



2012-2013 Research Synopses

Public Health and Healthy Ageing

The **Public Health and Healthy Ageing Research Group** of the HKU Faculty of Dentistry is committed to protecting and improving oral health for all people by performing and synthesising clinical, community-level, and educational research, and by applying public health sciences. Below is a selection of summaries of research findings published by the Public Health and Healthy Ageing Research Group, with online links to abstracts or full papers in *Medline*.

Dr May CM Wong, mcmwong@hkucc.hku.hk, is the convenor of the Public Health and Healthy Ageing Research Group at the HKU Faculty of Dentistry. A list of the group's members can be found at: <http://facdent.hku.hk/index.php/discovery/research-groups/public-health-healthy-ageing>

Chu CH, Ho PL, Lo ECM.

Oral health status and behaviours of preschool children in Hong Kong.

BMC Public Health 2012;12:767. <http://www.ncbi.nlm.nih.gov/pubmed/22966820>

■ These researchers detected signs of tooth decay in nearly half (49%) of 700 children aged 4 to 6 years from 7 randomly selected kindergartens in Hong Kong. On average, each child had 2.2 affected teeth, of which more than 95%, or 2.1, had untreated cavities. Noting that dental health was linked to snacking frequency, dental visits, parents' oral health knowledge, and family income, the researchers recommend that oral health promotion in kindergartens should involve children, parents, and teachers.

Gao XL, Wu ID, Lo ECM, Chu CH, Hsu CYS, Wong MCM.

Validity of caries risk assessment programmes in preschool children.

J Dent 2013;41:787-95. <http://www.ncbi.nlm.nih.gov/pubmed/23791698>

■ This study tested the validity of four risk assessments in predicting the development of dental decay (caries) during early childhood, by using data from oral examinations and biological tests performed on 544 kindergarten children aged 3 years and parents' questionnaire replies. Re-examinations of the children 1 year later showed that the two numerical computer-based systems—"National University of Singapore Caries Risk Assessment" (NUS-CRA) and "Cariogram"—gave better predictions than the two non-numerical manual checklist systems—"Caries-Risk Assessment Tool" and "Caries Management by Risk Assessment". Overall, NUS-CRA gave the best predictions and could thus be useful in identifying Hong Kong children prone to dental decay.

Liu B, Lo ECM, Chu CH, Lin HC.

Randomized trial on fluorides and sealants for fissure caries prevention.

J Dent Res 2012;91:753-8. <http://www.ncbi.nlm.nih.gov/pubmed/22736448>

■ Primary school children in Guangzhou were randomly assigned to receive one of three topical treatments, or a placebo, to prevent dental decay in the deep grooves (pit or fissure caries) in permanent molars. The check-up at 2 years in 485 children showed that one application of resin sealant, application of 5% sodium fluoride varnish every 6 months, and application of 38% silver diamine fluoride solution every year were each effective: proportions of treated sites with pit or fissure caries were 1.6%, 2.4%, and 2.2%, respectively, versus 4.6% for the placebo-treated teeth.

Wong MCM, Lu HX, Lo ECM.

Caries increment over 2 years in preschool children: a life course approach.

Int J Paediatr Dent 2012;22:77-84. <http://www.ncbi.nlm.nih.gov/pubmed/21771124>

■ Dental assessments of 358 kindergarten children at age 3 to 4 years and again at age 5 to 6 years revealed that the average increase in the number of decayed teeth was low, at 0.9. Risk factors for new cases of decay were bedtime bottle-feeding when younger, starting toothbrushing after 1 year of age, snacking once or more a day, and having parents with 9 or fewer years of education.

King NM, Wong WL, Wong HM.

Caries experience of Chinese children with cleft lip and palate.

