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IMPORTANCE OF ORAL HEALTH EDUCATION IN UNDERGRADUATE DENTAL STUDENTS' TRAINING

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A Thesis submitted in partial requirement for the Diploma in Public Health Dentistry

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SUMMARY

Oral health education plays a major role in the process of combating oral diseases. Dental students should receive adequate health education training during their undergraduate course.

The main purpose of oral health education is to deliver the message of better oral health care to the members of the community with the aim of stopping the progress of existing oral diseases and the prevention of possible outcomes of oral-facial abnormalities or discomfort.

Dental students should be trained and prepared in their course to serve the community by contributing positively to the health, happiness and well-being of its members. Individual target groups should be dealt with according to their basic needs. Before any health education programme can be introduced, a thorough knowledge is required of the beliefs, attitudes and behaviour pattern of both parties involved in the education process.

In public health dentistry training, mass media communication should be emphasised. Students should be encouraged in project planning, poster designing and participation in public meetings and lectures. The use of radio and television are effective ways of delivery of a short message.
The understanding of different oral diseases is necessary to formulate a satisfactory preventive programme. Prevention of dental caries and periodontal diseases have been discussed. The elimination of dental plaque is a major factor to prevent these diseases. The dental educator has an important role to motivate and instruct patients on proper oral hygiene control and maintenance.

Frequent visits to dentists for the prevention and early detection of other oral diseases has been advised. Students should be instructed in the detection of oral conditions and prevention of other infectious oral diseases.

Traumatic injury prevention can be taught in pedodontic and orthodontic lectures. The technique of mouth protector construction can be taught in prosthetic dentistry.

In order to understand the concept of oral health education, students must be taught basic concepts of human behaviour and learning patterns. The principles of motivating patients towards good oral health rely on the basic needs of human beings. Proper guidance and information can change a person's behaviour pattern and create a good dentist-patient relationship.

Selective use of dental auxiliary personnel to educate different target groups provide better services to the community and enable the dentist to use his skills most effectively.
Dental school curricula have been studied. It is suggested that oral health education should be incorporated into the six major branches of dentistry at the beginning of the course and last throughout the training years.

Oral health education content should be taught individually in the different subjects of dentistry such as in restorative, prosthetic, pedodontic, oral surgery, orthodontic and periodontic dentistry.

Demonstrators in the clinical years are advised to look at students' overall performance in patient management and communication rather than just assessing their productivity and technical skills alone.

There is a need to produce more preventive oriented dentists for the future delivery of oral health care.
ACKNOWLEDGEMENTS

I would like to thank all the teaching staff of the course, especially to Associate Professor P.D. Barnard for his guidance, and my family for their moral support.
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1. INTRODUCTION

1.1 IMPORTANCE OF ORAL HEALTH EDUCATION

The dentist being a member of the health team, has the responsibility to treat each patient as a person, rather than just a mouthful of teeth, although his specialty training is concentrated on the dentition, its surrounding tissue and its function. It is important for a dentist to develop a strong practice philosophy to look at a dental patient as a human being who has got a problem in his/her oral cavity and the dentist is the professional person who can help them by treating the problem or preventing it from happening in the future (Ayer 1982).

In order to deliver whole patient care relating to their oral health, motivation and oral health education play major roles in changing the belief, attitude and behaviour pattern of the patient. The aim is to introduce a healthy good life to the patients and the achievement of a feeling of general well-being to improve the quality of life (Sheiham & Croog 1981).

It is essential for the dentist to understand that people show a great variation in their understanding about oral diseases and the ways which they have developed and have learned previously of how to handle the problem. These people may have already developed strong bonds to
their beliefs and ideas, and it would be very difficult to modify them (Ayer 1982).

Therefore, the dentists must have adequate knowledge in behaviour science, socio-cultural understanding and communication skills before they can deal with various age groups or different target groups (Gillings 1974; Furnham 1983).

It would be beneficial to point out to patients that the dentition is a vital structure which directly relates to the three basic human needs that are essential to everybody in normal life. These are the need of survival, the need of socialization and the need of self satisfaction. These topics will be discussed in the text with reference to individual target groups.
1.2 MOTIVATION OF DENTAL CONSCIOUSNESS

Various technique and communication skills will be reviewed and the concept of modifying the patients' attitude and behaviour in relation to preventive oral health care will be studied (Burt 1983).

The basic knowledge of how to look after individual oral structure should be taught and reinforced regularly (Sanders 1978). Treatment procedures, in simple terms, can be explained to the patient in order to obtain cooperation. People are more worried about the treatment if they do not know what is going on (Ayer 1982). It is wise to encourage the patient to accept the fact that proper home care procedures are their own responsibility.

Different age groups and special groups of patients in society are discussed according to their needs and socio-economic problems. Various communication media and channels for health education are studied and compared.

The dental educator plays the major role in motivating dental consciousness in the patient (Sheiham & Croog 1981). He must be, therefore, highly educated and motivated himself and should have received adequate training in preventive dentistry during his training.
1.3 **AIMS OF THE THESIS**

Since the dental educator is the key person in the oral health education programme, this thesis is designed to study some of the recent literature on the application of education principles in training dental students.

Different areas in communication methods are suggested to aid the delivery of the message. The teaching curriculum of three Dental schools in which the author has either studied or worked are studied and compared with regard to oral health education.

It is found that oral health education is not sufficient as it is mainly being taught in the three subjects of behaviour science, public health, and preventive dentistry during the undergraduate training.

It is therefore, the aim of this thesis to propose an integrated oral health education course into the 6 major branches of Dentistry of:-

1) Restorative Dentistry
2) Prosthodontics
3) Pedodontics
4) Oral Surgery
5) Orthodontics
6) Periodontics.
2. THE DENTAL EDUCATOR

2.1 COMMUNICATION SKILLS

Face to face communication is the best way to deliver a message because the educator can easily obtain an immediate feedback signal by observing the responses of the learners. (Weinstein & Getz 1978). Instructions can be reinforced if a negative sign is noticed. Furthermore, it can easily generate a personal feeling (Blass 1963) to the patient and will help him to think that you are a professional expert and are really caring for his health (Levy 1980).

Unfortunately, in private practice situations, it is a very time consuming and a rather expensive procedure if the dentist has to spend a lot of his expensive clinical hours on face to face education to all of his patients. To overcome this obstacle, the dentist can use his auxiliaries as much as possible to achieve the same goal (Leatherman 1969).

These auxiliary personnel include his dental nurse, hygienists and therapists or even his receptionists. They are usually working under the employment and supervision of the dentist. Their attitudes and philosophies of health education are directly influenced by the belief and decision of the dentist who is supposed to be the authority and expert in the education team. Therefore, the dentist
should act as a manager of the team in the planning and the delivering of the message. He can give advice to his staff and see only those difficult cases with which his auxiliaries cannot achieve any success.

The important point in face to face communication is talking to the patient at eye-level (Ayer 1982). This applies to any age group and one must avoid the feeling of talking down to people and the position of the dental chair must be changed to suit the working positions of different operators. There is great temptation for the operator to deliver information while the patient is lying down or during some operative procedures.

It is advised to have the patient sitting up in the dental chair with the height of the dental chair adjusted so that the patient's eye is at the same level as the operator's eyes. The environment in the surgery should be quiet without any interruptions from other people talking or the noise from the instrument. If possible, oral health education should be delivered in an interview room.

Demonstrations using models or print-outs can be introduced (Levy 1980). One must be prepared to answer all the possible questions that could be raised by the curious patient. Motivation and encouragement can be applied depending on the reactions of the patients to the message (Waldman 1970). It is wise to stimulate the patient to ask questions to make him more involved
in the subject.

In general, it is a good practice to address patients by their Christian name or surname depending on the patient's age, educational background and cultural group. For example, in America or in Australia, some people prefer to be called by their first name to show friendliness, while in some Asian countries, to address by given names (especially to senior age groups) is believed to be rude and unacceptable.

It will create embarrassment to guess the patient's name if one has forgotten. It is a good idea to read through the record card first to note the patient's name, occupation and history of treatment before actually taking the patient into the surgery so that conversation can be started much more easily and the patient will feel much happier (Logan 1983).
2.2 CHANGING BEHAVIOUR OF INDIVIDUALS

As members of the health profession, do we have the right to change the behaviour of other individuals? Do we have the right to interfere in people's private lives and how they look after themselves? The answers can be justified by informing the community that if the cigarette and chocolate companies have the right to advertise their products and influence people's attitudes and beliefs in the market, we as professional health workers should also have the right to inform the general public that what we have studied and proved, is damaging to their health. In fact, it is the responsibility for all health workers to tell their patients the possible results and complications of certain unhealthy behaviour (Sanders 1978). Of course, we cannot force them to believe or to change their behaviour in a compulsory manner.

After we have exerted our utmost efforts to pass on the message, it would then be up to the patient to decide what course they would like to follow. After all, the main goal if persuading attitude and behaviour changes is to promote their own health and to adopt a good lifestyle (Burt 1983).

For the patients who would like to improve their oral health status, proper guidelines and information must be given out to help these people to make the right choice.
The health department can review the sort of information that should be given out to the public. It is important to protect the individual's private life from being interfered with by detrimental action of the health professions. This becomes essential, especially when some enthusiastic health workers use the fear-arousing communication technique to deliver the message.

2.3 MASS EDUCATION AND COMMUNITY HEALTH

One of the difficulties in carrying out oral health education is the fact that oral diseases are not usually a cause of death. People assume dental decay, or loss of their teeth, is not hazardous to health. The basic association with the oral cavity perhaps is the history of pain that could possibly arise from a decayed or loose tooth and that this pain could be stopped if the problem tooth is removed and the problem resolved. The complications that could arise from losing a tooth have not been considered and no further attempts have been made to prevent the same tragedy from happening again.

