

today



ISDH International Symposium on Dental Hygiene • Seoul • 11-13 July 2024



interview

Dr JoAnn Gurenlian (American Dental Hygienists' Association) outlines the transformative role of dental hygienists in both oral and general health.

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interview

Prof. Nam-Hee Kim of the Department of Dental Hygiene at Yonsei University in South Korea explores the application of behavioural economics to dental hygiene.

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clinical

A comprehensive treatment plan using antibiotics to improve severe periodontitis, highlighting the significance of microbial testing and antibiotic resistance.

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ISDH puts dental hygienists at the centre of oral health

2024 symposium gathers dental hygiene experts from across the globe in Seoul.



Impressions from past symposia. (All images © ISDH)

■ This year, the 2024 International Symposium on Dental Hygiene (ISDH) has brought dental professionals specialising in dental hygiene from around the world to Seoul. Organised by the International Federation of Dental Hygienists (IFDH) now held every two years, this symposium serves as a crucial platform for dental professionals to discuss the latest research, practices and global perspectives in dental hygiene and provides a premier forum for the understanding and discussion of issues pertaining to the field.



Since its inception in Oslo in Norway, in 1986, ISDH has grown in prominence. The 2019 symposium in Brisbane in Australia attracted about 1,200 participants from more than 35 countries.

In 2022, almost 800 participants from 40 countries attended the event in Dublin in Ireland—at which the 35th anniversary of the IFDH in 2021 was celebrated.

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Welcome from the president



▲ Wanda Fedora, President of the International Federation of Dental Hygienists.

of Kyung-Hee Kang, has been diligent in creating a programme that meets our expectations. The team has invested many hours reviewing and studying possible presentations to provide a symposium that addresses us as dental hygienists—pivotal figures in oral health. A huge thank you—or *gamsahabnida* as they say here. I hope you have learned a few phrases that may help smooth your exploration of this remarkable city.

Dear colleagues,

On behalf of the board of directors and staff of the International Federation of Dental Hygienists, I am thrilled to welcome you to the 2024 International Symposium on Dental Hygiene, here in beautiful Seoul. South Korea is both a country of rich cultural traditions steeped in history as well as a leading force in electronics and the digital era, so your visit will certainly be one to remember! The local culture offers quite the experience, especially the cuisine, having dishes to please every palate. The country is also known for its blooms—keep an eye out for the flowers! There will be an intricately designed and colourful displays throughout the venue.

I would like to thank the chairperson of our local organising committee, Jeong-Ran Park, and her committee for their hard work and commitment over the past two years. The Korean Dental Hygienists Association's attention to detail will ensure a seamless conference that will satisfy all of your professional interests. It has been a delight to work with the committee.

The symposium's scientific committee, under the leadership

The conference will feature a number of special events, such as the fourth Global Oral Health Summit, the presentation of the World Dental Hygienist Awards and of the inaugural IFDH Innovation Awards, the always inspiring IFDH Social Responsibility Award ceremony and presentations, an education seminar and an *International Journal of Dental Hygiene* session. This is in addition to the 18 invited speakers and over 80 presenters who will be giving lectures over the three days of the conference.

This weekend promises to be very rewarding. You are going to meet dental hygienists from many different parts of the world, offering the opportunity to engage with your fellow colleagues and find out about the profession in their area. Our hope is that you will return home with many memories and already looking forward to the next International Symposium on Dental Hygiene.

But for now, welcome to Seoul! We hope you will enjoy its amazing culture and charm. ◀

Sincerely,

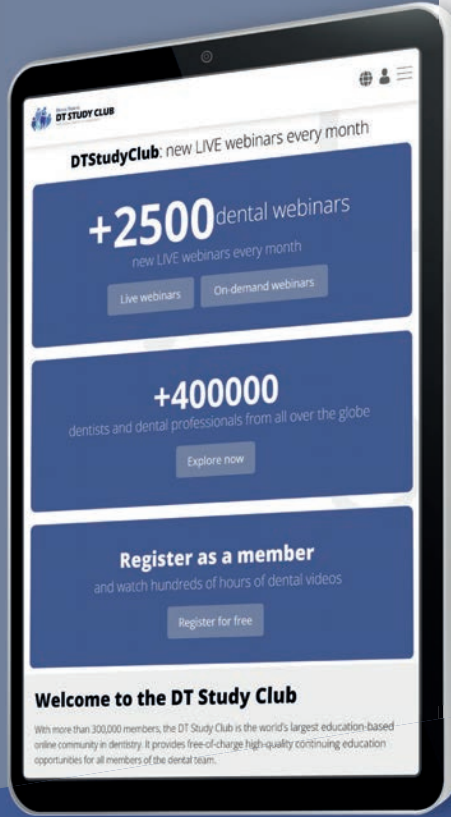
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President of the International Federation of Dental Hygienists



