Preventive strategies in oral health promotion

Prevenção na promoção de saúde bucal

Andréa Gonçalves Antonio [1]
Lucianne Cople Maia [1]
Roberto Braga de Carvalho Vianna [1]
Luís Eduardo Lavigne Paranhos Quintanilha [2]

Abstract *The biofilm control is a considerable factor in the prevention and treatment of oral diseases as caries and periodontal disease. However, according to the literature, the collective programs show frustrating results at long-term due to difficulty to change the behavior of the participant individuals. Therefore, taking into consideration the model of the dental practice in Brazil, where the population has an oral health needfulness, the purpose of this study is to introduce different strategies that allow the accomplishment of collective programs, so that they succeed in the promotion of the oral health either in individual or collective level.*

Key words *Preventive strategies, Motivation, Health promotion*

Resumo *O controle do biofilme dental constitui um importante fator na prevenção e tratamento de doenças bucais como a cárie e a doença periodontal. No entanto, a literatura nos revela que os programas coletivos apresentam resultados frustrantes a longo prazo devido à dificuldade em se mudar definitivamente o comportamento dos indivíduos participantes. Assim, levando-se em consideração o modelo da prática odontológica encontrada no Brasil, onde a população tem carência de saúde bucal, o propósito deste trabalho é apresentar, sob uma perspectiva preventiva, diferentes estratégias, que viabilizam a realização de programas, a fim de que os mesmos possam ter êxito na promoção da saúde bucal tanto em nível individual como coletivo.*

Palavras-chave *Estratégias preventivas, motivação, promoção de saúde*

[1] Faculdade de Odontologia, UFRJ. Av. Brigadeiro Trompowsky s/n, Cidade Universitária, 21941-590, Rio de Janeiro RJ. aganton io@ig.com.br
[2] Universidade Federal Fluminense.

Introduction

The etiological role of the bacterial plaque or dental biofilm in periodontal and caries diseases was suggested for the first time at the end of the 19th century by a dentist called Miller (1890, *apud* Akikainen & Alaluusua, 1993). The dental biofilm is defined as a soft bacterial deposit, non-mineralized, which adheres to the solid surfaces in the oral cavity when these are not adequately hygienised (Dawes & Jenkins, 1962; Kelstrup & Theilade, 1974).

Since oral diseases such as caries and periodontal disease are infections caused by indigenous oral flora, it is only when the numbers of these microorganisms increase, and the resultant irritation exceeds the host's defense threshold that the disease manifests itself (Slots, 1979; Hamada & Slade, 1980). However this problem can be easily controlled through the reduction of the amount of biofilm or plaque on dental surfaces (Zickert *et al.*, 1982; Rayner, 1992; Sgan-Cohen & Vered, 2003), a solution proposed in many oral health programs which aim at reducing or eliminating the bacterial plaque. Despite this approach, the majority of these programs fail to achieve their aims owing to the lack of due attention to pre-requisites essential to any prevention program, as it is the case of the emphasis on the patient-professional relationship in its educational aspect (Sheiham, 1983).

Whenever education is mentioned, it refers to people's development from birth and throughout their lives, in the process of both searching for and achieving the fulfillment of their needs. At the same time this development occurs within social relationships, it is determined by them, in a diffuse as well as organized way. The interventional actions that occur in this process can be translated as both domination and liberation instruments. From this point of view, education and health are social practices, and are inserted in a wider political process which interferes in social dynamics (Teixeira & Valença, 1998).

Within this context, it is absolutely relevant to consider that several social and educational variables influence human behaviour concerning oral hygiene, and that they can effect definitive changes in human attitudes and habits. One the most important among these variables is socialization, that is, the process through which informal knowledge, values, attitudes and routine practices are transmitted to the individual by means of social interaction (WHO, 1979). A case in point is the attitude of children who copy their parents' and teachers' toothbrushing habits (Sheiham, 1983). By the time they reach adolescence, brushing has become an integral part of their hygiene and self-care practices (Hodge *et al.*, 1982).

