Oral health in Kuwait

Jawad M. Behbehani
Safat, Kuwait
Flemming Scheutz
Aarhus, Denmark

This paper reviews oral health in Kuwait, based on all the surveys conducted in the country. In the global perspective, the prevalence of dental caries in Kuwait is high and there is no indication of a decrease, contrary to that observed in most industrialised countries. The periodontal diseases are common, affecting the majority of the population. Oral health promotion needs to be strengthened and a defined strategy should be developed and implemented for the improvement of the quality of life of individuals. Children and disadvantaged groups of the population should be given the priority when focusing on national oral health care efforts.

Key words: Oral health, Kuwait, oral health promotion

The State of Kuwait lies at the northwestern corner of the Arabian Gulf. To the south and southwest, it shares a border with the Kingdom of Saudi Arabia, and to the north and west it shares borders with the Republic of Iraq. The total area of the State of Kuwait is 17,818 square kilometers. Most of Kuwait's mainland is a flat sandy desert, gradually sloping down from the west to reach sea level on the south-west coast of the Gulf. The GDP was an estimated $US36.85 billion in 2002 with a GDP per capita of $US17,500. Kuwait has approximately 10% of world reserves of oil, and petroleum accounts for nearly half of GDP, 95% of export revenues, and 80% of government income. The climate and the soil do not favour agricultural development, thus with the exception of fish, Kuwait depends wholly on food imports, and about 75% of potable water is distilled or imported. Kuwait has a population of 2,184,000 inhabitants with a median age of 25.9 years (Figure 1). The male/female ratio is about 1.8 for people above 15 years because of the presence of 1,292,354 non-Kuwaiti inhabitants, of which a majority are males.

The fertility rate is estimated to be about three children born/woman with a child mortality of 12/1,000 for boys and 10/1,000 for girls. The life expectancy for the total population is about 77 years with the life expectancy among men being a two years less than that of women.
Figure 1. The age distribution of the Kuwaiti and the non-Kuwaiti population.

Dental education

The Faculty of Medicine was established at Kuwait University in 1973 and plans for establishing a dental faculty were initiated in the 1980s. However, the implementation was delayed until 1996 because of The Gulf War. The first intake of students was in 1998 and they are expected to graduate in 2005. The dental curriculum is a 6.5-year programme comprising 1.5 years of pre-professional studies in the Faculty of Science and 2.5 years of pre-clinical courses jointly with the Faculty of Medicine, and ending with 2.5 years of clinical training in the Faculty of Dentistry. Dental subjects are incorporated in the pre-professional and pre-clinical programmes in order to expose the students to dental clinical training early in their studies. The curriculum incorporates current trends in medical and dental education, such as evidence-based and community-oriented approaches, problem-solving methodology and acquisition of clinical competency through comprehensive patient care. Community involvement is emphasised early in the programme and the faculty’s close cooperation with the Ministry of Health (MOH) makes it unique to Kuwait. At present there are a total of 126 dental students (84% females) at Kuwait University. In addition, many Kuwaitis study dentistry abroad; thus 187 (32% females) students are sponsored by the Government of Kuwait and around 150 students are sponsored on a private basis.

Oral health care system

Dental care in Kuwait is delivered by Kuwaiti dentists who received their training abroad, mainly in Egypt, the United States, the United Kingdom and the Republic of Ireland, as well as by several non-Kuwaiti dentists working in Kuwait. The number of dental personnel is shown in Table 1 and the distribution according specialty and sector in Table 2. There has been a steady increase in dentists, from around 200 at the beginning of the 1980s to more than 700 today. This increase in dental manpower was only delayed for a couple of years during The Gulf War. The dentist/population ratio is at present 1:2,867 whereas the physician/population ratio is about 1:700, however, the shortage of dentists is expected to be redressed in future as a result of the many Kuwaitis undergoing training in Kuwait and abroad.