To overcome this misunderstanding, the dental educator should make good use of the principles of the three basic needs to educate the public (Sheiham & Croog 1981) by explaining that the mouth is the beginning of the alimentary canal and the digestion system. It is of utmost importance in chewing and mastication of vital
food substances. One would never enjoy the fine taste of food if the natural dentition is substituted by a full denture.

The loss of dentition has been reported to increase the degeneration process of the alveolar process due to decrease of occlusal stimulation to the underlining bone and resorption becomes more prominent (Shafer 1974). Facial appearance is changed with the loss of natural teeth due to lost occlusal stops in the molar regions. Facial height is less and there is loss of muscle tonicly. This will obviously affect the self image of a person and perhaps generate loss of confidence as well.

People in this modern society tend to accept friends who are tidy and look after themselves. Having a nice smile with a set of clean and well looked after teeth is believed to be healthy. In fact, television has made this a social norm of behaviour (Sheiham & Croog 1981) through the everyday advertisement of toothpaste or toothbrushes and more and more people have believed the message and conformed to the practice of good oral health with the intention of improving social life.

Nonetheless, it is such a nice feeling if one can maintain a dentition for life and enjoy every piece of food that passes through the oral cavity to maintain that life. This can come true if the person can accept the message and practice good oral health care.
In community health planning, health workers should encourage the government to make decisions to allocate funds to carry out community projects (Barmes 1983). The problem of educating the politician is a difficult task but is very essential. Dentists should group together to form stronger bonds, or professional bodies, which may be able to apply more pressure to the politicians to make plans for public health programmes in dentistry.

2.4 EDUCATION OF PRE-SCHOOL AND SCHOOL CHILDREN

Although the three basic principles of human needs may not be applied very well in younger age groups, the dentists should bear these concepts in mind to educate the children and try to maintain the flow of information throughout their growing life.

It is the responsibility of the dentists and the therapists to care for the growing child, to provide the best condition for their dentition to develop, and accept the task of assisting in the development of their general health including their physical and emotional problems (Finn 1973).

It is suggested by Finn (1973) that parents should bring their child to the dental office when they are 2 years of age. An up and down side in the dental chair is a good experience for the young explorer. Simple dental
examination can be carried out without causing any fear to the young adventurer. If possible, one can carry out a prophylaxis using rubber cup and toothpaste to demonstrate that there is no need to become uncomfortable when coming to see a dentist in the future. Tooth brushing technique can be introduced with the parents at this stage, to prepare the little child to accept oral health care.

Since the young child is very impressionable and sensitive to the views and attitudes of the family towards dentistry, his first reaction to dental treatment is greatly influenced by the reaction of his parents and other siblings. Bringing in a co-operating brother or sister first can eliminate a lot of uncertainty from the little child (Davies 1961).

The educator should pay special attention to the child's word capacity and try not to use complicated words such as decalcification or gingiva.

Parents with lack of interest and knowledge about dental care require guidance and education. They must be taught the importance of the maintainance of the deciduous teeth (Burstone 1975). The complication of pre-mature loss of deciduous teeth will affect the positions of the permanent teeth and the future appearance of the child. This will indirectly affect the child's self image and confidence in making friends.
Dental health education may be carried out at baby caring centres by the nurses and medical officers in charge. A well designed balanced diet which contains a minimum sugar component but is rich in calories and protein should be prescribed.

Children can be taught the principles of oral health by information which is imparted through plays and games. Puppet shows have been used by the Dental Health Foundation of N.S.W. and have been found to be very useful for education purposes.

Motivation of school children over the age of 6 can be modified through competitions and exhibitions in which drawing and essay competitions can be incorporated. Gifts can be used as rewards for desirable behaviours and corrections are given to those who do not observe oral care rules.

For children over 10 years old, oral health education can be given during periodical examinations. They are old enough to understand the message if the educator explains them in a face to face situation.

Teachers should also be trained in oral health care education so that they can incorporate this into their teaching programme (Frazier, Jenny & Johnson 1983). Posters and leaflets can be displayed in school corridors and halls to encourage the children to practice good oral health.
Therapy of regular use of fluoride should be applied at this stage so that the children can receive the maximum benefit while they are young.

School Medical Officers can render assistance by avoiding the prescription of sweet syrups and by not giving out sweets as rewards to children. During their examination of the mouth, any suspected dental abnormalities should be referred to the dentist for consultation.

2.5 EDUCATION OF ADULTS AND THE AGED.

The principle of the three basic needs is fully applicable in the education of adults.

We have to realize that most behaviours of an adult person are influenced by goal attaining attitudes. If he has exerted a certain amount of effort to do something, he must ask himself what he has achieved by doing such an act. Unfortunately for oral health care education, there is no immediate effect which can be observed. Therefore it is hard to demonstrate any positive effect to the patient in the short term.

We have to be very careful and choose demonstrations selectively. For example, a plaque tunnel is a good device to demonstrate tooth cleanliness and slides, pictures and models are of great importance to help
educate an adult person. A young lady may be worried about her bleeding gums and every method should be tried to explain why the gums are bleeding and how it can be stopped. A business man may be worried about his stained teeth which may affect his confidence in business talks. The dentist may educate them and suggest alternatives for them to choose from such as giving up smoking or regular prophylaxis.

It is important to note that people believe in something but may not do anything about it. They may believe a clean set of teeth can prevent periodontal disease yet they never actually involve themselves in an oral hygiene regime. These people require strong encouragement and guidance. A good prophylaxis to initiate their sensation of having a clean mouth can help them to maintain the habit. Positive reinforcement is important in adult patients as well as in children (Forrest 1976).

People in older age groups may have maintained their beliefs for many years and are not likely to be changed. The health worker will find this virtually an impossible task. Yet the educator should be firm in his belief and logical explanation is the best way to obtain support from the senior citizens. Usually most of the older aged people face the big problems of the loneliness and the feeling of being lost from society. Their need for socialization has become a major factor when
dealing with them. As professional health workers we have to realize the situation and try to talk to them sincerely. One would find them very co-operative and they are good listeners (Sanders 1978).

Their need for dentures becomes a severe problem and if they cannot eat properly, this directly affects their nutrition and nourishment. Dentists have an important role to play in treating them and in educating them to look after their dentures (Kijak & Milgrow 1982).

2.6 EDUCATION OF SPECIAL GROUPS

Children suffering from cerebral palsy require special consideration and attention from their parents and staff of institutions. Dentists should try to obtain co-operation from the parents and staff in order to help these children to maintain their oral hygiene as they cannot brush properly (Finn 1973).

Epileptic patients may suffer from severe gingival hyperplasia because of dilantin therapy and require the help of professionals and staff to remove plaque mechanically for them at regular intervals. Carb-amagine has been suggested to replace phenytian therapy in order to decrease gingival inflammation.

Parents of haemophilia children must be warned about the importance of conserving their teeth, since
surgical treatment can endanger the child's life.

The same precaution is needed for children and patients who are suffering from rheumatic fevers or other bacterial cardiac diseases. They should be warned to take an antibiotic cover prior to any dental procedure involving haemorrhage.

Obturators can be constructed for cleft palate patients to aid their oral seals and swallowing actions. Explanation to the patient is necessary on how to use the obturator.

Mentally retarded patients can create problems in communication for the educator. The dentist can instruct the parents, or the staff of the institute, to maintain cleanliness in their mouths as much as possible and prescribe a sweet free diet in order to decrease dental diseases.

For some patients general anaesthetic may be the treatment of choice in order to carry out necessary restorative surgery. The parents of the patients must be informed in detail of the exact nature of the treatment and consent form must be obtained before the procedure is started (Finn 1973). The use of electric tooth brushes has been reported to be very useful for physically or mentally handicapped patients.
Finally, it is again the job for the planners to approach the government to apply for funds and assistance to look after the oral health of these special patient groups.
3. MEDIA OF HEALTH EDUCATION DELIVERY

Education through media is classified as a "one-way channel" communicating system in which the educator makes use of various mass media available to bring the message across to a wide audience. It is a powerful tool to educate people and reinforcement can be given by repeating the appearance of the message.

The mass media system works on three principles:
1. Selective exposure: There is the tendency of people actively to select the type of communication they want to see.
2. Selective perception: Most people actually see what they want to see, think what they want to believe and so relate new concepts to their existing ideas.
3. Selective recall: People like to recall ideas which they have accepted and reject those ideas with which they do not agree. (Ayer & Hirschman 1972).

One advantage mass media can create very easily is a 'socio-norm' concept in the public. Once a certain number of the community have accepted an idea, this will generate a socio-pressure among a peer group to influence the belief and behaviour pattern of an individual. This will also affect the network effect between friends and family members.
3.1 FILMS

Films are useful to stimulate the learner to think constructively about the message. They are good vehicles to present facts if they are properly selected and shown at an appropriate time. Background knowledge for the film should be given to patients so that they can understand the content better.

The cost of producing films may present a problem. The producer may find it is difficult to find the right persons or the right materials that can be put in the film. It requires great effort to collect materials and needs the help of the dental profession to provide guidance and information to construct a good film programme.

The advantages of film shows can be summarized:
1. A large number of viewers can be reached.
2. Demonstrations and lectures can be given in the film.
3. Children enjoy films more as compared to lectures.
4. The film can be shown many times and even duplicated to educate more people (Manual of Health Education 1969).

The disadvantages of film shows are:
1. Only have one way communication, no questions can be asked by curious learners.
2. No reinforcement can be obtained.
3. No personal feeling is obtained.
4. Cost may be expensive.
5. Dark room is required to show the film.
6. Attention from spectators may not be obtained easily.
3.2 POSTERS

A poster is usually a printed item or a drawing that can be distributed widely to demonstrate a message. The advantages of a poster are:
1. They can be designed to provide simple information that can be easily understood by most people.
2. No manpower is actually involved in handing out the poster. It is posted on notice boards or in public places.
3. The posters can usually attract attention to a wide range of people from all walks of life if they are placed in a public place such as a bus stop or train station.