Literature tells us that the less life risk an individual perceives a given disease might bring him the less his involvement is with the procedures which might prevent it (Wilson, 1987; Ong, 1991). In order to revert this situation, it is imperative to re-think and re-organize health education, so that it may then provide awareness, knowledge and development of practical skills to achieve oral health.

In this way a favorable result of programs for oral health promotion – emphasizing prevention – can be improved through the combination of biofilm reduction measures and health education (Sheiham, 1983). In the same line of reasoning, the presentation of different strategies can be considered a fundamental maneuver for quality of life improvement in a given population – provided these strategies originate in a prevention approach and allow the implementation of successful programs for oral health promotion and balance both at individual and collective levels.

Program planning

Over thirty years ago, Heinfetz *et al.* (1973) asserted the necessity of evaluating biofilm control programs, considering in particular the detailing of the results obtained, in order to define a viable program by outlining its operational aspects throughout its conduction. That is, they judged the examination of results and of both previous and present experiments in a biofilm control program to be of negligible importance, and considered the available human and financial resources, as well as the accessible equipment and materials for its implementation, as the adequate means to ascertain its validity.

It can thus be understood that the elaboration of an adequate prevention program for a given disease, with all its biopsychosocial complexity, demands the adoption of some pre-requisites such as the assessment of the population the program is to aim at, the individual risk of developing the diseases and the benefits expected by both health professionals and individuals that are to participate in it (Lang *et al.*, 1998).

Ciência & Saúde Coletiva, 10(sup):279-286, 2005

Identification of the target population benefited by the program

A fundamental question in the planning of health programs is to whom direct the preventive measures (Heifetz *et al.*, 1973). Owing to the possibility of habit modulation in young individuals, as opposed to changes in established practices in adults (Albandar *et al.*, 1995), the great majority of the programs reported in literature involves children, distributed in different age groups (Axelsson & Lindhe, 1974; Carvalho *et al.*, 1991; Albandar *et al.*, 1994; Julien, 1994).

Udin, in 1999, considered the implementation of preventive programs in first infancy to be inherent to the process of healthyhabits acquisition at the earliest possible date, as long as it is adapted to individual needs as the children mature.

Concerning pre-school programs, certain authors recommend parent participation (Carvalho *et al.*, 1992; Axelsson *et al.*, 1993). Rayner (1992) observed that parent education is directly related to the improvement in oral hygiene and gingivitis in children.

Pregnant women's training to avoid the transmission of contagion by cariogenic microorganisms and harmful eating habits have also been a main focus in some programs (Axelsson *et al.*, 1993; Minkovitz *et al.*, 2002; Zanata *et al.*, 2003). These women are very receptive to new practices, especially when they involve the well-being of their future babies.

However, there are caries prevention studies which concern only the permanent dentition of children and adolescents (Carvalho *et al.*, 1989; 1992; Schwarz *et al.*, 1998). Elkstrand *et al.* (2000) reported that the implementation of a children's program is only viable when they enter school, from the age of three onwards.

It should also be emphasized that the first step for success in a program is the identification of each individual's educational needs, for it is only through knowledge of the individual characteristics of human behaviour that it will be possible to outline an action plan for the benefit of the whole community (Wentz, 1972). Mastrantonio & Garcia (2002) thus suggest that, for the elaboration of preventive educational programs, questionnaires and interviews should be applied before its implementation in order to ascertain the level of odontological knowledge of the participants and to adapt the program to their real educational needs.

Furthermore, it is impossible to implement a program without being aware of the expectations of the population, which will gather its benefits. Health promotion and maintenance depend on the joint performance of acting professionals and target population (Kriger *et al.*, 2003).

Risk strategy

Considering the natural history of diseases, the assessment of their pre-pathogenic stage is of fundamental importance to the implementation of a health program. Thus, to identify the factors related to the risk of developing certain diseases – such as, for example, caries and periodontal disease – becomes a great challenge to be faced by any oral health team involved with the implementation of collective programs. Numerous caries and periodontal disease hazards have been suggested, both at individual and collective levels, since individuals with high disease levels have specific characteristics andhabits, and show a positiveassociation between the progress of these diseases and that which determined their occurrence (Tinanoff, 1995). That is why the meticulous examination of risk factors to identify vulnerable individuals is considered an essential condition for submitting the population to the preventive measures planned in the program (Axelsson *et al.*, 1993).

