

Primary Oral Health Care

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Key Words

Primary health care · Oral health promotion · Health policy · Dental health education · Atraumatic restorative treatment

Abstract

The aim of this review was to describe the background and evolution of primary oral health care (POHC), including the development of an oral health policy, by identifying the resources necessary for oral health services, reviewing the evidence of the effectiveness of oral health promotion and education, providing essential oral health care, and establishing evidence of the benefits of regular dental visits for effective POHC. At present, evidence for the effectiveness of oral health education and regular dental visits is very weak. Nevertheless, POHC needs to be developed as an integral part of primary health care (PHC). Therefore, a need exists to increase financial investment, resources and workforce in PHC to lower the prevalence of dental caries and periodontal disease in the Middle-East using the POHC approach.

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Introduction

The concept of primary health care (PHC) was defined at the Alma-Ata conference in 1978 [1]. This conference was the largest conference on health, because

there were 134 delegations and representatives from 67 United Nations and other organizations. Primary oral health care (POHC) is an integral part of PHC. After the conference, the PHC concept was further developed gradually during the 1980s by the health promotion approach. The European WHO Discussion Document in 1984 [2] defined health promotion as follows:

- Health promotion involves the population as a whole, in the context of their everyday life rather than focusing on people at risk for specific diseases
- It is directed towards action on determinants or causes of health
- It combines diverse, but complimentary, methods or approaches
- It aims at particularly effective and concrete public participation
- Health professionals have an important role in nurturing and enabling health promotion

The subject areas of health promotion were defined as access to health, development of an environment conducive to health, strengthening social networks and social support, promoting positive health behaviour and appropriate coping strategies, increasing knowledge, and disseminating information.

Further development of the health promotion concept was documented in the Ottawa Charter [3], in which the principles of health promotion were defined as:

- Possibilities for health – health promotion means equality in health

Table 1. Summary of the changes in the focus of PHC since 1974 [4]

Early attempts of PHC	Current concerns of PHC
Basic package and essential drugs	Universal access and social protection
Concentration on mother/child health	Health of everyone
Focus on infectious diseases	Comprehensive response to the risks
Improvement of sanitation, rural	Promotion of healthier lifestyles
Government funded and delivered	Pluralistic health systems
Management of growing scarcity	Growth of resources for health
Bilateral aid	Global solidarity
Primary care against hospitals	Primary care as coordinator
PHC is cheap	PHC is not cheap and requires investment as a value for money

- Professionals as mediators of health – not as producers of health
- Requirements for health – peace, safety, nutrition, income, stable ecological circumstances, education, social justice, equality
- Importance of health – health is an important resource for social, economic and personal development

Health promotion should be based on 5 different strategies: healthy public policy; community action and personal skills; creating a supportive environment; enable, mediate and advocate, and reorientation of health services. These strategies should be implemented globally. The World Health Report 2008 [4] emphasized that PHC is still as important as it was 30 years ago, when it was adopted in Alma-Ata. It also defined how experience has shifted the focus of the PHC movement to the current PHC reforms (table 1).

Oral Health Promotion

Oral health promotion is based mainly on 6 different areas: nutrition (reduction in the frequency of sugar intake); oral hygiene (regular dental plaque removal); smoking cessation (smoking explains 50% of periodontal disease prevalence); preventing dental trauma (prevalence around 25%); changing environment (conducive for oral health), and supporting individuals (empowering people to take care of their health behaviour). Dental traumas are a public oral health problem and there is some evidence that they are increasing [5].

Oral health promotion aims to change oral health habits of people to be conducive to oral health [6] (fig. 1). Habits are basically determined by the environment and lifestyle of the individual. When behaviour is frequently repeated, it becomes an automatic habit, which does not

require thinking about the act. Habits are acquired skills and actions, which become automatic only after significant repetition. Avoiding sugar and brushing teeth are the main oral health habits [6].

