
- Crooked teeth
- Swollen gums

Your dentist is the best friend your teeth can have so see her at least every six months.
1. incisors
2. incisors
3. canines
4. premolar
5. premolar
6. first permanent molar
7. second molar
8. third molar (wisdom tooth)
THE STRUCTURE OF THE TOOTH

TOOTH CROWN

NECK OF TOOTH

ROOT OF TOOTH

Enamel
Dentine
Pulp chamber
Gingival crevice or sulcus
Gingival gum
Gum attachment to tooth (1)
Periodontal fibres (2)
Cementum (3)
Bone/alveolus (4)
1 + 2 + 3 + 4 =
Periodontium
Root canal

Blood Supply
Nerve Supply

DECIDUOUS DENTITION

MAXILLA

UPPER
Central incisors
Lateral incisors
Canines (cuspids)
First molars
Second molars

LOWER
Second molars
First molars
Canines (cuspids)
Lateral incisors
Central incisors

MANDIBLE

PERMANENT DENTITION

MAXILLA

1 Central incisor
2 Lateral incisor
3 Canine
4 Premolar
5 Molar
6 Molar
7 Molar
8 Wisdom tooth

MANDIBLE

1 Central incisor
2 Lateral incisor
3 Canine
4 Premolar
5 Molar
6 Molar
7 Molar
8 Wisdom tooth

PRODUCED IN THE INTEREST OF BETTER DENTAL HEALTH BY COLGATE-PALMOLIVE (EA) LIMITED, P. O. BOX 30264, NAIROBI, KENYA
What is a Healthy Tooth?

A healthy tooth is strong and clean, with healthy, pink gums. Healthy teeth have no cavities or tooth decay. Permanent teeth should last all your life if they are properly cared for. The first permanent teeth come through at about six years but the last may not appear until 17 years of age or older (the wisdom teeth).

Types of Teeth

There are two types of teeth: Primary teeth, which are also called baby or milk teeth. There are twenty primary teeth, and they last about 6 or 7 years. They are followed by 32 permanent teeth.

Incisors: Sharp front teeth for cutting and biting. Canines: In the front corners of the mouth, for tearing food. Premolars: For grinding and tearing food. Molars: At the back of the mouth for chewing and grinding.

Loss of Primary Teeth

At about six years of age the primary teeth start to become loose and then fall out. The age for the loss of the first tooth varies from five to about seven years. The first tooth to be lost is usually a front lower one. By 12 or 13 all the primary teeth have been replaced by permanent ones. Permanent teeth usually have a slightly yellower colour than primary teeth.

Tooth Decay

Plaque is a sticky layer that forms on your teeth which is caused by bacteria mixing with saliva. Tooth decay starts when plaque sticks to your teeth. Plaque can change sugar and food particles into acid, which can cause tooth decay. If the tooth decay continues it may reach the root of the tooth, and the whole tooth must then be pulled out.

Gum Disease

Gum disease also begins with plaque formation on the teeth. Bacteria in the plaque can irritate the gums and cause them to become red and swollen. This gum disease is called Gingivitis. The gums bleed easily as a result of the bacteria growing under them. In severe cases of gum disease, the teeth may become loose and may even fall out.

Minerals and calcium plus plaque harden to form tartar which is a hard, crumbly material which can only be removed by a dentist. Tartar forms around the gum line and if it is primarily an adult problem which is not removed, will provide additional surfaces for plaque to accumulate and lead to gum disease.

To control tartar or Calculus:
1. Have teeth professionally cleaned.
2. Brush at least twice a day with a tartar control formula toothpaste.
3. Floss daily.
4. Limit between meal snacks.

Preventing Tooth Decay and Gum Disease

Eat foods that have lots of vitamins and minerals. Try to limit the amount of sweet or sticky foods, especially between meals - they speed up tooth decay.

Tooth erupting chart

For the inside surfaces, place the head of the brush against the teeth and gums and use the same circular motion. Scrub the biting surfaces with short back-and-forth movements.

Visit Your Friendly Dentist

Even if your teeth look and feel fine, you should have them checked and professionally cleaned by a dentist or oral hygienist. If you have any of the following problems, you should see your dentist immediately:

To brush behind the front teeth, hold the brush vertically and using small circular movements, brush from the gum line towards the tips of the teeth.

To make sure you do not miss any area, follow this routine every time you brush:
1. Begin at the back of the lower jaw and work methodically around the outer surfaces.
2. Then do the same with the inner surfaces.
3. Repeat the process for the upper jaw.
4. Then brush the biting surfaces of both upper and lower teeth. Replace your brush at least every three months or as soon as the bristles start losing their shape. Brushing your teeth with a worn-out toothbrush can damage your gums and will not remove plaque effectively.

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Your dentist is the best friend your teeth can have to see him at least every six months. He will help make sure that your teeth last a lifetime.
CROOKED TEETH CAN BE STRAIGHTENED

If your teeth are crooked they will be more difficult to keep clean and free from cavities. You, together with your dentist may decide to correct your crooked teeth. This treatment usually involves wearing braces, and may require special care and attention for your teeth. When the braces are removed you'll have a lovely set of healthy, straight teeth and an attractive smile.

FOOD AND YOUR TEETH

The strongest teeth are the ones that grow with the help of good wholesome food such as milk, cheese, eggs, fish, meat, vegetables, cereals and fresh fruit. These foods contain calcium and other minerals which are essential for maintaining healthy teeth and gums. Sweet and sticky foods together with plaque produce acid in your mouth much faster than any other foods - and this acid causes cavities. So if you do eat sweets, try to eat them ONLY ONCE A DAY AFTER A MEAL and brush your teeth straight away.

THE COLGATE RANGE FOR A SMILE THAT WILL LAST A LIFETIME

Colgate Maximum Cavity Protection strengthens teeth and leaves your mouth feeling fresh. Colgate's fluoride and calcium formula fights the food acids that cause cavities by strengthening tooth enamel, leaving your teeth harder and more resistant to cavities.

Colgate Triple Action toothpaste with the advanced GermDefence™ formula helps protect you against the germs that cause bad breath, yellowing of teeth and tooth decay.

Colgate Total is clinically proven to provide protection for up to 12 hours. The anti-bacterial shield reduces bacteria build-up between brushing and continues to work during eating and drinking.

Colgate whitening is clinically proven to gently remove daily surface stains leaving your teeth whiter and shinier. Gentle enough for everyday use.

Colgate has a full range of toothbrushes to fulfill tooth care and cleaning needs, ranging from daily cleaning to more intensive specialist attention. The complete Colgate toothbrush range fit all budgets, technical requirements, and offers a wide array of preferences in attractive colours. Colgate Premier Ultra for instance with V-trim bristles, diamond shaped head and flexible handle provides a superior clean between teeth.

LOOK AFTER YOUR TEETH AND YOUR SMILE WILL LAST A LIFETIME

You can easily keep your teeth healthy for the rest of your life. Just remember these VERY IMPORTANT rules:

- Brush your teeth every morning and evening after meals, using a fluoride toothpaste and a toothbrush with soft end-rounded bristles. Floss daily to remove plaque. Replace your toothbrush at least every three months. Eat lots of healthy food. Don't eat too many sweets and sticky foods. Visit your dentist at least twice a year.

MAKING YOUR TEETH LAST

You can easily keep your teeth healthy for the rest of your life. Just remember these VERY IMPORTANT rules:

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LOOK AFTER YOUR TEETH AND YOUR SMILE WILL LAST A LIFETIME

For any further information please call us on: (02) 534044, or write to us Colgate-Palmolive (E.A.) Ltd., P.O. Box 30264, Nairobi (Kenya)