Therefore the identification of these hazards is the basis for the planning of health-care activities. Such planning needs to be based on the most realistic information and data that can possibly be obtained, and they should provide the designers of the program with a true overview including, among other data, the amount of a given problem present in the target population and the intensity with which it touches upon the said population (Silveira *et al.*, 2002).

To arrive at a collective diagnosis, the professional must needs diagnose the individual problems and have proper professional qualification in both hazard factors and already established pathological processes, which, if left as they are found, perpetuate the demand for invasive treatments. From the starting point of a situational diagnosis obtained from epidemiological surveys, collective strategies can be devised for the prevention and control of oral diseases. Regarding dental caries and periodontal disease, although the harm caused by

their unhampered progress may be visible, it is known that their control and prevention can be effected. The intervention aimed at biofilm control is one of the most frequently used measures in health programs (Zickert *et al.*, 1982), with usually positive results concerning the reduction of plaque, gingivitis and caries indexes (Marthaler & Moos, 1983).

In this sense, acting on hazard factors is a reminder of the fact that we are performing an activity that has the promotion of oral health as its prime objective. For this goal to be effectively reached, it is necessary to seek the most adequate means of intervention on the population, in order to sensitize and motivate it for the obtention and maintenance of healthy habits.

It is of the utmost importance in the process that the individuals become aware of their actual oral health condition. A precise diagnosis, jointly made with the patient, is an essential pre-requisite to ascertain his oral needs. Furthermore, it is necessary to detect the patient's unprovided needs, which are presented as more important than his dental problems. A better knowledge of the individual, including knowledge of his willingness to keep his teeth, enables the health professional to draw near to this patient's expectations (Buischi & Axelsson, 1997).

Motivation

For the patient to be encouraged to change his habits, it is fundamental that, in the first place, he should receive information regarding oral health that would justify this need for change (Ong, 1991), concepts such as etiology, progression, treatment and control of caries and periodontal diseases (Carvalho *et al.*, 1991; Axelsson *et al.*, 1994).

However, for individuals to learn how to keep healthy it is not enough to explain in detail the causes of diseases and how to avoid them, and then demand that the lesson be learned forthwith. It is necessary to foster the will to learn, to awaken the curiosity and interest that induce action, to encourage the determination to achieve the target results, to expand internal conditions favorable to learning (Petry & Pretto, 2003). Therefore the patient needs to be well motivated to establish satisfactory health habits, and, on principle, the program should preferably start from the idea that motivation is either to be ready to act or the force that impels towards action (Resende, 1986).

Thus, a complete examination, the patient's training – taking into consideration his oral health condition – followed by a detailed discussion of intervention measures should precede the stage of oral care instruction. It is necessary that the individual understands and accepts the reasons for his change of oral habits before the dentist begins oral hygiene instruction (Ong, 1991). The dentist is frequently observed to impose his point of view on the patient, thus underestimating this patient's own desired change of behaviour (Weinstein, 1982; Wilson, 1987). That is why, and first of all, the careful hearing and observation of the patient's reactions and the discussion of his needs will help him actively contribute to the program in which he is inserted (Petry & Pretto, 2003).

The professional's support, through positive reinforcement – approving of the patient's effort with a minimum of negative criticism – seems to favor the individual's active involvement in the program, by means of the self-diagnosis of his condition and odontological needs (Albandar *et al.*, 1994; Axelsson *et al.*, 1994).

Additionally, there is the fact that real interest on the part of the dentist and his care for the patient's well-being gives rise to another positive aspect, that is, the satisfaction this individual feels and the consequent involvement he will have with the program (Petry & Pretto, 2003). To listen to the patient and to discuss with him his complaints and expectations provides enough favorable conditions to allow the dentist to implement his educational and motivational strategy (Ong, 1991).

It is evident that the motivation factor is the propulsive force for the obtention of positive results in the task of the patient's health education, individually or collectively. The whole working team needs to be ready for action. The professional needs to know his patient as a whole – biologically, socially and emotionally – in order to be able to motivate him to acquire new habits. Furthermore, the professional needs to be sensitive, to enjoy what he does and to have a sound techno-scientific knowledge (Cabral, 1998).