Cleft Palate Craniofac J 2013;50:484-55. <http://www.ncbi.nlm.nih.gov/pubmed/22376053>

■ These researchers compared primary teeth of Chinese children with cleft lip and palate (CLP) with those of children from randomly selected kindergartens and primary schools who did not have CLP and who were matched by sex, age, ethnicity, and socioeconomic status. The 71 children aged 2 to 4 years in each group had similar tooth decay levels: in the CLP group, 46.5% of children had tooth decay and the average number of affected teeth was 1.5; in the non-CLP group these figures were 40.8% and 1.6. However, the 61 children aged 5 to 7 years with CLP had higher tooth decay levels than those without CLP: 83.6% of children and 5.2 affected teeth versus 50.8% and 2.9. Hence, for children with CLP, “continuous observation and preventive care...are important”.

Wong HM, Bridges SM, Yiu CKY, McGrath CPJ, Au TKF, Parthasarathy DS.

Development and validation of Hong Kong rapid estimate of adult literacy in dentistry (HKREALD-30).

J Investig Clin Dent 2012;3:118-27. <http://www.ncbi.nlm.nih.gov/pubmed/22319026>

■ Noting that oral health literacy may be important in oral health, these researchers interviewed 200 parents of children attending dental visits and developed a 30-word-recognition test in Chinese called the Hong Kong Rapid Estimate of Adult Literacy in Dentistry (HKREALD-30). The test showed good

correlation of scores with those in the Test of Functional Health Literacy in Dentistry (convergent validity) and gave similar scores when the test was later repeated (test-retest reliability and internal consistency). The researchers conclude that HKREALD-30 “is a valid and reliable instrument for the basic screening of oral health literacy among Chinese people in Hong Kong”.

Lu HX, Wong MCM, Lo ECM, McGrath CPJ.

Risk indicators of oral health status among young adults aged 18 years analyzed by negative binomial regression.

BMC Oral Health 2013;13:40. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3765426>

■ Clinical examinations that were performed on 324 Hong Kong adults aged 18 years revealed that although 59% had signs of tooth decay, the average number of affected teeth was only 1.4. However, only 6 (2%) adults had completely healthy gums and most (93.5%) had calculus (hardened plaque). Oral health status was associated with toothbrushing frequency, oral health knowledge, and dental visit behaviour. The researchers recommend that young adults need reminding to perform proper tooth cleaning to remove plaque, since it is a major factor in the development of gum inflammation.

Lam OLT, McGrath CPJ, Li LSW, Samaranayake LP.

Effectiveness of oral hygiene interventions against oral and oropharyngeal reservoirs of aerobic and facultatively anaerobic gram-negative bacilli.

Am J Infect Control 2012;40:175-82. <http://www.ncbi.nlm.nih.gov/pubmed/21719150>

■ This literature review assessed the effectiveness of oral hygiene interventions for reducing the numbers of certain bacteria (aerobic and facultatively anaerobic gram-negative bacilli) in the mouth and throat of medically compromised patients. The reviewers found only a small number of relevant studies and conclude that “there is a pressing need for additional high-quality randomized controlled trials” of single and combined interventions.

Lam OLT, McMillan AS, Samaranayake LP, Li LS, McGrath CPJ.

Randomized clinical trial of oral health promotion interventions among patients following stroke.

Arch Phys Med Rehabil 2013;94:435-43. <http://www.ncbi.nlm.nih.gov/pubmed/23127306>

■ This clinical trial evaluated the oral health of patients with stroke before and after being randomly assigned to use one of three oral hygiene methods for 3 weeks. All 102 patients received oral hygiene instructions and an electric toothbrush with toothpaste. Compared with the group that received no further help, the groups that used 0.2% chlorhexidine mouthrinse with or without brushing assistance showed reduced levels of dental plaque and gum bleeding. These short-term findings suggest that use of chlorhexidine and an electric toothbrush could help protect oral health during stroke recovery.

Lee AHC, Cheung GSP, Wong MCM.

Long-term outcome of primary non-surgical root canal treatment.

Clin Oral Investig 2012;16:1607-17. <http://www.ncbi.nlm.nih.gov/pubmed/22205268>

■ According to this follow-up study of 889 teeth that had undergone first-time root canal treatment, healing around the root tip (periapical healing) and the survival of the affected tooth were estimated to last for mid-point durations for 119 and 252 months, respectively. Factors linked to both periapical healing and tooth survival were age, tooth type, original root status, bite (occlusion), type of final restoration, and quality of the junction between tooth and restoration. The researchers note that a tooth may “function for a considerable period” despite X-ray signs of incomplete periapical healing.