The characteristics of a good poster should be:
1. Simple, clear, eye catching and expressing meaningful ideas.
2. The words should be kept to a minimum but sufficient to reveal the idea.
3. Letters should be large enough to be seen from a distance and easy to read.
4. Colour contrast should be bright and nicely designed.

A good poster should express the idea and the aim of the message at first glance. If no pictures or diagrams are utilized, the contents should be made as short as possible. One should never write a long essay explanation in a poster.

Care must be taken in the use of humorous objects in the content. This may create embarrassment to certain age
or ethnic groups in the community. To create a good poster, movement is an important feature in the design. The portion of the main object, colour contrast, picture composition etc, decide the quality and acceptability of the poster. If the poster is designed to be hung, the choice of material must be stiff enough and should be long-lasting. If a series of posters are to be designed, they should be made in the same size and colour patterns so that a neat display can be obtained when they are grouped together.

3.3 LECTURES AND PUBLIC MEETINGS

Very often the health worker may be invited to speak on a topic to a group of people. Usually, this is pre-arranged and the group or the organizer may have developed interests in the topic and want to know more about it.

The educator should have well prepared materials. Good planning in the order of the material to be presented is essential. Whatever your message is, it will have a better chance to achieve good effect if the educator can:

CONTACT the audience at the outset of the lecture and remain in contact throughout.

ILLUSTRATE clearly, for the interest of the audience and to obtain accurate communication.

MOVE the audience, by means of good reasoning, so each listener hears and weighs your message as though
it was meant for him. Audience motivation (s) needs to be aroused early in the talk and sustained thereafter.

ACTIVATE by including a course of action (that is, if the educator wants them to do a certain thing well: how to go about it, what step to take next need to be included in the talk in clear concise manner and repeated in a planned way) (Manual of Health Education 1969).

Demonstrations using real objects, models, charts or large photographs have been proved to create good effects in motivation. Be prepared to answer various questions that the group may ask you. The tone of the lecture and the time spent on the talk should be varied according to the responses of the audience. Nothing is worse than a monotonous long boring lecture. (Manual of Health Education 1969).

Lectures can be held in most places as diverse as schools, club rooms, or public parks. In each case, the educator must appear confident in the subject, have a sense of humour and pronounce words distinctly. It is helpful to use your eyes to keep in touch with the audience. Look at their eyes and try to interpret how much they have understood (Weinstein & Getz 1978).
3.4 LEAFLETS

Leaflets are also in the form of print-outs and may contain illustrations, information or diagrams but they are smaller than posters. They also serve a major role in the delivery of the oral health message because they can be passed around very quickly and can reach a large number of people.

Usually the attractive and most colourful leaflets will be taken first. Eye appeal can come from an emotion arousing picture or eye catching letters. It is wise to design the size of the leaflets to fit into a coat pocket as they are supposed to encourage people to take them home and read them. The service of an artist may help to make the design of the leaflet more acceptable.

Leaflets provide valuable information and can also be used as a reminder to the patients. For example, the technique of how to floss properly is not easy, and one will find a leaflet with good illustrations and explanations of great assistance. It is best to explain to the patient the contents of the leaflet before giving it out. Patients are encouraged to show the leaflets to their friends and relatives so that they can receive the benefit as well.
3.5 RADIO AND TELEVISION

Television and radio reach into the heart of the community and they should have enormous influence for good or poor health behaviour. They have become so popular these days and every family will own one or both. Health education has to fight very hard against all sorts of advertisements which have misinformed the general public. These include the wrong concept of taking sweets as a source of happiness and energy for the body and smoking advertisements which pose another severe problem although they have been banned in many Western countries. It is the job of the health worker to bring the people to the right track of good healthy living.

It must be remembered that a dentist is not a strongly influential person in the patient's general life style. If he plays a media role as an educator there are some points to remember when giving a T.V. talk:

1. Be friendly and show your personality.
2. Prepare the demonstration with the relatively limited space in front of the camera view in mind.
3. Rehearse the talk and position of body, hands etc.
4. Use close up shots for charts and pictures which are used for demonstrating.
5. When using colour charts, consult the producer for colour effects in the camera.
6. Be yourself, just talk to people in a natural way, use reason, be keen on what you say, and do not try to educate in detail.
Radio cannot be used purely as an education vehicle, it is an aid to spread the message. Therefore, one should not give a lecture through the radio (Manual of Health Education 1969). Hints in using radio as education media are:

1. Radio talking uses the tone and fashion of conversation and is not in the form of platform speaking.
2. Simple words should be used.
3. Use script and practise on it before the talk.
4. Use repetition cleverly since listeners are not likely to have pencil and note book to record information. This helps their mental record.
5. Further information can be obtained: tell the listener how to obtain it.
6. Never talk more than 5 minutes with one voice on one topic. (Manual of Health Education 1969).

If the time available is longer, one can use an interview atmosphere to deliver the talk. Use someone with a voice that is familiar to listeners to discuss the material. People tend to feel more confidence if they know the personality of a certain radio star.

Cassette video television has recently become more popular and it is found to be useful to educate patients in the dentist’s waiting room where simple oral hygiene instruction can be given. The dentist and his auxiliaries can actually participate in the production of tapes to demonstrate their message.
4. TRAINING OF DENTAL EDUCATORS

4.1 ATTITUDE, BELIEF AND KNOWLEDGE IN DENTISTRY

As dental students will become future dental educators, their attitude and beliefs directly influence the future philosophy of the practice of dentistry.

In order to make sure important messages will be brought across to the general public, we have to train the dental educators right from the beginning when they start their undergraduate dental course (Be 1971).

It would be much easier for planning undergraduate courses if we have an idea of how much knowledge these students have in dentistry before they choose to do dentistry as their career (Blanchard 1977). The background family education of their parents may also contribute a large part of their basic knowledge in dentistry.

A survey of first year dental students is suggested and this is done in Sydney University by the Department of Preventive Dentistry each year. This gives a general idea of how much a student knows about his own teeth, and also gives an indication of his previous dental experience.
4.2 Prevention and Control of Oral Problems

4.2.1 Dental Caries

During undergraduate training, the concept of how to prevent and control dental caries must be implanted into every dental student's mind.

Dental caries require 4 major factors to be present in the oral cavity:
1. The presence of bacteria.
2. The presence of substrate (carbohydrates).
3. A susceptible host.
4. Time to allow the reaction to take place.

To intercept the caries process, one can work on any of these factors. The most important bacteria that cause dental decays are: Streptococcus mutans, Streptococcus sanguis, Streptococcus salivarius, Lactobacilli and Actinomyces. These bacteria are usually present in the oral cavity. With the accumulation of food substance without proper removal, pellicle is formed by salivary glyco-protein which is absorbed by tooth surface (Burnett, Scherp & Schuster 1976).

Colonization of bacteria is increased as the plaque matrix is gradually built up. The intake of refined carbohydrates enhances the build-up of plaque and produces a sticky environment for the bacteria to grow. With the
nourishment from excessive sugar intake in the diet, the bacteria are able to grow and multiply and produce lactic acid which causes enamel decalcification. The chemical reaction that takes place is:

\[ 8H^+ + Ca_{10}(OH)_6(PO_4)_2 \rightarrow Ca(H_2PO_4)H_2O \]

\[ \rightarrow 10Ca^{++} + 6HPO_4 + 2H_2O \]

Calcium hydroxyl apatite is demineralised as the acidic condition is below pH 6.0. Ca\(^{++}\) ions in the crystal lattice are replaced by H\(_3\)O\(^+\) (Sognnaes 1962).

It was observed that caries susceptible animals which are maintained in a high carbohydrate diet but fed by stomach tube do not develop tooth decay. Therefore, the prevention concept is based on the interruption at any of these 4 stages:
1. Regular removal of plaque on tooth surface.
2. Decrease the intake of refined carbohydrates to provide the oral environment which is less favourable for the bacteria to grow in (Forrest 1976).
3. Increase the host defence mechanism by proper use of fluoride tablets and solutions for non-fluoridated areas and topical application of fluoride by the dental practitioner (Murray 1976).
4. Make sure plaque is not left long enough in the mouth to produce its harmful effect to enamel (Forrest 1976). Areas that are hard to clean such as fissures can be
pre-sealed with u-v light polymerized resins.

4.2.2 Periodontal Disease

Leung (1964) suggested that it is the gingival deposits such as calculus and plaque which constitute the most important local etiological agents for periodontal diseases ranging from gingivitis to severe periodontitis. The bacteria involved are mainly Gram negative anaerobes such as bacteriodes, fusobacterium, actinomyces, Eikenelle and cupro-cytophages. Periodontal disease is widespread and has a higher prevalence in older age groups. The cause effect and extent of damage to the dentition and its supporting tissues have been studied.

More people have been losing their teeth because of periodontal disease than dental caries and it has become an important task for oral health workers to prevent and control it. In fact, chronic marginal gingivitis is so common that people have accepted bleeding gums as an inevitable event. It is the job of oral health workers to change their beliefs and modify their behaviour.

As we have established that the causative agent is plaque, it is important to eliminate it or stop it from accumulating. Calculus deposits are rough and are ideal sites for plaque trapping in the mouth. They must be
removed by both supra and subgingival curettage and scaling. Patients must be told the reason why we are removing calculus in order to produce a clean smooth surface to facilitate their brushing and flossing habits (Goldman & Cohen 1973).

Special brushing methods using a 45° angulation to gingival margin with a soft small toothbrush is taught. Explanation should be given why some areas tend to accumulate more calculus and plaque and require special attention. Methods of brushing can be printed out in the form of leaflets to remind the patient at home (Bernier & Muhler 1975).

The dentist must be aware of food traps which can exist in part of the oral cavity. This can be found with overhanging restoration margins, roughness on tooth surfaces and with mal-positioned teeth which cause food impaction. All these factors must be eliminated or cleaned to avoid further loss of gingival attachment and subsequent loosening of teeth. Dental auxiliaries such as hygienists can be utilized here for professional plaque removal services.