The current oral health promotion is based on the Common Risk Factor approach, which was first published in 1984 [7] and then adopted into dental health habits [8, 9]. Dental caries can be prevented and low sucrose intake is the main preventive measure (sweets, sugar drinks, etc.). Fluoride can also be used to increase the resistance of hard tooth surface (enamel, cementum, dentine). Efforts have been made to find alternative sweeteners to replace sucrose in the diet. Currently xylitol has shown itself to be the most promising one [10], but because of the laxative effect it can only be used in small doses between meals.

The effects of the risk factors on caries can be seen in the mean caries experience levels of the populations. The map of caries experience at the age of 12 years in Europe shows a clear decline in Western European countries from the 1970s to the 1980s [11]. However, despite the efforts, the same reduction has not taken place during the previous decades in the Middle-East, e.g. in Kuwait [12]. Globally, an important document on POHC was published in the USA in 2000. The Surgeon General's Report on Oral Health [13] stated clearly that 'despite the availability of highly effective measures for primary prevention, dental caries remains one of the most common childhood chronic diseases'. One effective preventive method for caries reduction is the use of fissure sealants [14], but its application has not been targeted at the high-risk caries groups, either in the USA or many other countries. However, tooth brushing with fluoride toothpaste remains the most common preventive method for caries reduction. Although a simple task, there is a long way to go to get

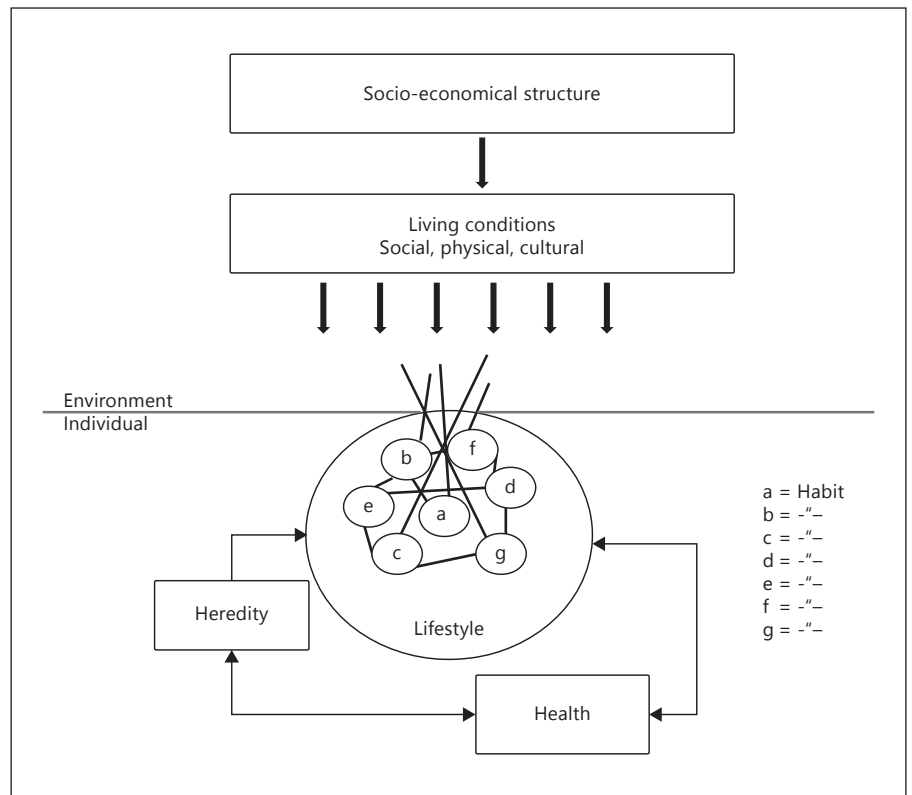


Fig. 1. The context of health habits [6].

everyone to adopt this habit twice a day. In addition to the recommended frequency of toothbrushing, the proximal surfaces should also be cleaned with dental floss at least once a day. Flossing is not a new cleaning method, but it should be adopted by everyone. Smoking is a strong risk factor for lung cancer and several diseases such as periodontal disease. Therefore, dental professionals should work with other health care professionals to help patients to quit smoking. The most practical advice for health care professionals would be to use the five 'A's method: ask, advise, assess, assist and arrange [15]. All patients should be asked about their tobacco use and findings should be documented in patients' records. We should advise all smokers to stop smoking and inform them about the consequences. The willingness of patients to quit smoking should also be assessed. We should assist the patients in stopping, help them to set a stop date, provide self-help material, and consider nicotine replacement therapy. The other option is to refer the patient to professionals and then to follow-up at subsequent visits. Finally, follow-up contacts should be arranged, success should be congratulated, and if tobacco use has reoccurred, recommitment should be elicited.