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news



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The 2024 edition, hosted in partnership with the Korean Dental Hygienists Association, marks the 14th symposium. The organising committee has worked tirelessly to ensure a warm welcome for the dental hygienists expected from over 30 countries who will be participating in the three days of intensive academic sessions at the COEX conference and exhibition centre.

According to the IFDH, this year's call for abstracts was met with enthusiasm, yielding over 250 submissions. Eighteen distinguished speakers from seven countries were invited, and the symposium features two plenary lectures. The first plenary speaker, Dr JoAnn Gurenlian, the director of education, research and advocacy for the American Dental Hygienists' Association, will outline the transformative role of dental hygienists in both oral and general health, positioning them as key collaborators with patients and other healthcare professionals to foster preventive care and integrate oral health into broader healthcare. Her presentation will highlight the importance of leveraging the latest research, technology and innovative approaches to empower dental hygienists, advocating for inclusivity and equality in providing comprehensive oral health services to all individuals. *[Read the full interview on page 4]*

In her plenary address, Prof. Nam-Hee Kim of the Department of Dental Hygiene at Yonsei University in South Korea will explore the application of behavioural economics to dental hygiene, aiming to redesign oral health interventions to encourage long-term behaviour change. Her lecture will focus on understanding why people often fail to maintain healthy behaviours and how dental hygienists can use insights from behavioural economics to develop effective, sustainable interventions that bridge the gap between knowledge and action in oral health. *[Read the full interview on page 5]*

ISDH 2024 focuses on four central themes: collaboration, optimisation, reimagination and equality (CORE). The event will cover topics related to collaboration and communication with patients, colleagues and other professionals in fulfilling the dental hygienist's role in improving public oral health. Additionally, discussions will address how dental hygienists can achieve optimal job performance by enhancing their capabilities. It will also explore innovation and new technologies in dental hygiene, including research, education and clinical aspects. Finally, the conference will highlight special treatments, oral health services and public oral health policies needed for vulnerable populations such as infants, children, the elderly, pregnant women and individuals with disabilities and special needs.

Beyond the scientific programme, a diverse social agenda provides ample opportunities for networking, such as the welcome reception on Thursday night and the gala dinner on Friday night.

For more details about the programme and speakers, please visit www.isdh2024.com.

The next ISDH will take place in Milan in Italy from 9 to 11 July 2026. ◀



today about the publisher

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“We recognise that our societies are changing, and we ask how we can adapt to meet the evolving needs of our communities”

Dr JoAnn Gurenlian advocates for a more inclusive and diverse dental industry.
Fraser Macdonald, Dental Tribune International



Dr JoAnn Gurenlian is the director of education, research and advocacy at the American Dental Hygienists' Association.

■ ISDH 2024 kicks off on Thursday afternoon with a plenary session by Dr JoAnn Gurenlian, the director of education, research and advocacy for the American Dental Hygienists' Association. Dr Gurenlian's presentation promises to shed light upon the repositioning of the dental industry within a society that increasingly demands a critical understanding of socio-economic inequality and cultural diversity.

A key part of your presentation will concern the creative rethinking of dental hygiene to drive positive change in the profession. In what ways do you see this innovation unfolding, and what practical changes do you envision?

Rethinking dental hygiene requires a shift in the mindset of all dental hygienists. We must move away from the silos we find ourselves in and the limited perspectives of those who endeavour to control the profession. We are long past the point where another profession even needs to control the dental hygiene profession. It is important for dental hygienists to recognise their relevance as preventive oral health professionals who can function in a variety of settings with many other healthcare providers. This change in philosophy begins with dental hygiene education programmes teaching students to be autonomous and accountable. It begins with dental hygienists envisioning themselves beyond the four walls of a dental operatory and creating their own facilities, their own environments of care. The practical elements of this are accepting responsibility as a licensed healthcare provider and not burdening other professions with that role, as well as collaborating with other providers and stakeholders to create opportunities to increase access to care and provide oral healthcare following the standards of the dental hygiene profession.