Additional procedures are sometimes required for treatment of more advanced lesions. Subgingival curettage and root planing are the treatment of choice in dealing with advanced periodontal disease. Gingivectomy, flap operation and selective tooth grinding are used when indicated.
As this damage to supporting tissue may not be reversible, every means should be attempted to educate patients to accept responsibility to prevent the disease at an early stage.

People suffering from special conditions such as epileptic patients receiving dilantin therapy may present with severe gingival hyperplasia (Lunstrom 1982). Pregnant women in the first trimester may also present with epulis due to hormonal changes. These patients should observe straight oral hygiene rules and regular professional plaque removal is necessary.

4.2.3 Oral Cancer

According to the American Cancer Society (1962), between 1935-1946 there were 1594 cases of cancer of the lip or buccal cavity recorded in 29 American hospitals. In recent years, approximately 3-5 percent of all cancers have been found in the mouth or lip. (Pindborg 1980; Roder & Wilson 1983).

In Asian countries such as Malaysia, India and Hong Kong, there is a high incidence of naso-pharygeal carcinomas. It is believed to be caused by the special dietary habits that the people have become accustomed to in their cultures. In Hong Kong, people believe that the only way to enjoy soups and beverages is to drink them
while they are still boiling hot, while in India and in Malaysia, hot spicy curry food has been so popular that most of the population consume large amounts of these foods daily. The oral mucous and the pharynx are constantly under strong irritation and neoplastic changes have been observed and reported (Shafer 1974).

At the early stage of the disease, the symptoms and clinical manifestations are mild or even absent. The proposed treatment of surgical removal of precancerous lesions must be carried out at the earliest stage in order to prevent further extension and metastasis. The fear of cancer has been with mankind for years. It is suggested that the older age group people should have regular check ups for oral lesions.

The dentist's role in the detection of early lesions becomes prominent for the following reasons:
1. His working time and interests are concentrated on the oral cavity and therefore he has the specialty to recognize an asymptomatic lesion that may represent early lesion (Bernier & Muhler 1975).
2. An individual who has realised that something is wrong in his mouth will usually consult a dentist. As a result, the dentist often has the first opportunity to recognize or suspect early cancer in the mouth (American Cancer Society 1962).
Hence, adequate training in oral pathology and particularly in the detection of oral cancer is essential in undergraduate training.

3. The dentist who gives dietary advice to prevent dental caries and periodontal disease should advise the patient the possible complications that could arise from taking food that is too hot as this may be hazardous to their health.

4.2.4 Infections

Oral infections can be caused by bacteria, fungi or virus. This disturbance may be localised in the oral cavity. Some examples of general disease with oral manifestations are: tuberculosis, syphilis, measles, diphtheria, yaws, chicken pox and herpes (Shafer 1974).

Tubercular lesions may occur at any site and the tongue is the most common site although other areas such as the palate, lip and buccal mucosa are not uncommon.

Oral syphilis can be seen during the secondary stage of the disease. The oral mucosa may be affected and form "mucous patches" which are highly infectious. The third stage is sometimes characterised by perforation of the palate. The intra-oral gumma most commonly involves the tongue and the palate. In rare cases, the primary stage occurs in the lips or tongue (Tyldesley 1978).
The oral lesions which occur in the mouth during measles are known as Koplik's spots and have been found in 97 percent of all patients.

A viral infection which occurs in the mouth and is recurrent is primary herpetic stomatitis. This disease affects both children and adults. It is also known as aphthous stomatitis and if localised it becomes aphthous ulcers or cold sores of the mucous membrane (Tyldesley 1978).

Vincent's infection is an acute gingivitis that affects young and middle aged groups. This is characterized by a painful gingiva. It starts on the interdental papillae but spreads rapidly and may involve all gingival margins. The gingiva becomes very painful and tends to bleed. The patient is unable to eat (Shafer 1974).

Actinomycosis may involve almost any part of the body. The primary lesion occurs most frequently in the oral cavity, face or neck. The onset of the disease is insidious and first noticed as a persistent swelling, usually in the parotid or mandibular regions. The swelling is not painful unless it has secondary infection (Shafer 1974).

Candidosis is a fungal infection which forms white patches on the mucosa. The white patches can be peeled off. It is usually found in the older age group who are denture wearers (Shafer 1974).
Perapical infections are common. They may be due to complications from a periodontal infection or a degenerated pulp. The infection can spread along tissue plans to cause submandibular, or superficial sublingual abscess (Shafer 1974).

To prevent and control infections it is necessary to educate the patient to observe good socio and personal hygiene practices. The early detection of the disease and the proper use of antibacterial agents are the job of the dentist. Referral to specialist is necessary if the dentist thinks the treatment is beyond the limits of his training.

4.2.5 Traumatic Injury

The damage of the dentition and its surrounding tissue can be induced by sports, accidents and even by a hard tooth brush. Children who have proclined upper incisor teeth are prone to accidents and increased risks of fracturing their incisors. Advice should be given to them and to their parents to take special precautions and try to avoid contact sports (Finn 1973).

Education in first aid care for avulsed teeth should be taught to school teachers and parents so that a replantation can be made possible by the dentist if the tooth is recovered, preserved in clean saliva or
saline and urgent dental treatment sought.

Composite resins have been found to be a good restorative material for fractural incisors. It is the decision of the dentist to decide when is the best time to place a porcelain crown and this depends, in part, on the age of the child (Bernier & Muhler 1975). For incisor fractures, some authors suggest endodontic treatment should be delayed until there is apical closure of the root and apical seal can be obtained.

Mouth guards are good preventive measures for active patients especially if they are in heavy contact sports such as football, boxing, etc (Godwin & Craig 1968; Forrest 1976).

Soft tooth brushes must be suggested to all patients, to avoid daily abrasion by hard brushes.

4.2.6 Malocclusion

The concept of malocclusion has become more significant in recent years and more and more people are trying to conform to the general belief of attaining a set of straight teeth and a straight line facial profile (Graber 1972).

It is important to point out that variation in tooth position and inter-arch relationships in one culture
may be accepted as normal or abnormal in another culture. For example, in the Western community, protruded incisors are viewed as unaesthetic while in Asian countries it is very common to have bimaxillary protrusion which is in fact a characteristic racial feature.

In treating orthodontic cases, we must ask the patient why he/she wants his or her teeth to be treated, and complications and treatment plans such as possible removal of four premolars must be advised to patients. There are three basic guidelines for orthodontic treatment to be acceptable:

1. Aesthetic reasons: if the patient's subconscious and confidence is greatly affected by his/her facial-dento appearance, orthodontic treatment is justified. 

2. Functional reasons: malpositioned or tilting of certain teeth may have affected the speech, oral seal or traumatised the lips or mucosa, or caused pain in the temporo-mandibular joints. 

3. Periodontal reasons: the crowding condition may have caused severe gingival and alveolar bone damage as the patient is unable to clean properly (Graber 1972).

The treatment period for orthodontics is usually long. Psychological preparation to accept the banding of teeth is of utmost importance. During this period, oral
hygiene must be kept at an optimal level so that the banding will not increase the plaque trap and cause further advancement of periodontal disease. Patient co-operation must be totally obtained for successful orthodontic treatment.

There are numerous causes of malocclusions that can be prevented by proper education to parents:

1. Thumb sucking: the thumb can be taped by sticky tape in order to prevent the child exerting abnormal forces onto the anterior teeth. The sticky tape works as a reminder to the child that he should not suck his fingers.

2. Tongue thrusting is common in childhood. This can be prevented by training the child to swallow with tongue on palate. This required the co-operation of the parents, teachers and the dental profession. Moreover a vertical crib appliance can be used to aid tongue from thrusting forward (Finn 1973).

3. Lip and nail biting: these are also preventable with constant reminders to the child from parents and teachers (Finn 1973).

Parents must be told the importance of primary dentition in relation to the alignment of their successors. Interceptive orthodontic and serial extractions programmes must be planned well ahead by the dentist if he can predict that a malocclusion problem may occur in the future. Space maintainer for pre-mature loss of primary teeth is a good treatment method to prevent future crowding (Graber 1972; Bernier & Muhler 1979).
The dentist must have good communication with the parents of the child in order to educate them concerning the exact nature of the problem their child has so that he can help the child at the early stage to minimize any unnecessary orthodontic expenses in the future.
5.1 UNIVERSITY OF ADELAIDE

The first examination for dental apprentices in Adelaide was held in 1909. In 1919, the degree of Bachelor in Dental Surgery was given by the Faculty of Medicine. The training period was four years. Since 1970, the Faculty of Dentistry took over the training of dentists and the training period was increased to five years (Barnard 1982).

Undergraduate Programme (University Calendar, Adelaide 1982).

First Year.

* Behaviour Science
  Genetics
  Medical Physics
  Biology
  Chemistry
  Introductory Anatomy & Histology
* Introduction to Dentistry (Dental Care I)
  Oral Anatomy.

Second Year.

Biochemistry
Regional Anatomy
Systemic Histology and Embryology
Human Physiology
Restorative Dentistry II
*Dental Care II

Third Year.
Biology of Disease
Human Physiology III
Pharmacology and Therapeutics
Oral Pathology III
Restorative Dentistry III
Removable Prosthodontics
Dental Material Science III
Dental Radiology
Oral Diagnosis
Pain Control
Biology of Occlusion

Fourth Year.
*Children's Dentistry
General Medicine
General Surgery
Oral Pathology
Periodontology IV
Pharmacology and Therapeutics
Restorative Dentistry IV
Orthodontics

Final Year.
Oral Medicine, Oral Diagnosis, Oral Radiology
Oral Surgery
Orthodontics

Periodontology V
*Preventive Dentistry
Restorative Dentistry V
Pain Control
Advanced Oral Biology
*Principles of Dental Practice.