Dental diseases

A large national household health survey (n=26,530) was conducted in Kuwait in 1985. The survey included oral health examinations and interviews, but unfortunately
Dental caries among children and adolescents

In a review in 2002 Al-Mutawa et al. looked at dental caries among children based on the information available from the surveys carried out in 1982, 1985, 1993 and 1994. Figures 2 and 3 show the differences between the surveys in the percentage of caries free children and in the mean dmft in the primary dentition, but it is, however, difficult to conclude with any certainty that there is a clear trend towards fewer caries free children over time. The differences among the age cohorts may be due to spurious variation or because we are dealing with cross-sectional studies on different samples carried out by the different research teams at different times. The caries experience in the permanent dentition expressed as the mean DMFT in the same surveys is presented in Figure 4. The figure may give the impression of an increase in caries, but as far back as 1985, Nuttall et al. eloquently showed how poor the inter-dentist agreement really is in the caries-prevalence studies. In addition, as we have only scarce information about the distribution of caries data, any conclusions about trends in caries in the primary and in the permanent dentition among children and adolescents during the last twenty years in Kuwait are subjected to bias and are thus very uncertain. There may be more caries in the comparable age groups over the years 1982, 1985, 1993 and 2000, but we cannot be sure. Irrespective of whether caries has been increasing or remained stable in recent years the amount of caries emphasises the need for preventive measures. The need for health promotion and prevention is also confirmed in a few behavioural studies and in the studies on early childhood caries, although these were carried out on selected, non-random groups of children. It has also recently been shown in a randomly sampled group of 2,041 children that the consumption of sweets and intake of soft drinks is frequent and common in Kuwait, further emphasising the need for community oriented preventive programmes targeting the main efforts on the youngest age groups.

Table 1 Dental personnel in Kuwait

<table>
<thead>
<tr>
<th>Specialty or sector</th>
<th>Kuwaiti</th>
<th>Non-Kuwaiti</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOH dentists*</td>
<td>254</td>
<td>491</td>
<td>745</td>
</tr>
<tr>
<td>Private practitioners</td>
<td>47 **</td>
<td>121</td>
<td>168</td>
</tr>
<tr>
<td>Laboratory technicians</td>
<td>21</td>
<td>100</td>
<td>121</td>
</tr>
<tr>
<td>Dental nurses</td>
<td>258</td>
<td>517</td>
<td>775</td>
</tr>
<tr>
<td>Oral hygienists</td>
<td>64</td>
<td>17</td>
<td>81</td>
</tr>
<tr>
<td>X-ray technicians</td>
<td>21</td>
<td>64</td>
<td>85</td>
</tr>
<tr>
<td>CSSD technicians</td>
<td>39</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>Maintenance technicians</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
</tbody>
</table>

* 128 in preventive programmes
** 6 MOH consultants work part-time

Table 2 Distribution of the dentists according to specialty and sector

<table>
<thead>
<tr>
<th>Specialty or sector</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialists</td>
<td>194</td>
<td>26.0</td>
</tr>
<tr>
<td>General practitioners</td>
<td>295</td>
<td>39.6</td>
</tr>
<tr>
<td>Preventive programmes</td>
<td>169</td>
<td>22.7</td>
</tr>
<tr>
<td>Postgraduate training or internship</td>
<td>87</td>
<td>11.7</td>
</tr>
</tbody>
</table>

Dental caries among adults

Information about oral health in the adult population comes from the national health survey carried out before The Gulf War by the Ministry of Public Health. This household survey covered the total population of Kuwait in a stratified, random sample of both Kuwaitis and the non-Kuwaiti residents. The distribution of DMFT and its components are shown in Figure 5. Dental caries experience was higher in the older age cohort and the main treatment received was extraction. This corroborates with the finding that the main reason for those visiting a dentist was toothache. Dental status is alarmingly poor in the older age groups and there is a large unmet treatment need in the adult population, including prosthetic treatment (Figure 6). It is, however, not possible to see the distribution according to citizenship, and the need for the prosthetic treatment may be more frequent among the temporary residents than among the Kuwaitis. In this survey there was an association between education and oral hygiene habits; the higher the education the more commonly the teeth were brushed. Although the information on dental caries is quite old there is no reason to believe that the situation has changed much as we are dealing with a chronic disease and the consequences thereof.