Your presentation will also engage with the highly significant issues of inclusivity and accessibility in dental hygiene settings. What current challenges exist in this regard, and what do you see as the best way forwards



“Rethinking dental hygiene requires a shift in the mindset of all dental hygienists.”

to achieve parity for diverse patient groups?

When I speak with dental hygienists, they pride themselves on the manner in which they care for their patients—and they do care greatly. They are passionate about their service to humanity. However, we do know that some are better than others and that there is tremendous need to ensure that equity and access are achieved. How do we do that? We open our eyes. We see what is occurring in our communities and in the

world. We strive to take a world view instead of a private-practice view of the needs before us. We recognise that our societies are changing, and we ask how we can adapt to meet the evolving needs of our communities. Offering language applications and flexible appointment schedules is a good first step. Additional steps might include examining the social determinants of health for those we serve and those within our community that we have yet to meet, developing hygiene clinics separately or as part

of other wellness centres within areas of need, partnering with dental therapists and other caregivers, and working with other stakeholders to lay the foundation for change, all of which will look different for each community. Hygienists must be the leaders in creating change in this area and legislate for recognition that equity is essential and possible.

A vital aspect of your paper is that knowledge is power, particularly as regards the ability of dental hygienists

to deliver the best possible care through staying abreast of the latest research and innovations. How do you see greater access to knowledge and technology resulting in better patient outcomes?

First, I have to say, I can't imagine living in a world of science and not having the benefit of discovery. Dental hygiene is a science. We want to help our patients prevent, not just manage, their oral health conditions. How can we do that if we stay the same and don't use the benefits of knowledge and technology? Gone are the days when we provide a prophylaxis and tell patients to brush and floss at home. We know so much more than that former approach to patient care. When a patient sits in our chair, we are using science and technology to determine whether it is safe to treat that patient, whether the patient needs care coordinated with other health specialists and whether the patient is at risk of other diseases because of his or her oral health status, and we can determine what preventive and therapeutic options will work best for that patient to return to health.

Thanks to technology, we can make the patient experience better and the patient's home care experience more productive, efficient and effective. Thanks to research and technology, we can personalise oral healthcare, instead of mechanising it. If a patient is at risk of oral cancer, we can provide education and solutions such as a recommendation for a human papillomavirus vaccine. If a patient is undergoing cancer treatment, we can offer recommendations for managing mucositis, xerostomia, caries, etc. If a patient is smoking or vaping, we can provide counselling techniques and tips to work towards smoking cessation. If a patient has gingivitis, we can help reverse that process, thereby preventing the patient from getting periodontitis. If a patient does not want to floss—and most people don't like flossing—we have many other options for interproximal biofilm management thanks to research and technology. Knowledge, whether it is based on technology or otherwise, helps us advance our care approach and give our patients the best possible opportunities for attaining and maintaining oral health. ◀

Session details

Title
Revolutionising dental hygiene: A central focus for oral and general health

Date and time
11 July 13:30–14:30

Room
Auditorium

The hidden factors behind oral health behaviours

An interview with Prof. Nam-Hee Kim.
Fraser Macdonald, Dental Tribune International

■ The final day of ISDH starts with a fascinating plenary session featuring Prof. Nam-Hee Kim of the Department of Dental Hygiene at Yonsei University in South Korea. Based on her research interests in the social, economic and political factors underlying oral health outcomes, Prof. Kim's talk will elaborate upon several specific clinical and public health strategies that can help mitigate a range of entrenched patient habits.

Your current research explores the intersection of behavioural economics and public oral health. What is the significance of this connection, and what outcomes can research in this area yield for patients and public health in general?

Behavioural economics in the context of oral health provides valuable insights into how individuals make health-related decisions. By understanding the cognitive biases and decision-making processes that influence behaviours, we can design interventions and public health policies that are more



Prof. Nam-Hee Kim, Department of Dental Hygiene at Yonsei University in South Korea.

effective. This research can lead to improved patient outcomes by encouraging preventive behaviours and better adherence to dental care recommendations, ultimately reducing the incidence of oral disease and promoting overall public health.

According to your current understanding, what are some of the psychosocial and behavioural factors that prevent people from maintaining healthy dental care practices, and how might these be redressed?