Dental biofilm control and health education

For the maintenance of healthy dental and gingival tissues in the oral cavity it is important to

Ciência & Saúde Coletiva, 10(sup):279-286, 2005

institute mechanical means for biofilm control, be it through oral hygiene instruction, professional prophylaxis (Axelsson & Lindhe, 1974) or instruction associated with supervised brushing (Marthaler & Moos, 1983).

Corroborating with this assertion, Mastrantonio & Garcia (2002) single out mechanic control as being the most recognizably efficient method for the upkeep of oral health, but, on the other hand, they emphasize that even though they use it, patients still present deficient oral hygiene, owing to lack of information, awareness and education.

Because of this, educational activities promoting knowledge of the etiology of oral diseases and of means of controlling such pathogenesis constitute important factors that favorably influence the acquisition of a new behavioral pattern and of hygiene attitudes (Sheiham, 1983).

It is then of capital importance that due value be given to health education, that is, to the transformation process that develops people's critical awareness regarding their health problems and encourages the search for collective solutions to eliminate them. Educational practice, thus understood, is an integral part of health action itself and as such should be made to work in an integrated manner at every system level and in every phase of the organization and development process of health services (Rocha, 1989).

Nevertheless it is important to bring to notice that in order to obtain favorable results in a program it is necessary to instruct the individuals in a positive, non-detrimental way, for no one enjoys being criticized or hearing that his mouth is extremely dirty. On the contrary, the patient's real oral condition should be shown him by means of the visualization of the existing dental biofilm, which would allow the establishment of a non-threatening patient-professional dialogue about the problems deriving from this bacterial accretion (Ong, 1991) and about the benefits accrued through oral self-care measures.

In truth, individuals faced with these positive attitudes tend to remain involved in the program, as their sense of responsibility for the results to be achieved increases (Petry & Pretto, 2003).

Therefore, instead of a process of persuasion or information transfer, health education becomes a qualification process – both for individuals and groups – to achieve a reality change. In this context, a real commitment of the involved subjects should be seeked, these last including both the population and the health professionals (Rocha, 1989).

Maintenance

Already in 1977 Sheiham affirmed that programs should be continuous and not limited to a series of short campaigns. Regular re-instruction and re-motivation are important strategies in the biofilm control program, and the interval between activities depends on variables such as susceptibility to the disease, patient dexterity and motivation (Ong, 1991).

For Axelsson *et al.* (1994), the frequent and meticulous repetition of the oral health training is almost redundant. As it has been said above, a long-term favorable result will only be achieved with self-diagnosis and motivation for a change of behaviour (Axelsson *et al.*, 1994; Albandar *et al.*, 1994).

One should also be aware that the first individuals to change their behaviour will be the receptive ones, followed by the early adopters. It is only later that the tardy and doubtful majority will incorporate the idea, and the professional should be prepared for those who will hardly adopt the philosophy of health promotion and maintenance. In view of this, it is important to consider that the purpose of maintenance is to lead the individual to a change of behaviour, with a gradual extension of his autonomy towards self-care (Kriger *et al.*, 2003).

However, it must be considered that any change in behaviour demands time, and that it is essential to act on the whole group of individuals, for a positive answer will depend on a cultural change – consequently a gradual change – centered on the impact this kind of strategy will have on the population's health maintenance from then on (Kriger *et al.*, 2003).

Discussion

By virtue of the challenges posed in present times by the current health/sickness processes, Public Health has been re-thinking its performance based on health promotion aims, which attitude has contributed in a relevant way to the re-orientation of activities in this sector.

Thus, starting from the principle that oral health promotion consists of any planned effort to build public health policies and to cre-

ate adequate environments, with sufficient support for improving the oral health of a given population (WHO, 1987), all the intervention strategies shift from the purely individual axis into the collective action. This demands the analysis of the population's living conditions in their several aspects: economical, social, environmental, and also includes the planning, programming and performance of the tasks to be implemented in a program. The object of this program intervention does not consist only in risks and damages but chiefly the agent that brings them about, as well as the target population's health needs.

