

Health education

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Key points

Health education is the process by which people are given information needed to exercise a greater degree of control over their own health.

The process requires an understanding of disease aetiology, the causative factors, and socially simple and acceptable messages for beneficial behavioural change.

Oral health education should be integrated into general health education as there are common risk factors linking oral and systemic diseases.

Abstract

The processes of health education and health promotion are linked and may overlap. Health education is the process by which messages aimed at enabling individuals to take greater control over and improve their health are defined. The first step in the process is to gain an understanding of the basic cause of the disease process under consideration. The second step is to identify the essential causative factors. Some of these will be beyond individual personal control, such as environmental factors and genetics. However, other factors may be under the control of the individual and amenable to change. The final step is that to define and communicate key messages derived from the previous stages so as to improve the health of both individuals and populations. Health promotion is the process by which these messages are taken and disseminated whether by word of mouth, in print or through one of the rapidly expanding forms of electronic media. The World Health Organisation defines health promotion as the process that extends health education beyond a focus on individual behaviour towards a wide range of social and environmental interventions.

What is oral health?

In 2016, the FDI World Dental Federation, which serves as the principal representative body for 200 members of dental associations in about 130 countries, developed and approved the following definition:¹

- Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex. The establishment of good oral health should begin in early childhood so that healthy growth and development are promoted throughout life.

The World Health Organisation (WHO, Regional Office for Europe, Copenhagen, 2016) emphasises that 'oral health is essential to general health and wellbeing and greatly influences quality of life. It is defined as a state of being free from mouth and facial pain, oral diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking and psychosocial wellbeing'.² Risk factors for oral diseases include an unhealthy diet, tobacco use and excessive alcohol consumption and are common risk factors for the four leading chronic diseases – cardiovascular diseases, cancer, chronic respiratory diseases and diabetes – and oral diseases are often linked to chronic disease. Poor oral hygiene is also a risk factor for oral disease.

The prevalence of oral disease varies by geographical region and the availability and accessibility to oral health services, although there is evidence that access to good oral health services does not always lead to a decrease in the prevalence of oral disease. Social determinants in health and oral health are also very strong indicators of prevalence and cause major inequalities in health. This is an increasing challenge in most places in the

world and also in some high-income countries and regions like Scandinavia. Worldwide the oral disease burden is significantly higher among poor and socially disadvantaged population groups.

Oral health must always be considered as an integral part of general health. Not only are there a range of common risk factors that link oral disease with systemic conditions, one example being periodontitis (advanced gum disease) and type 2 diabetes (see Chap. 4), but the same health education message can address both oral health and general health. Examples being the promotion of a healthy diet, which can reduce the risk of caries, periodontal disease and erosion as well as cardiovascular disease and obesity-related illnesses and a reduction of alcohol consumption, reducing the risk of oral cancer together with other types of cancer and liver disease (see the section on common risk factors below).

What is health education?

There are many definitions of health education; however, one of the most useful is an adaptation of a definition from the WHO:

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‘health education is the process by which people are given information to enable them to exercise a greater degree of control over their own health.’

- The process of formulating and delivering health education messages includes a series of steps:
- The first step is to gain an understanding of the basic cause of the disease process under consideration. Taking dental caries as an example, the basic mechanism is the conversion of sugars in the diet into acid by the bacteria in plaque biofilm on the surfaces of the teeth
- Next, it is necessary to identify the essential causative factors. Some of these will be beyond individual personal control, such as environmental factors and genetics. However, other factors may be under the control of the individual and amenable to change. In the case of caries, factors partly under personal control can include the effective use of fluoride toothpaste and reducing the frequency of consumption of sugar-containing foods, drinks and confectionary. However, where sugar-containing foods are much cheaper than fresh fruits and vegetables, it is very hard for consumers to make healthy choices
- The third stage is to agree scientifically based and socially acceptable messages for the public aimed at encouraging beneficial behavioural changes. For the prevention of dental caries and indeed a range of other diseases, one could suggest that people should never consume sugars as part of their diet. However, compliance with this message is unrealistic because sugars are present in many foods and drinks, either naturally or added artificially. A more sensible message would be: ‘consume as little sugar as possible, especially avoiding sugars sweetened foods and drinks between meals and at bedtime’. This message can reduce the risk from tooth decay and a range of other diseases and is more likely to be accepted; however, this message may need to be modified where individuals’ eating patterns do not conform to traditional mealtimes, and there may be no regular fixed bedtime for children
- The final and possibly the most difficult stage is that of communication. This process aims to ensure that key information is conveyed comprehensibly to the right target audience, in the right context, at the right time. In line with the WHO’s Ottawa Charter,³