Periodontal diseases

The CPITN index was used to record periodontal conditions in the 1985 survey. Most epidemiologically oriented periodontists question the usefulness of the...
CPITN index for epidemiological studies as many limitations are associated with it. It is an index based on a hierarchical concept of progression of periodontal disease, which today is known to be incorrect, and it therefore usually leads to an overestimation of treatment needs. The mean number of sextants with gingivitis and pocket formation greater than 3mm is shown in Figure 7. The large mean number of sextants with severe gingivitis is in accordance with the observation that oral cleanliness seems to be rather poor among the Kuwaiti as well as among the non-Kuwaiti population. The mean number of sextants with pocket formation was greater in the older age groups than in the younger ones. The reduction in the mean number of sextants with the pocket formation as well as severe gingivitis among the oldest age groups is a reflection of the considerable tooth loss in these age groups.
Figure 4. The mean DMFT index according to age groups in the different surveys\textsuperscript{9-12}.

Figure 5. The mean DT-, MT-, FT- and DMFT indices according to age groups\textsuperscript{8}. 
Traumatic injuries

Maxillofacial trauma among children is reported to be two times greater than in the other countries\(^2\). Modernisation in the early 1970s led to an increase in maxillofacial injuries and the Government had to establish an maxillofacial trauma unit. Most cases occur among those individuals less than 30 years with a peak among the 15-to-19-year-olds. The main causes of these injuries are road traffic accidents and falls in and around the home, with nearly two-thirds of the cases occurring in males. As the roads in Kuwait are considered among the best in the world and most cars are new and often very powerful, the majority of road traffic accidents can be ascribed as a combination of a poor traffic culture, including the lack of enforcement of existing
Figure 8. The distribution of head and neck cancers in Kuwait.

laws, and low use of seat belts. There is no mandatory use of safety seat belts among children and too little information about the consequences of not wearing a seat belt when an accident occurs. The present toll in death, injuries and frequent subsequent disability is unacceptable for a modern society and should be addressed by all means available.

**Oral cancer**

Few papers have been published on head and neck cancers in Kuwait although they are common, with the nasopharynx as the most prominent site. Morris et al. carried out a computer search for all cancers of the lip, oral cavity and pharynx from 1979 to 1988 at the Kuwait Cancer Registry. They found that 784 cases had occurred at these sites during this period out of a total of 10,539 cancers. The relative distribution of the cancers of the lip, oral cavity and pharynx is shown in Figure 8. Seventy-five per cent of patients were not native Kuwaitis, but 83.5% were Arabs and only 14.9% were Asians. As cancers of the lip, oral cavity and pharynx are very common in some Asian countries it would have been interesting to see if a major percentage of the cancers occurred in the Asian population, as well as the distribution according to the ethnicity. The authors speculate on a relative increase in salivary gland tumours among men as well as among women during the period. It is, however, impossible to compute such estimates with any validity in Kuwait where more than half the population are non-Kuwaiti having residency in Kuwait for a long or short period, unless the estimates are linked to the individuals. Nevertheless, the number of salivary gland cancers as a percentage of all cancers of the lip, oral cavity and pharynx in Kuwait indicate the need for risk assessment studies on this type of cancer.

**Conclusions**

The information presently available about oral health in Kuwait can be compared with the goals set by the year 2000 by WHO and FDI in 1981. Clearly, too many 5–6-years-olds have caries whereas the mean DMFT among 12-year-olds is around or higher than the set goal of 3. No exact information is available on the percentage of 18-year-olds with a full dentition. Neither is it possible to comment on the trend of edentulousness among the 35–44-year-olds and those aged 65+ as no information exists. In fact, no goals for oral health in Kuwait have been clearly formulated and the oral health care services are very much treatment demand oriented with limited manpower for prevention and recalls, even for children. Although oral health services are accessible and available for everyone the preventive services only cover certain specific groups and a few age groups. There are also some inequalities in the oral service system.

Priorities for the oral health care system in Kuwait need to be formulated with preventive services given high priority and restorative treatment given low priority while not all age groups are covered by preventive programmes. Health promotion activities should be implemented and healthy life styles emphasised. Pregnant women and mothers of small children should be targeted by oral health education and restrictions on sugar products and soft drinks at schools implemented.

Endorsement of compliance with traffic laws and public campaigns are especially needed in order to reduce the number of the dental and maxillofacial injuries from road traffic accidents. Taxation of cigarettes as well as promotion of no smoking has already been initiated by the Ministry of Health.

Finally, an appropriate and sustainable oral health monitoring system needs to be established to assist in the most cost-effective use of the dental resources and in the choice of the best methods for achieving good oral health.

**Acknowledgement**

We are grateful for Dr. Eino Honkala for collecting the reference material for this paper.
References