5.2 UNIVERSITY OF SYDNEY.

In 1901, Licence in Dentistry was given by the Department of Dental Studies, under the Faculty of Medicine. It was a three year training course. Bachelor of Dental Surgery was first given in 1905 and the training period was four years. In 1965, the B.D.S. training was increased to five years and it is given by the Faculty of Dentistry (Barnard 1982).

**Undergraduate Programme** (From the office of the Dean, Sydney Dental School, 1982).

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5.3 **UNIVERSITY OF HONG KONG**

The Faculty of Dentistry came into being in July 1982, thus marking the culmination of six years of planning and development of the dental curriculum. The first intake of undergraduate dental students enrolled in September 1980, and they are scheduled to graduate in 1985 (Faculty of Information leaflets 1983).

**Undergraduate programme** (Undergraduate prospectus, Hong Kong University 1983).

**First Year**

- Anatomy
- Biochemistry
- Physiology
- Pharmacology
- *Individual and his environment
- First aid
*Introduction to Dental Health and Dental Practice.
Pain and its control
*Study and communication skills.

Second and Subsequent Years

Pathology (2 years)
Microbiology (1 year)
Oral Pathology and Microbiology (2 years)
Medicine (1 year)
Surgery (1 year)
Therapeutics (2 years)
Children's dentistry (2 years)
Conservative dentistry (3 years)
Periodontology (3 years)
Radiology (1 year)
Anaesthetics (1 year)
Oral Surgery & Oral Medicine (1 year)
Prosthetic dentistry (3 years)
*Dental public health (3 years)
Dental material science (2 years)
Dental technology (2 years).
5.4 DISCUSSION OF THE CURRICULA

According to Professor N.D. Martin, Dean of the Faculty of Dentistry of Sydney University, dentistry has increased its awareness of the profession's social responsibility and the need to promote and maintain the dental health of all sections of the community (Faculty Handbook 1983). The Faculty has been placing strong emphasis on the Health Education training to the undergraduate dental students according to Minns (1974). First year students, as part of their Dental Health course, have a behavioural science strand of 18 lectures which are intended to orientate them towards preventive dentistry. These lectures and practical classes provide their first contact to the concepts of clinical dentistry and dentist/patient relationships. The course deals broadly with social levels, attitudes and education principles. Early in the course, students are given a dental knowledge questionnaire which is marked immediately, so that each student is aware of his own score. Students are shown and participate in personal dental plaque disclosure techniques. In this behavioural science strand, students are encouraged to look at people, not mouths, and to understand the attitude which people have towards dental health and dental health practices. It would be more ideal if this course broadened to include more aspects of community dentistry to deal with different target groups. There is no strong emphasis or specific teaching in health education in second year.
During the preventive lectures in third and fourth years, communication skills with individual patients which include learning principles and retention of information are being taught.

Methods which will maximise the effort used, verbal and non-verbal communication, reasons for barriers, acceptance of a treatment plan, are subjects dealt with in the course.

In the Dental School in Adelaide University, the Department of Dental Health is one of the four major departments in the school, which is well known in Australia and overseas for the research into preventive and community dentistry. The philosophy and emphasis throughout the dental school is on prevention (Minns 1974).

The School provides good training programmes on dental care education in years one and two. However, they fail to continue to provide this information during the third and fourth years of training. Although Preventive Dentistry is introduced in fifth year, trying to reinforce and educate the students on dental health education, most final year students and first year graduates express the opinion that it was difficult to find time to get involved in community dentistry because of pressure from clinical requirements. Some new graduates even reported a lack of confidence in patient management and communication and it was believed due to the fault in pre-clinical course
designs and the attitude of some clinical tutors (Smales 1977).

The university has been considering the incorporation of human psychology into the Behaviour Science course in first year, which is conducted by the Department of Psychiatry. The course consists of lectures, tutorials and practical sessions covering basic concepts, physiological psychology, human development, structure and function of the ego, social psychology, sociology and anthropology (Minns 1974). This course consists of 3 x 1 lectures, one hourly tutorial and 3 hour practical sessions each week through one academic year.

Yet due to the continuation of the information, once students tend to forget the principles and techniques especially when there is no reinforcement from clinical supervisors available.

The strand in the newly established Dental School in Hong Kong is designed to produce practitioners equally able to work independently or to act as the leader of a dental health care team. The whole period of training is spent on acquiring increasing skill in caring for people of all ages, of different temperaments and from all walks of life. The main aim of the profession is dedicated to the care of the community.
6. CONCEPTS OF ORAL HEALTH EDUCATION

6.1 DEFINITION OF DENTAL HEALTH EDUCATION

Dental health education induces a sense of confidence and trust in the dentist and is used to build up rapport to minimize anxiety and to ensure patient compliance (Dworkin, Ference & Giddas 1978).

This means that the patient is motivated to do what is expected from him/her and benefit from the dentist's experience as an expert and professional.

The W.H.O. Expert Committee on Health Education in their Public Technical Report Service No. 89, 1954, stated:

The general purposes of health education are:
1. To make health a valuable community asset.
2. To help individuals to become competent in, and to carry on, those activities they must undertake for themselves as individuals in order to realize fully the state of health as defined in the constitution of the W.H.O. (Health is a state of complete physical, mental and social well being and not merely an absence of disease).
3. To promote the development and proper use of health services.

Health education programmes aim to help people achieve health by their own action and efforts.
Various categories of public health workers may differ in their concept of health education. It is clear that health education is basically not telling people what to do about their health (Manual of Health Education 1969) but rather it is a process whereby learning situations are created with and for people so that they may change their health habits, attitudes and knowledge for the improvement of their personal, family and community health.

Health education refers to any combination of learning opportunities designed to facilitate voluntary adaptation of behaviour which are conducive to health.

Prevention and health promotion are combined efforts of health education and related organisation in political and economic intervention designed to facilitate behaviour and environment adaptation that will improve or protect health (Frazier et al 1983).
6.2 FACTORS AFFECTING PEOPLE'S ATTITUDES TOWARDS DENTAL HEALTH

It is important to look at psychological and social aspects of dental disease since these will determine a patient's behaviour before, during and after treatment. This will have implications for the planning of preventive and treatment programmes (Dworkin et al 1978).

Dental conditions are, in terms of their costs in time and money, one of the most expensive diseases to treat. It is important to compare the sick role of a dental condition with the work role of the patient if loss of pay is involved (Sheiham & Croog 1981).

Dental conditions produce a broad impact on an individual's quality of life. They may hamper the capacity to live without pain or discomfort, to enjoy life, to have satisfying relationships and to maintain a favourable self image. Dentures may limit an individual's ability to eat properly, to discriminate tastes and may lead to anxiety, depression and a loss of self esteem.

The lowered self esteem has been analysed by Maslow, who used the three basic human needs in terms of three different levels, namely:

. The need of survival,
. The need of socialisation,
The concept of improved quality of life is most important. It is to produce:

1. favourable self image,
2. contentment with own appearance,
3. enjoyment in life,
4. stability in emotional and psychological balance.

Other factors that can affect people's attitude towards dental health must be noted:

1. Health beliefs,
2. Belief in treatment efficacy,
3. Dentist-patient relationship,
4. Availability to treatment,
5. Fear of pain,
6. Cultural beliefs,
7. Social customs and standards,
8. Language and communication problems,
9. Family beliefs and peer group influences.


These factors can be solved by careful consideration. The dental educators must be aware of all these factors in order to obtain good responses from their patients (Waldman 1970).
6.3 \textbf{CONCEPTS OF PREVENTION}

Education and prevention are inextricably linked; oral disease can never be successfully controlled without firmly linking between education and prevention (Burt 1983).

Prevention can be referred to as the detection of disease states before they have reached serious proportions and at a stage at which treatment can affect a prolongation of life and a significant decrease in morbidity.

In preventive dentistry, we are aiming for the prolongation of teeth retention in the oral cavity and decrease in oral disease rates.

Prevention is a continuous process. It does not end with training of the patient at the first visits, but will continue throughout the practice life of a patient in the form of careful reappraisal of the patient's dental health control and the resulting oral state.

Prevention is a team undertaking. It cannot be carried out in isolation by a single member of that team. The dentist himself must believe and show that what he believes on prevention really works (Forrest 1976). Prevention methods should be easy to carry out for both the educator and the patient.
Gillings (1974) believes preventive dentistry is a positive approach to the practice of dentistry. It can promote good will with patients and encourages their maximum acceptance of dental health principles. It also gives the dentist satisfaction which comes from putting forth his best efforts, provides him with a challenge and offers him satisfaction in the results obtained.

Oral disease will be eliminated and controlled through preventive management. The day is therefore in sight when the forceps and handpiece will no longer be the symbol of the dental profession.

Preventive dentistry may be divided into two categories: "Primary" and "Secondary".

"Primary prevention" implies the use of agents or techniques which will prevent a disease process, before therapy is needed.

"Secondary prevention" implies the use of therapy to arrest further progress and recurrence of a disease. This prevention concept can be introduced into the daily practice of dentistry, in different fields, namely:

- Preventive Restorative Dentistry,
- Preventive Prosthodontics
- Preventive Pedodontics
- Preventive Oral Surgery
- Preventive Orthodontics
- Preventive Periodontics.
The philosophy of "prevention is better than cure" summarises the practice of preventive dentistry (Gillings 1974).

6.4 CONCEPTS OF LEARNING

Ayer & Hirschman (1972) defined 'learning' as the act of imparting or transmitting information. It applies to animals, people and machines. This implication is that there is both a giver and a receiver of information.

Bad communication refers to inadequate information. This leads to misunderstanding, distortion of ideas, loss of information which can result in anger, frustration, confusion, irresolutions or failure to carry out prescribed actions.

Good communication refers to adequate information. There is no loss of information which means that message sent equals message received, and that adequate discussion can result. The communication can be in the form of verbal, visual, gesture, action and written.