Confirming the statement above, and thus considering health as something greater than the absence of illness, it is suggested that all the strategies defended in this article be collectively implemented, with the involvement of the whole community. However, in practice, this approach constitutes a great persistent challenge to public health, for the orchestration of the joint action of such divers entities as the government, civil society organizations, target population and health agents acting in the program can be considered extremely difficult to attain – especially when the duration of the program is taken into consideration.

In view of the facts above, it is an intelligent attitude to emphasize certain measures that facilitate the process of oral health promotion and balance, with the aim of improving the quality of life in the target community. This holds true even when only part of the community becomes involved in the process, since some aspects represent fundamental points for the acquisition of healthy hygiene habits. They are education, motivation and real commitment to the oral health in the target population (Ong, 1991) on the part of the professionals acting in the program. Furthermore, health education – one of the practices recommended by the authors – does not consist in telling people what is important to them, but in providing them with conditions in which they themselves can perceive the importance of health (Teixeira & Valença, 1998). Health education should cease to be a process of information transfer and become a process for enabling both individuals and groups to transform reality (Rocha, 1989). It is from this perspective that dentist should work, steadfastly keeping to the purpose of transforming the present oral health situation of the Brazilian population, even when faced with lack of support of some sectors of society.

According to Cabral (1998), there are weapons and strategies for fighting oral diseases, but the great challenge the professional is confronted with is to motivate individuals to use this arsenal of knowledge conscious and correctly. And, even more important, not to allow these health-preserving habits to die of disuse.

Valla (1992) names praise and appreciation as motivational factors, but he warns that though these resources are known to produce a very rapid effect, they nevertheless last a regrettably short time. On the other hand, greater responsibility or an increase in responsibility constitutes a motivational factor that produces both immediate and long-term effects, which is why to encourage the individuals in a program to become responsible for their own oral health care is a frequently used motivational recourse. However, during this process the victim should not be blamed for his disease; on the contrary, the population's health-illness situation should be related to their actual social condition.

Regular re-instruction and maintenance are crucial for the long-term success of the programs (Guimarães *et al.*, 1992). Actually, for the program to achieve favorable results, it is suggested that all the strategies proposed in the present study should be employed in tandem, even though the periodicity of each of them may be modified during the implementation of the program.

Still regarding planning, it is important to emphasize the role played by the school within the context of the program. The authors of the present study believe the school to be a venue of fundamental relevance for the success of the program, for it is a place with a great concentration of children, who are an easy target for the acquisition of adequate habits. They are, therefore, a population on which the impact on oral health, fostered by health promotion programs, seems to be more favorable. Furthermore, the school is the learning-conducive place *par excellence*, to which access is easy, and in which it is usually found both a great interest in and degree of acceptance of the proposed measures on the part of the school staff.

It becomes evident, in the light of the revision presented, that the health professional's role constitutes the greatest strategy in the fight against such diseases at populational level. They should answer the oral health basic needs of society, and never take the complacent attitude of waiting for the global development of the country to reduce the high oral disease lev-

els of the Brazilian population, such as caries and periodontal disease.

Nevertheless, there remains a persistant question: *Are health programs capable of implementing definitive and desirable oral hygiene habits, or do their benefits lessen with the passing of time?* (Heinfetz *et al.*, 1973).

Julien (1994), as well as Ivanovic & Lekic (1996), have observed that a prevention and oral health educational program improved the oral hygiene level of the target children, but only temporarily. It was verified that the reduction of biofilm and gingival inflammation achieved during the program was dissipated after its conclusion. It is thus interesting to evaluate programs at certain intervals, after their ending, with the goal of verifying their long-term effect, for the actual duration of the benefits brought about by the programs should be borne in mind and assessed by their organizers.

Contributors

Antonio AG, Maia LC, Vianna RBC, Quintanilha LELP have contributed in the same way to get the final version of the manuscript.

References

Albandar JM, Buishi YAP, Mavers MPA & Axelsson P 1994. Long-Term Effect of Two Preventive Programs on the Incidence of Plaque and Gingivitis in Adolescents. *Journal of Periodontology* 65(6):605-610.