Liu P, McGrath CPJ, Cheung GSP.

Quality of life and psychological well-being among endodontic patients: a case-control study.

Aust Dent J 2012;57:493-7. <http://www.ncbi.nlm.nih.gov/pubmed/23186576>

■ Using two standard questionnaires, these researchers found that quality of life and psychological well-being among 100 adults needing root canal treatment were significantly different from those among 100 age- and sex-matched adults needing routine care to maintain gum health. The researchers conclude that quality of life and psychological well-being are compromised in endodontic patients, and that further studies could clarify “key endodontic factors” and the effects of treatment.

Lee KL, Corbet EF, Leung WK.

Survival of molar teeth after resective periodontal therapy: a retrospective study.

J Clin Periodontol 2012;39:850-60. <http://www.ncbi.nlm.nih.gov/pubmed/22780229>

■ These researchers reviewed the clinical records of 149 patients who had undergone partial- or full-root resection (amputation) to save one molar. More than half (59.7%) of the affected teeth had been extracted about 10 years after the operation, and the mid-point duration of tooth survival was about 6 years (74 months). Survival was promoted by protecting the tooth’s crown (coronal coverage restorations) or by splinting the tooth to neighbouring teeth after surgery.

Wong RMS, Ng SKS, Corbet EF, Leung WK.

Non-surgical periodontal therapy improves oral health-related quality of life.

J Clin Periodontol 2012;39:53-61. <http://www.ncbi.nlm.nih.gov/pubmed/22092418>

■ In this longitudinal study of 65 Chinese patients with moderate-to-advanced chronic periodontitis (a type of long-term gum disease), oral hygiene instructions and non-surgical therapy were given for 4 weeks and then oral hygiene instructions and rubber-cup tooth-polishing were repeated at 1, 3, 6, 9, and 12 months, as maintenance therapy. The patients showed improvements not only in clinical outcomes (such as reduced plaque and gum bleeding during

probing), but also in quality of life related to oral health, especially in the aspects of physical pain, psychological discomfort, and psychological disability. The researchers suggest that dentists could “capitalize” on the positive psychological impact of non-surgical therapy for “patient-centred motivation during maintenance therapy”.

Pow EHN, Kwong DLW, Sham JST, Lee VHF, Ng CY.

Can intensity-modulated radiotherapy preserve oral health-related quality of life of nasopharyngeal carcinoma patients?

Int J Radiat Oncol Biol Phys 2012;83:e213-21. <http://www.ncbi.nlm.nih.gov/pubmed/22386514>

■ This 2-year study followed 57 patients with early-stage cancer of the throat in the area behind the nose (nasopharyngeal carcinoma) after they received a type of high-precision radiation therapy (intensity-modulated radiotherapy) as their only treatment. All patients showed full recovery in the flow of saliva from the main pair of salivary glands (parotid glands) after 1 year. They also showed partial recovery in overall saliva flow, to 40% of the level before treatment. Although quality of life related to oral health declined after treatment, it gradually recovered after 6 months. However, some symptoms remained 2 years after treatment.

Wan KY, McMillan AS, Wong MCM.

Orofacial pain symptoms and associated disability and psychosocial impact in community-dwelling and institutionalized elderly in Hong Kong.

Community Dent Health 2012;29:110-6. <http://www.ncbi.nlm.nih.gov/pubmed/22482261>

■ Among 400 adults aged 60 years and older, reported pain in the mouth or face was associated with disability, psychological distress, and reduced quality of life. The 200 institutionalised adults (residents of old-age homes) reported higher levels of psychological distress and disability than did the 200 community-dwelling adults (attendees of social centres). From the findings of this cross-sectional study, the researchers suggest that elderly people need better “access to professional care and health-related outreach services”.