Most chronic non-communicable diseases (about 80%), such as dental caries and periodontal disease, are related to people's behaviour, which is heavily dependent on the social environment of individuals. The extensive review of Marmot et al. [16] in Europe suggested that inequalities of health are dependent on social environment. WHO adopted a declaration on the social determinants of health at its meeting in Rio de Janeiro [17]. The effect of social determinants can be seen on the prevalence of periodontal disease and caries experience, resulting in clear socio-economic differences in the number of teeth and in edentulous patients.

Evidence of the Effectiveness of Oral Health Education

Oral health education is an important part of POHC. Health education should be conducted at primary care clinics and hospitals, schools and colleges, preschool education and care, local authority services, commercial organizations, workplaces, community-based initiatives, and the residential homes of the elderly. Dental health education has been shown to be quite ineffective

in changing people's behaviour. The current principles of dental health education [18] have been listed as follows: (a) integration – dental health education should be integrated with general health education; (b) diverse educational approaches – as target groups are different; (c) early intervention; (d) emphasis on educational process; (e) community participation; (f) encouragement of self-efficacy; (g) healthier choices – easier choices; (h) dental anxiety as a barrier to success; (i) the importance of educational and behavioural outcomes; (j) appropriate goals – realistic, measurable, positive, important to the person and time-related, and (k) evaluation as a necessary component.

Several models describe the factors related to behavioural change, which are important for understanding the difficulties and barriers to changing behaviour. The KAB-model (knowledge, attitude, behaviour) is the traditional medical model, which is clearly out-of-date, too simplistic and does not work in practice. Knowledge does not necessarily change the attitude and attitude does not necessarily change the behaviour. The locus of control theory [19] was based on the concept of self-efficacy, which can be internal (my life is determined by me) or external (my life is determined by somebody else other than me, e.g. God, others, fate). The salutogenic model was designed by Antonovsky [20] and is based on stress management and on a sense of coherence. The sense of coherence is based on perceived comprehensibility, manageability and meaningfulness. The current health behaviour models, which have been shown to be effective in health education programmes, are based on two-way communication. One of them is the transtheoretical model, which was designed by Prochaska and DiClemente [21] in 1983. It is based on the situation analysis of the following: (a) lifestyle and its determinants by the individual; (b) the individual's attitude and beliefs about oral health care; (c) the individual's health habits and concern about them, and (d) the individual's readiness for change – his or her expectations and goals. Subjects should be evaluated for their readiness to change. The defined stages of this behavioural change process are: (a) precontemplation; (b) contemplation; (c) preparation; (d) action, and (e) maintenance. The instruction strategy options accordingly are: (a) offering knowledge; (b) assessing the need for change and increasing the readiness for change, and (c) discussion and consideration of the change process. Listening to the subjects is required for implementing this behavioural strategy.