Men and animals can learn through examples, and that it may be in a form of social learning. Children learn through imitating the adults around them, especially those in their family (Manual of Health Education 1969).
It is speech that separates men from animals, the written language divides primitive and civilized cultures. It is important to realize that new behaviour patterns must be learned. Learning is acquiring new patterns of behaviour as a result of experience. It is a complex process: the individual is learning new things and improving old beliefs. He is building a store of information at the same time. Interest and attitude are developed in ways of thinking (Weinstein & Getz 1978).

Steps in Learning

1. The learner has a strong motive to learn or to reach a goal.
2. He meets difficulties or barriers to attaining that goal.
3. He perceives possible ways of overcoming that barrier.
4. He tries out these possibilities until he finds one that is successful in helping him reach the goal.
5. Reaching the goal gives him a feeling of satisfaction so his behaviour is reinforced.
6. In future situations of similar kind, he uses the behaviour that he has found to be successful.

Therefore we can say that learning has taken place.

Most effective learning situations are planned: for comfort and ease of setting, for timing for materials
needed and for techniques. The objective and goal should be set and must be clear. The dental educator must know and apply the learning principles when educating his patients and must obtain patient compliance (Manual of Health Education 1969).

6.5  CONCEPTS OF MOTIVATION

Oral disease may be referred to as "behavioural disease" in that changes in an individual's behaviour may substantially reduce its incidence. Simple transmission of information by the dentist of oral care is unlikely to produce preventive behaviour. The dentists need to take into account the attitudes of each individual to oral health (Dworkin et al 1978).

Any change in attitudes or behaviour will require that the individual perceives the change as beneficial and important for self-concept. Two-way communication is important in attitude and behaviour changes. Any message is perceived within the context of the receiver's own views and motives and the views and motives of the presenter.

Weinstein and Getz (1978) reported that the use of high fear arousing materials for unwanted behaviours has been studied by Janis (1972) and Feshback (1953) and was found to be inappropriate. A combination of positive
appeals and elaborate instruction may be more effective.

The dentist's task as a "dental educator" should maximise the condition that the patient perceives to be positive. This task includes two major components:
1. A clear set of behaviour change strategies;
2. A well developed set of listening and communication skills. This will require an ability to understand the emotional responses of the patient and to communicate this understanding back to the patient (Ayer & Hirschman 1972).

6.6 DENTIST-PATIENT RELATIONSHIP

The dentist has been perceived to be a "tooth puller" for many years. In the minds of a large number of the population, a sense of pain and fear has been developed and is associated with the dental visit.

Most patients refuse to visit a dentist because "they are afraid of the treatment", "he does not like the dentist", "he hates going to the dentist", "it is too expensive to see a dentist". Therefore, in order to build up a good dentist-patient relationship, one must work on the solutions of these complaints.

Firstly, we must educate the patient to recognise that modern dentistry is not only treatment of decayed teeth. Our aim and objective are to conserve the dentition and maintain good oral health throughout life.
We have to treat the patient like a friend, and talk to patients with regard to their general welfare. We are professional health workers and are trained to treat oral diseases. The patient may be affected by oral diseases, and we are the person to help them. Dentists must therefore be gentle and with the aid of modern analgesic agents, painless dentistry is not a difficult thing to achieve.

Once we have built up a good reputation with patients, we have to motivate them to look after their oral health. Patient compliance can be obtained with proper instruction and guidance (Weinstein & Getz 1978).

The dentist-patient relationship can in fact encourage compliance:
1. Making sure the patient understands what is expected of him in achieving good oral health.
2. Good communication with the intention of reducing errors.
4. Activate and motivate patient at all times.
5. Being brief, especially with explicit directions.
7. Making sure of literacy of clients.
8. Ensuring repetition and specificity.
Dental schools should place emphasis on communication skills to train students to build up their relationships with patients, rather than just training students to perform the technical skills in practical dentistry (Dworkin et al 1978).
6.7 USE OF AUXILIARIES

The auxiliaries in the dental profession include dental chairside assistant, dental hygienists, dental therapists, school dental therapists, receptionists in dental offices and dental technicians (Dunning 1972).

The dental chairside assistant is the most generally used type of auxiliary (Leatherman 1969). Most dentists will employ one or two in their surgeries. They are the ideal people to help the dentist deliver an oral health programme. Children are much easier to manage with the presence of female dental nurses.

Dental hygienists work under the supervision of dentists to perform scaling and oral hygiene instruction duties to patients. Their role in oral hygiene education has become so important that some dentists refer cases to them (Burke 1982).

Dental therapists and school dental therapists play major roles these days for children's oral health education (Roder 1972). Children are receiving treatment and becoming dentally aware at an early age, and this is important to motivate their dental consciousness in adulthood. Topical fluoride treatments are carried out by the therapists and this has decreased decay rates in school children (Dunning 1972).
Non dental profession auxiliaries, such as teachers, social workers, medical practitioners and family nurses, can also be used to deliver the message of oral health care to the public. These people can be trained in community health centres and educate the public during their duties.

6.8 **FOUR MAJOR PREVENTIVE STEPS**

6.8.1 **Diet and Nutrition**

As a worker in the field of community health, the dentist should not help to perpetuate the myths about food and nutrition that abound in the community (Steel, Spencer & Widmer 1983).

The public may ask the dentist for advice and guidance for dietary instruction for the benefit of their dentition development (Shaw 1970). The dental educator should be sufficiently well informed so as to be able to give proper nutritional advice of a more general nature to the public. Basic instructions include the need to decrease sucrose consumption. The patient can be advised that nuts, potato chips, crackers, dried and fresh fruits, milk foods, chewing gums of the sticky type are preferable to other confectionary if the patient likes snacks between meals (Gillings 1974).
6.8.2 Oral Hygiene Maintenance

Oral hygiene instructions should be given to all patients. Instruction can be in the form of leaflets or verbal communications (Be 1971). It is important to explain to patients why they have to maintain oral hygiene (Muhler & Hine 1956).

Methods and guidelines of how they can attain the goal must be laid out and described clearly and in simple language. Illustrations in the form of diagrams and pictures can be included.

Toothbrushing technique is introduced. Encouragement should be given to use the mini-scrub (Sheiham & Croog 1981) method in which medium size soft flat haired tooth brushes are suggested and used at $45^\circ$ to the gingival margin area.

Dental floss is an ideal cleaning aid for interproximal areas to maintain periodontal health and decrease dental decay below contact points (Skurow & Lytle 1971). Dental floss can be used with the aid of a floss-fork which makes flossing much easier. The floss should be kept in an easily accessible location, so that the patient can remember to do it when he comes across it. For example, if the floss fork is placed in the pocket of the shirt, one could carry out flossing while watching television at home (Gillings 1974).
Chemical mouth rinses such as chlorohexidine have been studied (Loe & Schiott 1970), and have been found to reduce plaque formation in the mouth, but they cannot totally substitute mechanical removal of plaque. A chemical mouth rinse is a good antiseptic agent for oral hygiene care for post operative, oral survey or as a supplement for people who have difficulties in removing plaque efficiently.

Interdent, perio-aids, 'bottle clean' type brushes have been invented (Forrest 1976), and they are all good supplements to tooth brushing techniques.

In all cases, the patient must be highly motivated to carry out the home care procedures. Correct guidance must be available and positive reinforcement from the educator are essential for successful oral hygiene maintenance.

6.8.3 Regular Visits to the Dentist

It was reported that children aged from 6 to 16 years who have received regular dental care were studied and compared with the community. It was found that there was 58 percent less annual dental decay than the community average. Another group of 300 adults who had regular dental visits to dentists had shown almost 50 percent less cavities than the community average. Regular prophylaxis to dental patients at recall examinations are beneficial in the maintenance of oral health (Muhler & Hine 1956).
Patients in the dental office can be reassured of progress of preventive behaviour and re-assessment can be made and future treatment plans formulated. Reinforcement and the education process can be delivered again. Preventive measures, such as topical fluoride, fissure sealants, and calculus removal, can be carried out during these routine visits. The cost of regular visits to dentist is worked out to be cheaper than only coming to see a dentist when problems occur (Gillings 1974).

6.8.4 Use of Fluoride

It was found that a group of 785 children in N.S.W. who had received a regular preventive programme which involved the use of 10 percent stannous fluoride prophylaxis paste by a dentist 3 times a year, home use of stannous fluoride toothpaste and fluoride supplements in non-fluoridated areas, had 84 percent less dental decay than the community average. Adults (N = 454) who had received the same programme had 80 percent fewer cavities. The patients who have been using fluoride therapy regularly spend less financially in the long term because the cost of preventive dentistry is much less than the restorative or oral surgery costs (Gillings 1974).

Self applied 10 percent SnF₂ZrSiO₄ prophylactic paste has been used in primary school children and found
to be useful in reduction of decay rate up to 36 percent in DMFT after 2 years (Woods, Martin, & Barnard 1976).

Axelsson and Lindhe (1975) studied the effect of fluoride in gingivitis and caries prevention. Fluoride had been found to affect the disease process of periodontal disease.

The action of fluoride in the prevention of dental decay has been proposed (Soegnes 1962; Murray 1976). Calcium hydroxyl apatite reacts with fluoride to form fluor-apatite which is less soluble than hydroxy-apatite.

\[ \text{Ca}_{10} (\text{PO}_4)_6 (\text{OH})_2 + 2\text{F}^- \rightarrow \text{Ca}_{10} (\text{PO}_4)_6 \text{F}_2 + 2\text{OH}^- \]

by substitution reaction.

\[ \text{Ca}_{10} (\text{PO}_4)_6 (\text{OH})_2 + 20\text{F}^- \rightarrow 10\text{CaF}_2 + 6\text{PO}_4^{3-} + 20\text{OH}^- \]

Double decomposition.

\[ \text{Ca}_{10} (\text{PO}_4)_6 (\text{OH})_2 + 10\text{SnF}_7 \rightarrow 10\text{CaF}_2 + \text{Sn}_{10} (\text{PO}_4)_6 (\text{OH})_2 \]

CaF\(_2\) is highly insoluble and gives the enamel structure a good solid protection from acid attacks.