Several psychosocial and behavioural factors hinder individuals from maintaining healthy dental care practices. One significant factor is explained by the dual process theory, according to which people have two systems of thinking: System 1, which is fast, impulsive and emotional; and System 2, which is slow, deliberative and logical. Often, immediate desires and comfort drive System 1, leading to decisions like skipping brushing owing to tiredness, despite knowing the long-term benefits of oral hygiene. Present-

biased preferences also play a role, immediate rewards being favoured over long-term benefits, making it difficult for individuals to maintain healthy practices consistently. For instance, people may choose to indulge in sugary snacks now, even though

they know it will harm their oral health in the future. Additionally, emotional states and commercial advertising may compound these biases, making unhealthy choices more appealing. To address these issues, we can implement strategies like simplifying health messages, using emotional and visual appeals in our communication and creating supportive environments that make healthy choices more convenient and attractive.

Your paper sheds light on what you call the gap between knowledge and action in oral health. What is the nature of this gap, and how might it be closed?

The gap between knowledge and action in oral health refers to the discrepancy between what people know about maintaining good oral health and their actual behaviours. This gap exists because, even though individuals may understand the importance of oral hygiene practices like brushing, flossing and regular dental visits, they often fail to act accordingly owing to their cognitive biases and emotional factors. For example, people may intend to maintain good oral hygiene (System 2 thinking), but when they are tired or stressed, they may

opt for immediate comfort, such as going to bed without brushing their teeth (System 1 thinking).

To close this gap, we need to redesign interventions to make healthy behaviours easier and more automatic. This can be achieved by using behavioural cues to create habits, by making healthy choices the default option, by leveraging social norms to influence behaviour and by employing frameworks like CAN (convenient, attractive, normative). By integrating these strategies, we can help individuals consistently follow through with healthy oral practices and achieve better health outcomes. ◀

Session details

Title
A behavioural economic approach to dental hygiene: Redesigning oral health interventions

Date and time
13 July 9:00–10:00

Room
Auditorium

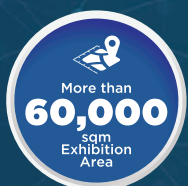
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Special programme highlights

Global summit, awards and social responsibility at ISDH 2024.

■ ISDH 2024 promises to be an event of immense importance and innovation, presenting a rich scientific programme complemented by a special programme. Offering global discussions on oral health, celebrating excellence in dental hygiene and emphasising social responsibility, this year's special programme is designed to inspire and educate. Read on for the key highlights.

Global Oral Health Summit

▶ Date & time: 12 July, 13:45–15:15
▶ Location: Auditorium

The Global Oral Health Summit is a prestigious event that gathers influential leaders and stakeholders from around the world to discuss the critical role dental hygienists play in mitigating the global burden of oral health disease and its economic impact. The 2024 summit will focus on the evolving

demands of oral healthcare, addressing awareness, policy, technology and opportunities within the field. Esteemed speakers from Australia, South Korea the UK and the US will share their insights on revolutionising dental hygiene, the future roles of oral health practitioners and rebranding the oral health workforce.

One of the primary goals of the summit is to support the World Health Organization's global oral health initiatives by showcasing successful programmes and advocating for governmental support of the World Health Assembly's resolution on oral health. Additionally, the summit aims to educate dental hygienists on the impact of poor oral health on global warming and to promote sustainable practices. Summit speaker Dr JoAnn Gurenlian of the American Dental Hygienists' Association encapsulated the summit's essence, stating:

"The Global Oral Health Summit will focus on future opportunities for dental hygienists and dental therapists. This summit provides a chance to gain perspective on influencing factors that can shape the landscape for oral health professionals and determine how to evolve within the healthcare system."

World Dental Hygienist Awards

▶ Date & time: 12 July, 11:45–12:45
▶ Location: Auditorium

After a two-year hiatus owing to the COVID-19 pandemic, the World Dental Hygienist Awards, sponsored by Sunstar Foundation and organised by the IFDH, have returned with new vigour. These prestigious awards recognise dental hygienists who have made significant contributions in various areas, including research, education and patient care. Underscoring dedication

and excellence within the dental hygiene community, these reimaged World Dental Hygienist Awards spotlight those who have significantly advanced the field and improved public health outcomes.

The 2024 awards introduce regional awards of distinction in Europe and North America, serving as qualifying rounds for the global awards. Categories for recognition include public health, academia, entrepreneur and research. Honourees will be celebrated with trophies, cash prizes and travel reimbursements to attend ISDH 2024.