Albandar JM, Buischi YAP, Oliveira LB & Axelsson P 1995. Lack of effect of oral hygiene training on periodontal disease progression over 3 years in adolescents. *Journal of Periodontology* 66(4):255-260.

Axelsson P, Buishi YAP, Barbosa MF, Karlsson R & Prado MCB 1994. The effect of a new oral hygiene training program on approximal caries in 12-15-year-old Brazilian children: results after three years. *Adv Dent Res* 8(2):278-284.

Axelsson P & Lindhe J 1974. The effect of a preventive programme on dental plaque, gingivitis and caries in schoolchildren. Results after one and two years. *Journal of Clinical Periodontology* 1(2):126-138.

Axelsson P, Paulander J, Svärdström G, Tollskog G & Nordensten S 1993. Integrated caries prevention: effect of a needs-related preventive program on dental caries in children. *Caries Research* 27(1):83-94.

Buischi YP & Axelsson P 1997. Controle mecânico da placa dental realizada pelo paciente, pp.113-128. In L Kriger (org.). *ABOPREV – Promoção de saúde Bucal*, São Paulo: Editora Artes Médicas, São Paulo.

Cabral ICT 1998. Motivação: o grande desafio. *Revista Fluminense de Saúde Coletiva* 3(4):23-32.

Carvalho JC, Ekstrand KR & Thylstrup A 1989. Dental plaque and caries on occlusal surfaces of first permanent molars in relation to stage of eruption. *Journal of Dental Research* 68(5):773-779.

Carvalho JC, Ekstrand KR & Thylstrup A 1991. Results after 1 year of non-operative occlusal caries treatment of erupting permanent first molars. *Community Dental Oral Epidemiology* 19(1):23-28.

Carvalho JC, Thylstrup A & Ekstrand KR 1992. Results after 3 years of non-operative occlusal caries treatment of erupting permanent first molars. *Community Dental Oral Epidemiology* 20(4):187-192.

Dawes C & Jenkins GN 1962. Some inorganic constituents of dental plaque and their relationship to early calculus formation and caries. *Arquive of Oral Biology* 7:161-172.

Ekstrand KR, Kuzmina IN, Kuzmina E & Christiansen MEC 2000. Two and a half-year outcome of caries-preventive programs offered to groups of children in the Solntsevsky District of Moscow. *Caries Research* 34(1):8-19.

Guimarães L, Mendes S, Pomarico I & Portela W 1991/1992. *Prevenção aplicada à clínica de odontopediatria*

da *FO-UFRJ: enfoque dieta e higiene oral*. Anais da Faculdade de Odontologia – UFRJ XLIV/XLV:13-19.

Hamada S & Slade HD 1980. Biology, immunology, and cariogenicity of *Streptococcus mutans*. *Microbiology Review* 44(2):331-384.

Heifetz SB, Bagramian RA, Suomi JD & Segreto VA 1973. Programs for the mass control of plaque; an appraisal. *Journal of Public Health Dentistry* 33(2):91-95.

Hodge HC, Holloway PJ & Bell CR 1982. Factors associated with toothbrushing behaviour in adolescents. *British Dental Journal* 152(2):49.

Ivanovic M & Lekic P 1996. Transient effect of a short-term educational programme without prophylaxis on control of plaque and gingival inflammation in school children. *Journal of Clinical Periodontology* 23(8):750-757.

Julien MG 1994. The effect of behavior modification techniques on oral hygiene and gingival health of 10-year-old Canadian children. *International Journal of Paediatric Dentistry* 4(1):3-11.

Kelstrup J & Theilade E 1974. Microbes and periodontal disease. *Journal of Clinical Periodontology* 1(1):15-35.

Kriger L, Moysés SJ & Dzierwa S 2003. A filosofia de promoção de saúde na clínica privada, pp. 443-462. In L Kriger (org.). *ABOPREV – Promoção de saúde Bucal*. Editora Artes Médicas, São Paulo.

Marthaler TM & Moos B 1983. Observation on gingival health in community with and without school-based preventive program. *Journal of Clinical Periodontology* 10(6):602-608.