Apart from home application of fluoride therapy, use of fluoridated water should be encouraged. F\(^{-}\) has also been found to be a good desensitizing agent.
6.9 SUMMARIES OF MATERIALS USED IN PREVENTIVE PRACTICE.

TOOTH BRUSHES (Wagner 1966).
1. Wisdom Multituft (0.011 in filaments) medium size
2. Oral B40 (0.007 in filament)
3. Oral B30 (0.007 in filament)
4. Gibbs Short Head (0.009 in filament)
5. Automatic tooth brushes for handicapped patients or patients with brushing difficulties.
   Ronson (Rechargeable)
   Broxodent (Mains)
   Phillips (Rechargeable)

FLOSS
1. Waxed (Johnson & Johnson)
2. Unwaxed (Johnson & Johnson)
3. Dentotape (Johnson & Johnson).

INTERDENTAL CLEANSER OR 'STIMULATORS' (Forrest 1976).
1. Stimudent (U.S.)
2. Interden (local pharmacy)
3. Sanodent (U.K.)
4. Jordan's Interdental Sticks

INTERDENTAL BRUSHES AND TIPS (Forrest 1976)
1. Interspace brush (Halex)
2. Jordan Interdental Brush
3. Perio-pak (Crescent)
4. Perio-aid (Butler)
DISCLOSURE SOLUTIONS AND DEVICES (Arnim 1963).
1. Displaque (Pacemaker Dental Suppliers)
2. Cepaclear (local pharmacy)
3. Red Cote (Butler, Dental Suppliers)
4. Iodine Based Solution.
5. Plaklite (electrical apparatus using fluorescein dye).

FLUORIDE - FOR TOPICAL APPLICATION
1. Stannous fluoride topical kit
2. Hi Fluor APF solution and gel.
3. Various topical gels (S.S. White)

FLUORIDE PROPHYLAXIS
1. Ziracute treatment paste
2. Fluoride prophylaxis paste (En De Kay).

SYSTEMATIC AND LOCAL INGESTION (Murray 1976).
1. Fluorodyl 1ac tablets 2.2 mg NaF
2. Fluotabs En De Kay 2.2 mg NaF (S.S. White)
3. Fluodrops En De Kay 1.1 mg NaF in 0.3 ml - 10 drops
   (for infant <2 years). (S.S. White).

FLUORIDE RINSE (Forrest 1976).
1. 0.4 percent stannous fluoride + APF (U.S.)
DESENSITIZING DENTIFRICES (Forrest 1976)
(for sensitive necks of tooth).
1. Emoform Europe
2. Thermodont U.S.
3. Sensodyne
4. Floran

MOUTH WASHES FOR GENERAL USES
1. Warm water
2. Normal saline 1 percent Nall in water (Leatherman 1982).
3. Chlorahexidine (Leatherman 1982)
4. Other antiseptic mouth rinses (Forrest 1976).

POLISHING MATERIALS FOR DENTIST
1. Contra angle polishing head
2. Small rubber cup - no bristle brushes should be used.
3. Green rubber polishing cones
4. 3M composite polishing stripes (fine/medium)
5. 3M composite discs 2 grits (fine/medium)
6. Zirconium silicate powder or paste
7. Zirconium silicate and stannous fluoride paste
7. ORAL HEALTH EDUCATION PROGRAMME FOR
UNDERGRADUATE DENTAL STUDENTS.

7.1 IN RESTORATIVE DENTISTRY

The principles of cavity preparations based on those of G.V. Black (1955) have been taught for many years in different dental schools. The concept of extension of proximal boxes into self cleaning areas was introduced. This approach has been challenged by G. Mount (Lecturer in Restorative Adelaide University) who believes cavity size should be minimum with sufficient retentions in the view of conservation of vital tooth structure. The maintenance of oral hygiene is relying on the regular uses of dental floss and soft tooth brushes.

In any case, there should be no overhanging restoration margins. The restoration must be well contoured. A tight contact between the neighbouring tooth is essential to avoid food traps in the embrasure areas. The contact area should be triangular in shape rather than flattened surface to facilitate cleaning (Skurow & Lytle 1971). Matrix band and wedges should be used in all restorations involving proximal boxes. The use of a plastic instrument to burnish the matrix band against the neighbouring tooth before packing amalgum has been found useful to create tighter contacts.
Care must be taken to avoid damaging the adjacent tooth when cutting proximal boxes. The use of matrix band to protect the enamel of other teeth has been advised. Hand instruments such as a margin trimmer can be used to break through the enamel at the final stage of preparation. (Forrest 1976).

Crown and bridge preparations should be indicated for grossly restored teeth in which simple conversative restoration cannot be done (Bernier & Muhler 1975).

If aesthetic consideration is acceptable, the margins of crown or bridges should be supra gingival so that the margin can be cleaned by the patient by using an ordinary tooth brush. No destructive gingival retraction of getting a well defined impression. Gingival cords can be used but they should not be left in the gingival sulcus for more than a few minutes (Forrest 1976).

The size of a crown and pontics should be made smaller than natural teeth. The design of pontic can be seen in the shape of bullet nose and out of contact with underlying tissue. The use of perio aid or 'bottle wash' type brushes have been found to be good mechanical methods to maintain oral hygiene.

All restorations should be polished and burnished margins are mandatory (Kanai 1982).
Occlusal contacts of newly placed restorations must be carefully checked at insertion stage and later recall appointments to avoid temper-mandible joint problems or muscle imbalance.

Cements or restorative materials containing fluoride have been reported to reduce recurrent caries (Forrest 1976). Both topical fluoride application and fissure sealant are effective agents in the prevention of dental cavitations (McLean & Wilson 1974).

Patients must be advised that restoration is not the total cure for their dental decay. Even a perfectly restored margin is subject to leakage and break-down between the interfaces. It is the responsibility of the patient to observe good home oral hygiene care in order to prolong the service life of the restorations.

The use of bite-wings radiographs is a good preventive measure during yearly check up to make sure there is no recurrent caries underneath the existing restorations.
7.2 IN PROSTHODONTICS

The use of Co-Cr metal denture is advocated. The advantages over the acrylic tissue coverage dentures are:
1. They cover less supporting soft tissue.
2. They are stronger.
3. Stress from occlusion and chewing are distributed to the abutment teeth rather than directly to mucosa.
4. Less plaque retention areas present.
5. They are more stable and do not tend to change dimension upon dehydration.
6. Better fit and retention can be obtained.
7. They last longer.

Allergy and reactions of gingival tissue to self cure acrylic have been reported. Sharp collets are mechanical irritants to gingiva. Contoured gum fitted acrylic dentures hold plaque against gingiva and teeth and create cavitation and tissue destruction.

In constructing metal partial dentures, there are four main points to follow:
1. The design should be minimum tissue coverage.
2. The use of lingual bars as major connectors for lower dentures.
3. No gingival approach clasps should be constructed if the clasps encroach the gingivae.
4. All components of the partial denture (except the saddle) should be at least 3 mm away from gingival margins.
Unilateral denture replacing one single tooth is not suggested as this may become dislodged and create the danger of being swallowed by the patient.

Patients must be advised to maintain perfect oral hygiene, especially on abutment teeth. The design of rest and clasp should be such that the occlusal stress is equally distributed.

For complete denture prosthodontics, patients must be psychologically prepared to accept and use the denture. People usually reject any foreign body placed in the oral cavity, especially if they have had no previous experience. Even those who have previously worn a denture, find a brand new full/full denture to be quite a change in their oral environment (Sharry 1974).

Operators must make sure there are no over-extended or sharp edges in the periphery edges that can cause traumatic injury to mucosa. Occlusal vertical dimension must be right to avoid stress to masticatory muscle or the occurrence of angular chelitis (Shafer 1974). Usually a 3-5 min inter-occlusal dimension is ideal in complete denture design.

Occlusion contacts should be checked and adjusted with comfortable centric, eccentric, lateral movement relations. Regular check-ups for denture fit are important in maintaining oral health status of the
supporting tissues.

Patients must be educated to look after their dentures. Proper cleaning daily should be suggested and a denture should be left in a glass of water overnight for better mucosa health. Denture sore mouth such as from fungi infection (Shafer 1974) (Candidosis) can be avoided by good oral hygiene care.

Patients from the senior age group should have annual check-ups for pre-malignant changes for the prevention of oral cancers.
7.3 IN PEDODONTICS

Oral health education should be started when the patient is young. Children are curious about new things and are ideal teaching objects for the dental educator.

It is suggested (Finn 1973) that children should first come to the dental office with their parents at 2 years of age. At this time, they have no experience of dental treatment, and it is best to introduce them to a friendly visit without very much work to be done. A rubber cup prophylaxis can be introduced with the child sitting on the parent's knee in the dental chair. Parents can be taught how to clean their child's teeth and the uses of fluoride. It is important for parents and siblings not to show any signs of fear or dislike in order to create a good impression for the young child. This will prepare the child psychologically to accept routine preventive dental treatment.

- Dietary advice can be given to parents to ensure the growing child receives adequate nutrients and vitamins and sucrose diets should be discouraged (Steel et al 1983).

- Bad habits that can create dentition deformation such as thumb sucking and tongue thrusting should be prevented and treated.
- Information on tooth eruption sequence and time should be introduced to parents so that they know when the permanent dentition is erupting.

- School dental programmes are good public health services for children. Brushing techniques are taught and disclosing tablets provide good motivation to children.

- Children are encouraged to use fluoride tooth paste and fluoride tablets should be prescribed for children living in non-fluoridated areas.

- Topical application of fluoride is carried out at annual routine examinations.