Evidence of Benefits of Regular Dental Visits

The traditional belief has been to see a dentist every 6 months. However, the evidence for the effectiveness of frequent dental visits for oral health has been questioned by several studies. The Cochrane Systematic Review of the effectiveness of recall intervals for oral health in primary care patients [22] concluded that there is no evidence from randomized controlled trials of any conclusions on this. Iatrogenic effects of frequent visits have been well demonstrated, because of the high variance in caries diagnostics and treatment planning. Rytömaa et al. [23] conducted a study at the Department of Cariology in Helsinki in which the same 10 students were examined by 12 teachers, and the mean number of teeth considered needing restorations varied drastically – on average 5.0 teeth (the number of teeth ranged from 31 to 72 between the dentists). In another study in the UK, Elderton and Nuttal [24] sent 18 dental students to 15 dentists and reported a considerable variation in the number of filled surfaces planned for replacement, unfilled surfaces planned for restorations, and number of teeth planned for extraction. Only 2 surfaces were agreed by all of these 15 dentists and altogether 184 surfaces (over 50% of all) were suggested to be filled by only 1–2 dentists. Elderton [25] also followed the subjects, who had been examined in the National Oral Health Survey 1 year earlier. Altogether, 1,053 surfaces were filled by the National Health Service, but only 131 of the surfaces were those from the 559 surfaces which could have been expected to be filled based on the diagnosis of dental caries in the survey conducted 1 year earlier. These studies demonstrate the iatrogenic effect of frequent dental visits because of inconsistent diagnoses and treatment decisions.

Essential Oral Health Care

From the POHC point of view, what is to be considered 'essential' oral health care is crucial, especially in developing countries. The main reason to see oral health professionals in developing countries is still dental pain, and the main treatment is extraction to relieve this pain. Essential POHC should be able to provide extractions for people who have pain because of dental infection [26]. The atraumatic restorative treatment (ART) system [27] was developed for POHC, especially for developing countries where rotary dental equipment or electricity were often not available. It is based on the removal of the infected tooth substance and the preparation of the cavity for glass-ionomer restoration only with hand instru-

