

Effectiveness of oral health promotion

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Introduction

In the UK dental caries is still a major public health problem. Although disorders of the teeth and oral cavity are only rarely fatal, they are a common cause of discomfort, pain and disability. Poor oral health limits personal choices and social opportunities and therefore has a major impact on quality of life. At a population level it is estimated that at least £1.5 billion of NHS money funds dental services.

Although the oral health of the UK population has improved significantly over the last 20 years, many challenges remain. As levels of health have improved, inequities have widened and functional and psychosocial problems associated with poor oral health are particularly marked in already vulnerable populations such as the elderly and low income groups. In the UK, poor oral health is becoming a characteristic of the socially disadvantaged and the elderly.

The dental profession has had a long-standing concern with the prevention of oral diseases. Oral health promotion comprises a range of complementary approaches including building healthy public policy, creating supportive environments, strengthening community action, reorienting health services and developing personal skills. The success of these approaches largely depends upon multi-sectoral working. In recent years, as part of the wider move to evidence based practice in the NHS, a debate has arisen within the profession over the effectiveness of oral health promotion.

In 1996 the Health Education Authority commissioned a review of the research evidence on the effectiveness of oral health promotion interventions. The research was carried out by Dr Liz Kay, Department of Oral Health and Development, University of Manchester in collaboration with Professor David Locker, Community Dental Health Services Research Unit, University of Toronto. This bulletin summarises the main findings and discusses some of the key issues arising from the literature review.

The full report covers:

- interventions designed to reduce dental caries
- interventions designed to improve oral hygiene and gingival health
- studies aimed at changing oral health knowledge, attitudes, beliefs and behaviours
- mass media dental health campaigns

Background

The review involved computerised and hand searching of 94 scientific journals, plus personal contacts with experts and practitioners. The retrieved papers were critically appraised and the results synthesised by mainly quantitative statistical analysis. Over 30% of the literature reviewed was published in 1984 or before. Reflecting the nature of much of the published literature there was a heavy bias towards one-off interventions focused on individuals and very little representation of other health promotion approaches. A considerable proportion of the activity reviewed may therefore reflect upon an outdated style of practice.

Summary of main findings

Dental caries

Evidence concerning the effectiveness of the use of fluoride (whether in the form of toothpaste, tablets, drops, or rinses) in reducing caries is strong. Thus, health promotion interventions which incorporate the regular use of one or other of these items are effective as long as compliance is achieved. Daily brushing with a fluoride toothpaste is easier to achieve than regular use of other fluoride supplements. There is no evidence in the literature that oral health promotion per se effects caries rates, even if changes in behaviour are achieved, unless fluoride is being used.

Oral hygiene

Oral health promotion on an individual level is effective for reducing plaque levels. However, there is strong evidence that the changes achieved are short term and are not sustained. Interventions designed to improve oral hygiene are effective even when very simple direct instruction is used. Cognitive-behavioural techniques are not required in order to achieve changes in plaque levels. School-based toothbrushing campaigns aimed at improving oral hygiene have not been shown to be effective.

Gingival health

Reduction in plaque levels almost always, but not invariably, leads to reductions in inflammation and bleeding of the gingivae. The lack of specificity of this relationship and the unknown long term health consequences of gingivitis make evaluation of oral health promotion in this field very difficult.

Knowledge, attitudes and behaviour

Improving individuals' knowledge of dental health matters can be achieved through oral health promotion and oral health education. The clinical, behavioural and health significance of these shifts in knowledge are unknown and there is some evidence that there are no consequences from improvements in knowledge. However, aside from the ethical responsibility to disseminate scientific knowledge to the public, improving knowledge of the public, professionals and policy-makers may prepare the ground for other interventions such as the creation of more supportive environments.

Attitudes and beliefs

The alteration of attitudes and beliefs in order to promote health via an extremely heterogeneous collection of methods is possible. However, evidence that such changes lead to health benefit is not available.