- Dentists who are treating children must be aware of their developmental process. These include their dento-facial growth, malocclusion and eruption timing. Interceptive orthodontics should be prescribed and planned ahead (Graber 1972).

- In all cases, parents must be informed of the child's development and his dental condition. Cooperation from parents is most important in order to motivate a child.
7.4 IN ORAL SURGERY

Preventive oral surgery starts off with a good medical and dental history of the patient. Any previous medical and dental complications and adverse reactions should be noted for future reference. Drug allergies records are essential (Howe 1971).

In order to obtain good co-operation from patients, good knowledge of pain control techniques is essential. Once the anxiety and fear of the patient are controlled, the operator should explain the nature and course of the treatment involved to him. People are more worried about the unknown than they are if they know exactly what the surgeon is going to do to them.

Pre-medication can be given to very nervous patients before surgery. This will reduce stress during the operation.

Post-operative care must be introduced to patients, verbal instruction and instructions in the form of leaflets are ideal for home care procedures. Patients can be advised to maintain good oral hygiene and use anti-septic mouth rinses to reduce infection of the healing wounds. Areas around the sutures can increase plaque retention. Special attention should be taken in cleaning these areas.
Antibiotic prescription to control post-operative infections is good practice and adequate analgesia should be given to patients for post-operation pain.

Demonstration using X-rays to explain to the patient the disease nature is found to be useful. Screening O.P.G. radiographs are good preventive measures for the detection of underlying pathology.

The concept of "all bad teeth should be removed" should be changed. Dental surgeons are trained to save tooth structures, not to destroy them. The loss of one first mandible molar may affect five neighbouring teeth. The adjacent second premolar and second molar may be tilted because of spacing. The upper first molar may be over erupted and affect the alignments of the second maxillary premolar and second molar. This malocclusion may later cause periodontal problems (Howe 1971).

The prevention of infections from impacted wisdom molars should be mentioned to patients. Surgical extractions are indicated for pericoronitis cases. Special brushes with filaments only in the front part of the head can be used to clean the retromolar areas without obstructions from the second molar. Patients must be warned of the possible complication of having partially erupted wisdom teeth and treatment available should be explained to them.
7.5 **IN ORTHODONTICS**

Interceptive orthodontics has become a major role for general dental practitioners. A dentist who has been treating a child since an early age and watching the child's growth at yearly recalls, should be able to foresee any malocclusion problem that is likely to occur. Study models and radiographs should be taken at recalls for comparisons and to help diagnosis (Graber 1972).

Serial extraction programmes can be started before the permanent dentition erupts. Removal appliances can be constructed to correct a malpositioned tooth as space maintainers or to use as restrainers for bad habits (Burstone 1975). However, the patient must be educated to wear the appliance and at the same time maintain good oral hygiene.

Patient co-operation and understanding become a more important factor when appliances are prescribed which require the patient to activate them at home or to place elastic bands on. Parents must be informed of the long treatment periods required and the child must be psychologically prepared before treatment commences.

Cases requiring full banding may cause periodontal problems with an increase of plaque retention traps and
and cleaning difficulties. Special brushes must be prescribed and topical fluoride applications have shown good preventive results (Tulley 1967).

In all cases, the patient must be highly motivated to maintain oral hygiene in order to have successful orthodontic treatment. Regular recalls during the treatment period are essential to check progress of treatment and the oral health status.

Before a patient can be accepted for orthodontic treatment, Graber (1972) suggests the following criteria for selecting cases:

1. Is the malocclusion affecting the appearance of the patient? Is he/she aesthetically unacceptable to other people?

2. Is the malocclusion creating functional problems such as mastication, speech, muscle imbalance, or joint pain? Can these be corrected with orthodontic treatment?

3. Is the malocclusion affecting the supporting periodontium? Can the patient maintain the oral hygiene if the causative factor is removed?
7.6 IN PERIODONTICS

Periodontal disease has become a major reason for loss of teeth. Dental plaque has been identified as the etiological factor. Anaerobic bacteria grow in plaque and produce destructive by-products which damage the supportive periodontal tissue and increase mobility of the teeth. The mobility can become so severe that it becomes painful to chew and extraction is the only treatment (Glickman 1972).

Therefore the whole idea of prevention of periodontal disease is working on the prevention of plaque accumulation. All potential plaque retentive factors must be removed to facilitate mechanical removal of plaque. These factors include:

1. Calculus
2. Rough tooth surfaces
3. Malpositioned teeth
4. Gingival pockets greater than 3 mm in depth
5. Overhanging restoration margins
6. Impacted teeth
7. Unpolished restorations
8. Abnormal shape and size of teeth

Patients must be advised and motivated for successful periodontal treatment. They must believe the following points:
1. That they are susceptible to periodontal disease;
2. That periodontal disease is personally serious;
3. That periodontal therapy and plaque control are beneficial preventive steps to treat the condition;
4. That the condition occurred due to plaque accumulation, not from the degenerative aging process.

The invasive procedure of the disease can be explained to the patient. A cross section diagram showing the gingival pocket and surrounding periodontium is useful in demonstration. Bleeding gums and bad breath as a result of periodontal inflammation can be introduced to the patient.

Soft tooth brushes are prescribed to patients and the techniques of brushing the gingival margin must be taught. Patients are asked to clean their teeth using their own tooth brush after plaque is stained in the clinic. This proves that the patient can do it and therefore should be able to do it again at home.

Gross calculus can be removed at the first appointment and the patient can be motivated by the dramatic change in their oral cavity. Further treatment can be followed by gradual removal of all the plaque retentive factors together with oral hygiene care education and reinforcement (Glickman 1972).
Parafuncions which can affect periodontal health can be corrected accordingly. These include bruxism, clenching and open bite (Forrest 1976).

Diet does not seem to be a major factor affecting periodontal health. Yet a high sucrose diet is plaque encouraging and patients should be advised to decrease high consumption of sucrose (Forrest 1976).

Dental floss and interdental are found to be good cleaning agents for interproximal areas.

Use of chlorohexidine has decreased the accumulation of plaque (Löe & Schiott 1970).
8. DISCUSSION

Dental health education is a major component of dentistry. Its standard activities range from public programmes of mass education and instructional sessions with groups such as school children to the advising of the individual patient in the dental office.

The objectives of all these activities are broadly similar: to provide the information that the individual needs to maintain oral health, and generally to prevent oral disease through the development of dentally beneficial patterns of personal behaviour.

Preventive activities, whether organized programmes or specific services provided to the individual patient, have the same long term goal of preventing disease. Because these two activities both seek to prevent disease and promote health, the terms education and prevention have tended to be used synonymously by most people. This practice should be avoided, because it can lead to unrealistic expectations and much waste of time and effort when inappropriate means are chosen to reach a desired outcome (Burt 1983).

However, there is clearly a connection between education and prevention. Dental health education refers to those activities which attempt to impart knowledge to or to influence attitudes and behaviour in whole
communities, specific groups or individuals for the purpose of improving oral health. It does not involve the provision of a specific service or the supervised self-application of preventive agents. Hence pamphlets, posters, television, demonstrations of tooth-brushing technique and exhortations to avoid sugary snacks and to visit a dentist regularly are all education activities. The principal distinction between these activities and prevention is that prevention entails a specific service or procedure, carried out by a government or a community agency or applied by a dental professional or by the individual.

Further artificial separation between education and prevention comes with the tendency to see dental health education as the art and science of 'motivating' the individual patient in the dental office.

One must be aware that education by itself is not directly prevention, so the converse is also not true. There can be little effective prevention without education at the individual group or community levels. Yet it is accepted that education and prevention should be closely linked, so it follows that activities in each area should be parallel with each other.

Dental caries, already declining sharply in economically developed countries, is largely preventable at the community level with relatively little need for individual based dental health education. The concept of
education must be broadened to go beyond the "motivation" of the individual patient: it is best directed at community decision-makers rather than at individuals. As yet periodontal disease is not amenable to community-based prevention. There is no equivalent in the prevention of periodontal disease to the use of fluoride. Control of periodontal disease in the long run must be through individual education supported by an appropriate level of professional care. All this presents a major challenge to the way dentistry is practised and to the way public educational programmes are developed. Existing programmes need to be constantly re-assessed and matched against demographic information and epidemiological data on disease trend. Overall, it is clear that oral disease can never be successfully controlled without firmly linking education and prevention.

The dentist/hygienist-centred strategy is not likely to be effective in reducing periodontal disease at a community level. It is expensive in terms of manpower and time (Sheihan, Marzel & Cushing 1982).

A realistic aim for a preventive programme is to reduce dental plaque to levels compatible with rates of progression of periodontal disease which will allow functional and aesthetically and socially acceptable dentitions to be maintained throughout life.
Since tooth cleaning is mainly influenced by socialization, and most people do brush their teeth, the objective of health education is to improve the effectiveness of oral hygiene behaviour. Oral health should be integrated with programmes dealing with general hygiene and grooming. Social and educational strategies directed at groups are more likely to be useful. Programmes should be concentrated on educating significant individuals in the community, educating educators such as teachers, nursery school attendants, health visitors, nurses, medical practitioners, and the future practising dental practitioners.

A good dentist-patient relationship has become an important requirement for modern day practice of dentistry.
9. CONCLUSIONS

The principles and concepts of oral health education have been studied. It is important for the oral health educator to realize the behaviour patterns of different target groups in order to carry out the education process efficiently.

Different techniques of communication are necessary to facilitate the delivery of the message. It is suggested that there should be increased training in communication skills during undergraduate dental courses.

The dental students must be prepared to accept the responsibilities as dental educators in their future practising life.

Dental school curricula should include more health education materials in each of their training courses. This will provide a constant and reinforced level of knowledge to the student at the beginning of the course and last all through the five year training.

Teaching and University staffs should be aware of the importance of patient-dentist relationship and proper patient management skills are of equal importance to a dental practitioner.
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