Social Responsibility Workshop

▶ Date & time: 13 July, 11:45–12:45
▶ Location: Room 201–202

The Social Responsibility Workshop focuses on the IFDH initiative Sharing

Oral Health Knowledge for Sustainable Smiles, which emphasises the critical link between oral health and overall health. Recent studies have highlighted the connections between oral health and conditions such as cardiovascular disease, pneumonia, diabetes and Alzheimer's disease, particularly in populations with limited access to oral healthcare.

This workshop will present various projects developed by IFDH members aimed at spreading oral health knowledge to teachers, caregivers and communities. By educating these groups, the initiative seeks to improve health outcomes for underserved populations, fostering a greater understanding of the importance of oral health to overall well-being. Selected projects will be showcased at ISDH 2024 to illustrate the impactful work being done to promote sustainable health practices worldwide. ◀

"ECC has been tolerated as a regular childhood disease for many years"

Study highlights alarmingly high caries prevalence in Filipino toddlers.

Iveta Ramonaite, Dental Tribune International

■ According to the World Health Organization, 514 million children have caries of the primary dentition. Additionally, data from 2021 shows that early childhood caries (ECC) affects almost half of preschool children worldwide. Official surveys from the Philippines have reported consistently high prevalence rates of ECC for 5-year-olds, but the rate for younger children has not been well documented. Concerned by this lack of data, researchers have recently investigated the prevalence of ECC in the country in children under 2 years old. They found that nearly a third of the children examined suffered from ECC.

"ECC has been tolerated as a regular childhood disease for many years. Parents tend to overlook it because of the misconception that primary teeth are less important compared with permanent teeth," senior author of the study Dr Waranuch Pitiphat, associate professor of dental public health at Khon Kaen University in Thailand, told Dental Tribune International. She is also the director of the clinical and public health research training in oral health for South East Asia project, a programme aimed at enhancing and supporting skill development and knowledge of clinical research in dentistry in the region.

Discussing the prevalence of ECC in South East Asia, Dr Pitiphat noted: "In South East Asia, there



* Dr Waranuch Pitiphat is a senior author of the recently published study.

seems to be a universal pattern of high prevalence of ECC. Published studies from this region appear understated in literature, presumably because of the lack of regular official reports. When reports are available, prevalence rates are often confirmed to be alarming, and carious teeth are usually left untreated. In Thailand, for example, ECC is also a significant public health issue. Studies indicate that the prevalence of ECC among preschool children is remarkably high. According to a national oral health survey, over 50% of 3-year-old children in Thailand suffer from ECC. This high prevalence underscores the urgent need for preventive measures and public health interventions."

Early onset of caries in children

There are different reasons why a child might develop caries from an early age. For example, research shows that mothers with poor oral health habits can pass on *Candida albicans* to their infants, possibly through skin-to-skin contact or through feeding, contributing to the development of caries. Unfortunately, having caries early on may lead to hospital admissions, and poor oral health habits could later affect a child's performance in school.

"While parents may not realise that dental caries alone may have detrimental effects on their children's quality of life, having ECC or severe ECC in very young children who are not yet able

to speak and properly express any kind of discomfort will have a negative impact on their growth and development, aside from the more obvious consequences," Dr Pitiphat said.

Strong need for baseline data and ongoing research

Dr Pitiphat explained that public healthcare workers in the Philippines have been providing preventive and interceptive procedures to combat ECC, such as pit-and-fissure sealants and topical fluoride application. However, they appear to have had minimal effect on prevalence rates reflected in official surveys. She says that, for planning and policy-making to be

successful, proper baseline data and ongoing research are essential. "To catch the attention of stakeholders—including parents, healthcare workers, teachers and policymakers—valid and comprehensive data must be presented," she noted.

Frequent eating and poor oral care as the main culprit

In the study, the researchers sought to determine ECC prevalence and its association with socio-demographic indicators, feeding practices and oral health behaviours among children aged 24 months and below in the Philippines. For that purpose, they observed healthy young children aged 4–24 months in primary health centres. Each child's caregiver was interviewed, and all the children underwent dental examinations.

The researchers found that 29.2% of the 703 children in the study had already developed ECC, including both non-cavitated and cavitated lesions, and had an average of 6.7 erupted teeth. Factors significantly influencing ECC prevalence included the child's age, caregiver's low educational level, continued breastfeeding, frequent eating and visible dental plaque observed by the caregiver and by the paediatric dentist who performed the oral examination.