Behaviour

Since very few studies measure behaviour directly, it is difficult to evaluate the effect of oral health promotion on behaviour. Reported behaviour and behavioural intention can be altered and oral hygiene behaviour can be improved in the short term by simple educative interventions.

Sugar consumption

There are remarkably few evaluations of the effect of oral health promotion on sugar consumption, and those which are available frequently use reported behaviour as the measurement instrument. Thus, evaluations of health promotion aimed at altering sugar consumption often describe changes in knowledge levels rather than altered habits or lifestyles.

Mass media campaigns

Although little evaluative research has been published, the available evidence indicates that mass media campaigns are ineffective for promoting either knowledge or behaviour change. However, they may have some value in raising awareness and agenda setting as part of an overall oral health promotion strategy.

Conclusions

Despite hundreds of studies involving thousands of individuals, we have little evidence about how to promote oral health effectively. Sustained use of fluoride reduces caries and good oral hygiene promotes gingival health. Daily thorough brushing with a fluoride toothpaste is an oral health promoting behaviour and is an achievable goal. School-based toothbrushing instruction aimed at improving oral hygiene has not been shown to be effective. Oral health promotion is effective for increasing knowledge levels. However, there is no evidence that changes in knowledge are causally related to changes in behaviour. There is no convincing evidence of the effectiveness of mass media programmes designed to promote oral health.

Standardised measurement instruments already exist to assess clinical

outcomes. There is a need for the development of additional indicators to measure the full range of oral health outcomes including knowledge, policy development and environmental change.

Recommendations for action

Purchasers

- Caries preventive efforts should be focused on children as the benefits are cumulative.
- The use of fluoride in some form is recommended, particularly daily brushing with a fluoride toothpaste.
- Oral hygiene advice by dental professionals should be given to adults suffering from periodontal disease as substantial, clinically measurable health benefits can be achieved by this approach. Dental staff should be trained and encouraged to carry this out.
- Individual health education interventions are of limited value and should be supported by a full range of health promotion approaches.
- Purchasing authorities should play an advocacy role in respect of policy issues such as fluoridation of water, salt or milk.
- Evaluation should form a part of all interventions. Training in evaluation should be provided for all those in the field.

Policy-makers

- Oral health promotion strategies should be planned on the basis of need and available effectiveness evidence from health promotion research.
- Oral health promotion should particularly be targeted to areas of need to redress inequalities.
- Policy-makers should be aware of the role of fluoride in caries prevention and should press for fluoridation of water supplies where oral disease levels are highest.
- Non dental personnel such as primary care and education professionals may be used to pass on oral health knowledge and influence choices of defined target populations.

Research

- Realistic measurements of all the costs and benefits of oral health promotion should be included in evaluations, including non-clinical indicators.
- Researchers and practitioners should agree and develop methods or combinations of methods relevant and appropriate to the evaluation of health promotion.
- Strategies for achieving sustainable behavioural change should be developed and evaluated.

- Although evaluation of interventions should be based on programme objectives, in turn based on needs assessment, some common measurement tools would enable comparison across studies.
- Evaluation should focus on the outcomes of overall strategies as well as their component interventions.
- Further research into the role and importance of gingivitis in children is required.

The Way Ahead

This review takes oral health promotion forward into a new era. It has shown the limitations of a narrow individualistic health education based approach and points the way to a more progressive health promotion method of working which emphasises the need for a complementary range of actions to achieve sustained behaviour change in a supportive environment. Central government has a key role to play in this process through its policy making and purchasing functions.

Such a step forward also demands collaboration between academics and professionals to ensure that strategies are developed upon a sound scientific basis and are subject to appropriate evaluation. This may include a range of methodologies which together will illuminate the full costs and benefits of individual health promotion interventions as well as the overall strategic framework.

It is essential that oral health promoters develop an improved understanding of how to effectively improve oral health. It is only by tackling the underlying determinants of oral health that the unacceptable impact and costs of oral diseases will be reduced.