Mastrantonio SDS & Garcia PPNS 2002. Programas educativos em saúde bucal – Revisão da Literatura. *Jornal Brasileiro de Odontopediatria e Odontologia para Bebê* 5(25):215-222.

Miller WD 1993. The microorganisms of human mouth. Reprint 1973. Basel: S. Karger, 1890 *apud* Asikainen S & Alaluusua S. Bacteriology of dental infections. *European Heart Journal* 14(Suppl.K):43-50.

Minkovitz CS, O'Campo PJ, Chen YH & Grason HA 2002. Associations between maternal and child health status and patterns of medical care use. *Ambulatory Pediatrics* 2(2):85-92.

Ong G 1991. Practical Strategies for a Plaque-Control Program. *Clinical Preventive Dentistry* 13(3):8-11.

Petry PC & Pretto SM 2003. Educação e motivação em saúde bucal, pp. 371-386. In L Kriger (org.). *ABOPREV – Promoção de saúde bucal. Editora Artes Médicas*, São Paulo.

Rayner JA 1992. A dental health education programme, including home visits, for nursery school children. *British Dental Journal* 172(2):57-62.

Resende ALM 1986. *Saúde dialética do pensar e do fazer*. Cortez Editora, São Paulo.

Rocha CMV 1989. *Educação em saúde: breve histórico e perspectivas*. In Brasil. Ministério da Saúde. Brasília, DF. Coletânea Educação, Saúde e Educação em Saúde.

Schwarz E, Lo ECM & Wong MCM 1998. Prevention of early childhood caries – results of a fluoride toothpaste demonstration trial on Chinese preschool children after three years. *Journal of Public Health Dentistry* 58(1):12-18.

Sgan-Cohen HD & Vered Y 2003. Plaque Removal and Oral Health Promotion Potential for the elmex® interX Medium Toothbrush: Clinical Efficacy and Safety Evaluation. *Journal Clinical of Dentistry* 14(3):70-73.

Sheiham A 1977. *Prevention and control of periodontal disease. International Conference on Research in the Biology of Periodontal Disease*. University of Illinois, Chigago.

Sheiham A 1983. Promoting periodontal health – effective programmes of education and promotion. *International Dental Journal* 33(2):182-187.

Silveira JLGC, Oliveira V & Padilha WWN 2002. Avaliação da redução do índice de placa visível e do índice de sangramento gengival em uma prática de promoção de saúde bucal com crianças. *Pesquisa Odontológica Brasileira* 16(2):169-174.

Slots J 1979. Subgingival microflora in periodontal diseases. *Journal of Clinical Periodontology* 6(5):351-382.

Teixeira MCB & Valença AMG 1998. A importância da educação em saúde no ensino universitário: o caso da Odontologia. *Revista Fluminense de Saúde Coletiva* 2(3):7-33.

Tinanoff N 1995. Dental caries risk assessment and prevention. *Dental Clinic of North American* 39(4):709-719.

Valla VV 1992. Educação, saúde e cidadania: investigação científica e assessoria popular. *Cadernos de Saúde Pública* 8(1):30-40.

Weinstein P 1982. Humanistic application of behavioral strategies in oral higiene instruction. *Clinical Preventive Dentistry* 4(3):15-19.

Wentz FM 1972. Patient motivation: a new challenge to the dental profession for effective control of plaque. *Journal of American Dental Association* 85(4):887-891.

WHO 1979. *Principles and Methods of Health Education*. Euro. Rep. Series 11.

Who 1987. *Health Promotion*, 1: iii-v.

Wilson TG 1987. Compliance. A review of the literature with possible application to periodontics. *Journal of Periodontology* 58(10):706-714.

Zanata RL, Navarro MF, Pereira JC, Franco EB, Lauris JR & Barbosa SH 2003. Effect of caries preventive measures directed to expectant mothers on caries experience in their children. *Brazilian Dental Journal* 14(2):75-81.

Zickert I, Lindvall AM & Axelsson P 1982. Effect on caries and gingivitis of a preventive program based on oral hygiene measures and fluoride application. *Community Dental Oral Epidemiology* 10(6):289-295.

Artigo apresentado em 23/08/2004
Aprovado em 22/06/2005
Versão final apresentada em 7/07/2005