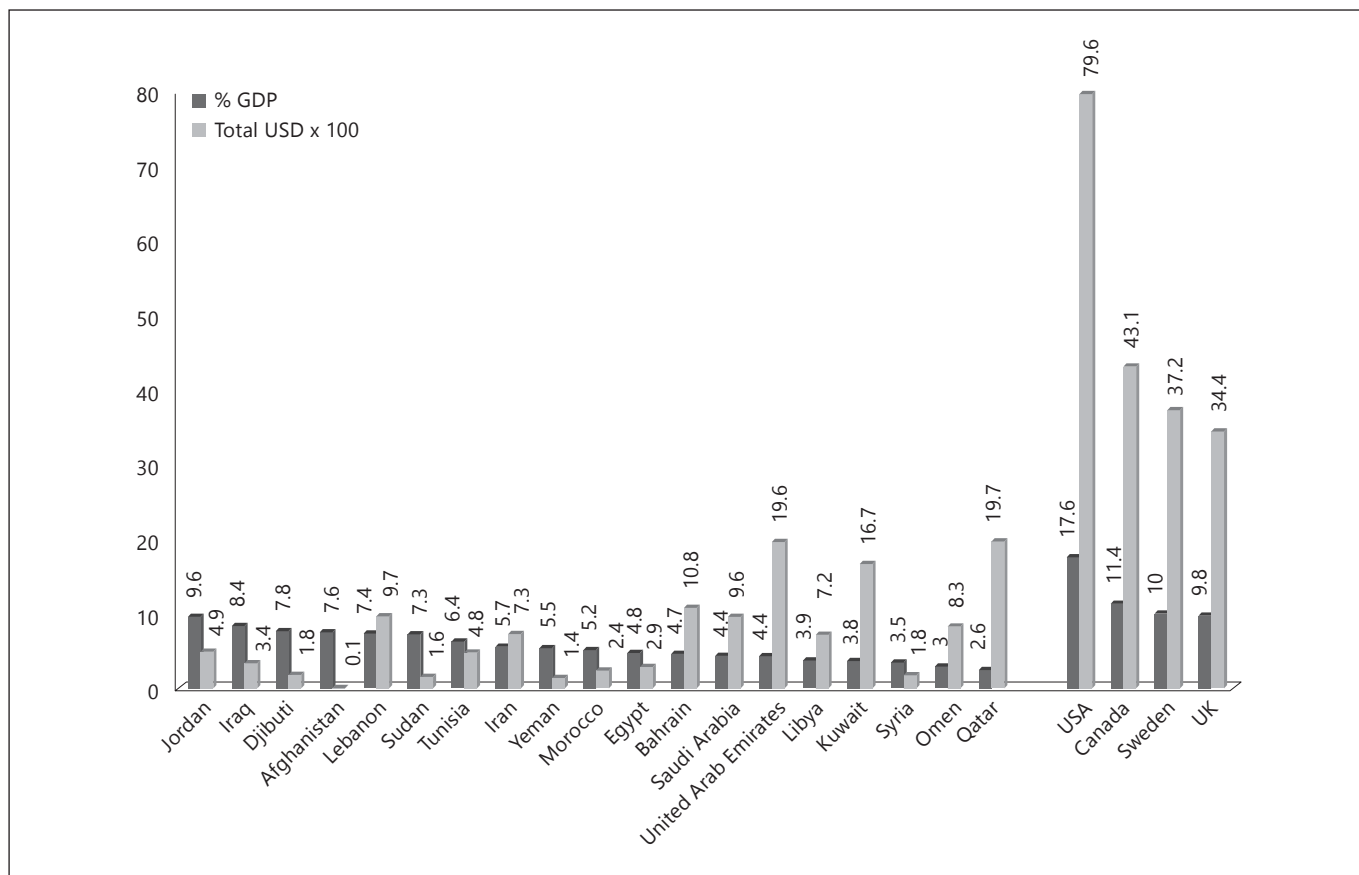


Fig. 2. Health expenditure/person/year (purchasing power parity in USD × 100) and percentage of GDP in 2009 in countries in the EMRO region and in the USA, Canada, Sweden and the UK [34].

ments. Caries lesions in developing countries most commonly have been only on the occlusal surfaces, when sugar consumption was at the lowest level. ART restorations could be considered as POHC treatment, which could prevent the progress of the caries lesions and consequently reduce the need for extractions and loss of teeth. Based on multicentre ART studies [28–31], it seemed to be a practical method for providing restorative treatment in developing countries for primary and permanent teeth as well as for older people who could receive treatment in their homes [29]. ART as a POHC method has also been tested in the Middle-East [32, 33].

Health Policy and Resources for Oral Health Services

The constitution of the State of Kuwait states that the health policy is determined by the state: ‘The state cares for public health and for means of prevention and treat-

ment of diseases and epidemics’. The constitution clearly affirms the responsibility of the state for provision of health care to all sectors of the population, with special emphasis on ‘sensitive groups’. The health plan in Kuwait is part of the overall socio-economic development plan and health policy is based on three principles: (1) maintenance and promotion of the health of individuals; (2) improvement of physical, mental and social well-being, and (3) reduction in morbidity, disability and mortality. The long-term goals are also well defined according to the PHC concept.

The resources available for health care differ very much between countries [34]. In the Eastern Mediterranean region, United Arab Emirates, Qatar and Kuwait are spending considerably more in health care (USD 15,790–17,040 per person per year) than the other countries [34] (fig. 2). If resources are compared as percentage of gross domestic product (GDP), there should be much room for improvement, as there also is in