strategic aims for health promotion include traditional methods of health education, such as giving information and advice, thereby developing personal knowledge and skills. This process can enable people and especially the younger generation to take more effective control over their own health. Health promotion also includes other elements: building public policies that support health, creating supportive environments, strengthening community action and re-orientating health services. These are beyond the scope of this book, but health promotion, such as promoting public policies to support health and making healthier choices easier, is vital if health education initiatives are to be successful.

The context for health education – settings for health communication: community settings include the media, life-course programmes, kindergartens, day care centres, schools, the workplace, old-age care institutions/nursing homes and hospitals. Clinical settings include dental practice and community dental clinics.

The common risk factor approach

There is a growing realisation that oral health is an integral part of overall health and shares many common risk factors with leading chronic diseases, commonly referred to as non-communicable diseases (NCDs).⁴ The World Health Assembly’s resolution on Oral health: action plan for promotion and integrated disease prevention urged member states to adopt measures ‘to ensure that oral health is incorporated as appropriate into policies for the integrated prevention and treatment of chronic non-communicable disease and communicable disease, and into maternal and child health policies.’ Renal, oral and eye diseases pose a major health burden for many countries, and these diseases have common risk factors and can benefit from common responses to NCDs. A meeting on prevention and control of NCDs concluded with a political declaration that commits governments of the world to significant and sustained action to address the rising burden of NCDs such as diabetes, cancers, cardiovascular and respiratory diseases, with oral diseases as an integral part. It is appropriate because the risk factors for oral diseases are common to other major chronic diseases. Therefore, there is a need to incorporate programmes for promotion of oral health and prevention

of oral diseases into programmes for the integrated prevention and treatment of all major NCDs. In the last two decades, there has been an increasing awareness and evidence of inequalities in health globally. Therefore, these programmes must become an essential and integral part of the drive to reduce global health inequalities in both developed and developing countries.^{4,5}

Does health education and promotion work?

One of the most debated issues in public health is the effectiveness of health education and promotion. While the processes of health education and health promotion are linked and may overlap, health education can be defined as the process by which messages aimed at enabling individuals to take greater control over and improve their health are formulated. Health promotion is the process by which these messages are taken and disseminated, reinforced and their impact assessed, whether by word of mouth, in print or through one of the rapidly expanding forms of visual media, for both individuals and populations. The WHO defines health promotion as the process that extends health education beyond a focus on individual behaviour towards a wide range of social and environmental interventions. In many countries, considerable resources are spent on a range of interventions, ranging from one-to-one advice in primary care settings to comprehensive healthy school schemes and mass media campaigns aimed, for example, at encouraging tobacco cessation. The strength of the evidence base for these interventions varies.

A recent review of the evidence has been published in England by the National Institute for Health and Care Excellence (NICE).⁶

The report concludes that:

- There is strong evidence that oral hygiene and gingival health can be improved by using psychological behaviour change models as the basis of the intervention
- There is strong evidence that patients’ knowledge levels can be improved by receiving oral health messages from an oral health practitioner
- There is strong evidence that leaflets and written material are effective in promoting patients’ knowledge, but no evidence that leaflets are effective for changing people’s behaviour

- There is strong evidence that a number of barriers and facilitators to the successful delivery of oral health promotion in the dental surgery exist
- There is moderate evidence that patient motivation and satisfaction are dependent on the oral health professionals' communication skills and ability to build therapeutic alliances with their patients
- There is moderate evidence that the nature of the 'sender' of oral health promotion messages and their attitudes and beliefs about oral health promotion can act as either a barrier or facilitator to effectiveness
- There is weak evidence that improvements in knowledge lead to improved oral health behaviour, at least in the short-term
- There is no evidence available regarding the effectiveness of linking oral health promotion messages to wider health outcomes.

It is important to remember that parental health knowledge and behaviour patterns are assimilated by their children and can have a positive effect on psychological and behavioural growth. In the dental setting, the full and active involvement of the parent, child and dentist, the paediatric dentistry triangle, should be the foundation for the development of good oral health.

In an age when cost benefit assumes ever greater importance in healthcare, the effectiveness of oral health promotion in terms of the reduction in disease and healthcare costs is clearly of great significance, when investing scarce resources.

Common findings on the effectiveness of interventions:

- Fluoride whether in toothpastes, water supplies or topical agents is an effective caries preventive agent
- An improvement in an individual's oral health knowledge can be achieved through oral health promotion, but the long-term impact of this is not clear
- Information alone does not produce long-term behaviour changes
- General awareness can be raised by mass media campaigns, but they are not effective at promoting either knowledge nor behavioural change
- Few studies have assessed the effect on interventions on reducing oral health inequalities, but untargeted health education may increase inequalities
- Short-term changes in plaque levels can be

achieved through oral health promotion interventions. These changes are not sustained over time

- Very few well-designed studies have assessed the effectiveness of interventions aiming to reduce sugar consumption
- In general, cost-effectiveness has not been assessed in oral health promotion interventions.⁷

Furthermore, there is little evidence for the effectiveness of screening for the early detection of oral cancers.

However, there is also an ethical obligation for health professionals possessing information that could reduce the prevalence of disease to inform the public accordingly, irrespective of whether a cost benefit can be proven to follow. So, efficiency as well as effectiveness of oral health interventions should be assessed. The right of individuals to health education information was clearly defined by the Ottawa Charter in 1987.³ Therefore, three things are clear. First is that more research is needed with the aims of improving the quality of health education delivered and evaluating the results of interventions, including their sustainability. The second is that although strong evidence for the effectiveness of health education and promotion is lacking in some areas, this does not remove from health professionals the responsibility to provide the public with all available information for the promotion of good health. Finally, in order to be effective, health education needs to be properly planned, organised and evaluated, using the skills of all health professionals and the best quality and most appropriate resources. We must remember that while dental professionals have had the knowledge of how to prevent dental caries or more than 50 years, it remains the most prevalent of all diseases, affecting more than 2.5 billion people globally.⁸

Guidance on oral health promotion

In England, NICE has published guidance relevant to the dental team.⁹ This guideline covers how general dental practice teams can convey advice about oral hygiene and the use of fluoride. It also covers diet, tobacco, smokeless tobacco and alcohol intake. The recommendations cover oral health advice given by dentists and dental care professionals and how dentists and dental care professionals can adopt a patient-centred approach.

In addition, Public Health England's *Delivering better oral health: an*

evidence-based toolkit for prevention (third edition 2017) has been published to meet the demand of primary care dental professionals for clear guidance about the advice they should give and the actions they should take to be sure they are doing the best for their patients in preventing disease.¹⁰ Two useful guides to one-to-one behaviour change interventions are available that are relevant to the dental team.^{11,12} The use of motivational interviewing, as a non-judgemental, non-confrontational and non-adversarial counselling method is now being advocated. This approach attempts to increase the client's awareness of the potential problems caused, consequences experienced and risks faced as a result of the behaviour in question.¹²

The nature of scientific evidence

Scientific evidence comes in many forms, but in the context of oral health, it breaks down into two main categories.

Laboratory-based studies

These range from purely chemical or biological observations and experiments on the structure of the teeth and the mouth to experiments involving animals or small groups of human volunteers. Examples include the analysis of the changes that occur in the teeth when they decay and studies on the effect on bacteria in the mouth when human volunteers use different types of toothpaste.

Clinical studies

An important type of clinical study is the interventional experiment. These studies are usually made up of at least two groups, one of which will be a control group who received no intervention, and the other groups will follow some form of experimental regime. A good example is the clinical trial of a new toothpaste. In an ideal experiment, subjects will be randomly allocated to a group, and the research workers who make the observations will have no knowledge of the group to which any subject has been allocated. This type of experiment is called a randomised controlled trial (RCT) and has often been described as the gold standard for clinical research. Clinical scientists begin with what is called a 'null hypothesis', which means that no difference between the test and control groups is anticipated. The experiment, be it in the test tube or in the form of a RCT, aims to blindly 'break' or 'disprove' that hypothesis.

Community studies

These include observational studies where existing aspects of health are studied in large groups or populations without any form of intervention. Observational studies can include longitudinal ones where a group of subjects are followed over a period of time and cross-sectional studies and case-control studies where a comparison is made with a control group. Community studies are often used in health systems analysis.