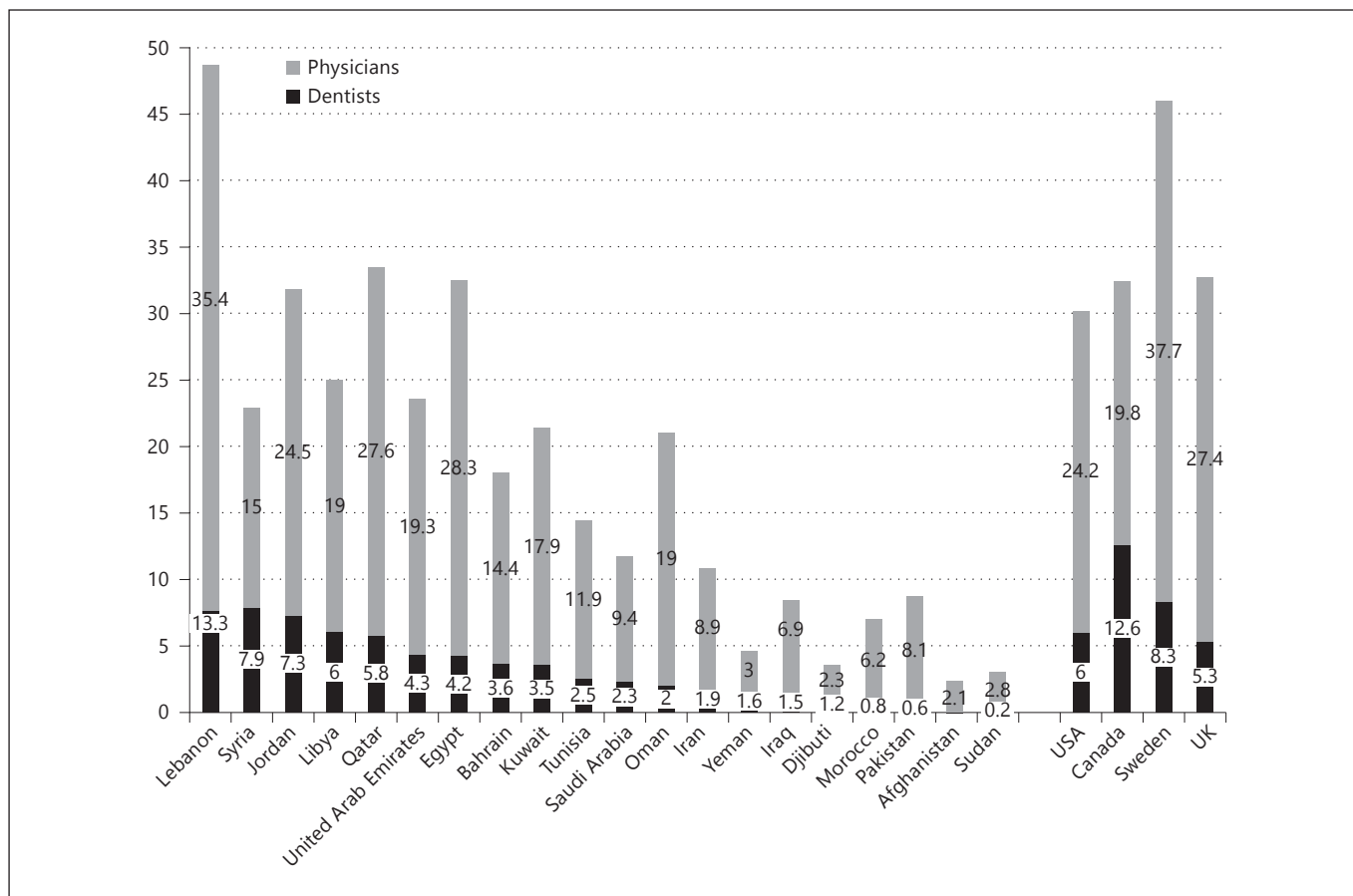


Fig. 3. The numbers of dentists and physicians per 10,000 population in countries in the EMRO region and in the USA, Canada, Sweden and the UK [34].

wealthy countries. Government investment in health care as a percentage of GDP is an important indicator that shows how important health care is considered nationally. However, the highest percentage does not necessarily reflect the quality of the health care system. The health care costs per person per year or as the percentage of the GDP are clearly highest in the world in the USA (fig. 2). The health of the workforce is another indicator of the national emphasis on health care. The number of physicians and dentists per 10,000 population varies much in this region (fig. 3). The highest density of dentists in the EMRO region can be seen in Lebanon, Syria and Jordan, where it is higher than in the USA and the UK. In order to make the POHC care more cost-effective, it is important that there are a sufficient number of professionals, especially dental hygienists or therapists. The numbers of dental hygienists are generally very low in the Middle-East. In Europe,

dental hygienists are more common in the Nordic countries, UK, Spain and the Netherlands than in the rest of Europe [35].

Conclusion

Evidence of the effectiveness of oral health education and regular dental visits is very weak. Despite the lack of a strong correlation, POHC needs to be developed as an integral part of PHC. Consequently, there is a need to increase financial and health care workforce investment in PHC. The POHC approach should facilitate lowering the incidence of dental caries and periodontal disease in the Middle-East.

Disclosure Statement

The author discloses no conflict of interest.

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