While many research studies, ranging from small-scale laboratory studies to large clinical trials use quantitative methodology, where the results are obtained and expressed solely on a numerical basis, much research in the social sciences, including studies on the effect of health promotion interventions use qualitative methodology. Such studies often depend on the analysis of questionnaires completed by participants, where the outcome, which might be summarised in numerical terms, is an expression of matters concerning qualities rather than quantities.

Good research studies are usually published in peer-reviewed scientific journals, including those in the clinical and public health fields. These accept only those manuscripts which have been reviewed independently and refereed by experts in the field to ensure that the methods used and the conclusions being made are valid. A very useful overview of research in any particular field is often provided by a systematic review. This is usually written by leading experts who look at all the research that has been done on a particular topic or subject, compare and contrast the results, possibly commenting on the quality of the research and draw appropriate conclusions. Evidence from comprehensive systematic reviews has come to occupy a key position between research and practice. Consequently, they have become very influential as a foundation for preventive practice and policy in dentistry. Finally, there is a method of comparing quantitatively the results from a number of studies that have looked at the same issue, usually in the form of randomised controlled trials. Using a sophisticated statistical analysis, the results from all of the trials are pooled together to arrive at one main result. This type of overall analysis of results is called a meta-analysis. By including a meta-analysis in a systematic review, it is possible to provide valuable insights concerning the effectiveness of healthcare interventions.

One very important point must be made about the result of any scientific research, especially because of increased media reporting of health-related research and the rise of social media on the Internet. When the conclusion of a study is that there is no evidence to form a conclusion, it does not mean that the negative situation has been firmly established. It simply means that the study has not provided evidence for or against the relationship being studied. This is a point that is frequently misunderstood by those without a scientific background, who will reasonably assume that when a scientist says that there is no evidence for this or that, it means that it is not true. All the scientist is saying is that the experiment does not give sufficient evidence to draw a firm conclusion. It is possible that next week or next year evidence will appear that does establish the case.

Health education and evidence-based dentistry

From the early 1970s, there has been a growing interest in placing all aspects of clinical practice on an evidence-supported basis. One of the pioneers of this movement was Professor Archie Cochrane, who gave his name to an international collaborative network of groups with the aim of developing evidence-based decision-making for clinical interventions. The Cochrane Collaboration produces a series of systematic reviews of scientific evidence on a range of topics in all areas of healthcare, and some of these are used to support statements made in this document. A further extension of this movement is the appearance of a number of organisations and networks whose aim is to standardise and integrate the methods used for the development of guidelines for clinical practice. In the UK, one of the most useful is that developed by the Scottish Dental Clinical Effectiveness Programme. One result of this work has been to establish a framework that enables those involved in producing clinical guidelines to formulate them on a common basis.

The concept of putting clinical practice on to an evidence basis has run in parallel with work to ensure that health education messages given to the public are based on sound scientific evidence. Nevertheless, an important difference between these two areas is that while the evidence for clinical interventions ideally comes from high-quality clinical studies such as RCTs, the evidence to support dental health education messages

often comes from other types of studies. A system for indicating levels of evidence about the effectiveness of healthcare interventions has been developed by the Centre for Evidence-based Medicine (CEM) levels and adopted by various evidence-based guideline organisations worldwide, and this scheme is undergoing constant refinement (<http://www.cebd.org>). In this book, a simple scheme is introduced to give an indication of the strength of evidence supporting key statements for dental health education and is referred to as evidence bases. The equivalent nearest to the CEM levels are given in brackets:

- Evidence base A: statements supported by randomised controlled trials, meta-analyses or systematic reviews (CEM levels 1 and 2)
- Evidence base B: statements supported by the majority of other relevant studies (CEM levels 3 and 4)
- Evidence base C: statements that cannot be supported by a substantial body of research evidence, but where there is a consensus of scientific and professional opinion to support the statement. There may nevertheless be dissenting views, as the issue may be the subject of continuing debate and research studies (CEM level 5).

Where appropriate, these grades are marked as evidence bases A, B and C, respectively, and each would represent the highest grade of evidence that currently exists for a given statement.

This way of defining the strength of evidence is best suited to research using quantitative methodology. Health education, health promotion, social determinants and inequalities in health on the other hand also develop and benefit from using qualitative methodology. Because of statistical limitations, there are few if any meta-analyses of oral health education or oral health promotion studies using qualitative methodology.

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