"This shows that ECC starts very early after tooth eruption, especially in babies with frequent eating patterns and poor oral care habits," Dr Pitiphat commented. She explained that, although, understandably, infants and babies usually have incremental feeding schedules every 2–3 hours

throughout the day, parents must recognise the importance of regularly cleaning milk residue from both the hard and soft tissue in the oral cavity.

"Our findings indicate that Filipino toddlers often feed at least six times in a day without sufficient oral cleaning. Visible plaque was observed by caregivers and confirmed during dental examination. These factors—frequent feeding and visible plaque—are strongly associated with ECC," Dr Pitiphat noted.

In light of the findings, the researchers believe that healthcare providers should prioritise appropriate oral healthcare education of caregivers and prioritise preventive measures in the first two years of a child's life or earlier. Additionally, they noted that caregivers' understanding of the impact of dietary and oral hygiene patterns is key to preventing the disease.

"Successful implementation of correct early oral healthcare will help prevent ECC from the outset, as well as mitigate risks of malnutrition, stunting, obesity and other serious chronic illnesses later in life," Dr Pitiphat stated. "This study underscores the need for early intervention and ongoing education to improve long-term health outcomes," she concluded.

The study, titled "Prevalence and risk indicators of early childhood caries among toddlers in Calocan City, Philippines: A cross-sectional study", was published online on 31 May 2024 in *BMC Oral Health*. ◀

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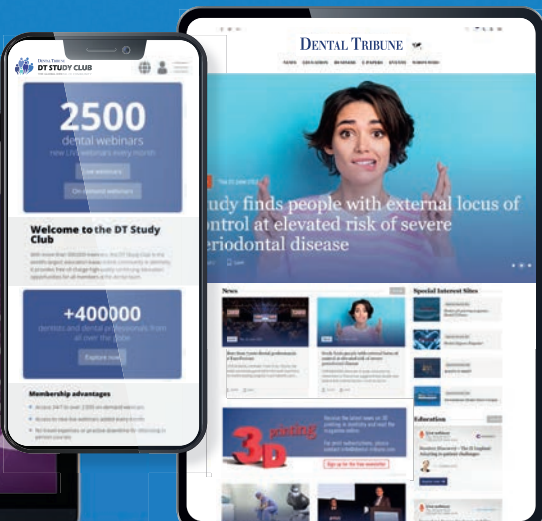
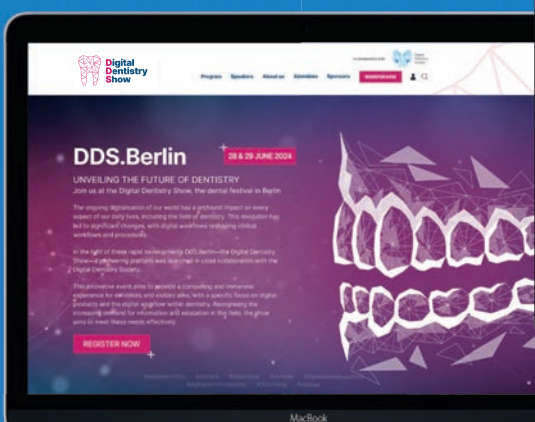


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Matcha: A new ally in the fight against periodontal disease

Study has demonstrated that using matcha may help prevent and treat periodontal disease.
Iveta Ramonaite, Dental Tribune International

■ Extensive research shows that *Porphyromonas gingivalis* is linked with the initiation and progression of periodontal disease. The antimicrobial activity of the tea plant *Camellia sinensis* against a wide range of pathogens has been studied; however, there is little information on its effect on *P. gingivalis*. Owing to the scarcity of data, researchers from Japan have explored the clinical effects of matcha—made from the raw leaves of *C. sinensis*—on periodontal disease and found that it inhibited the attachment and survival of *P. gingivalis*, suggesting its effectiveness for the prevention and treatment of periodontitis.

In the study, researchers from Japan conducted a series of *in vitro* experiments to test the efficacy of a matcha solution against 16 oral bacterial species, including three strains of *P. gingivalis*. They discovered that the matcha extract eliminated the cultured *P. gingivalis* cells 4 hours after intake.

Subsequently, the researchers recruited 45 people with chronic



periodontitis at the Nihon University Hospital School of Dentistry at Matsudo in Tokyo for a follow-up clinical study. They randomly assigned the patients to three groups and provided them with mouthwash containing barley tea,

matcha extract or sodium azulene sulfonate hydrate to treat the inflammation. Participants were instructed to rinse twice daily, and the researchers analysed their saliva before and after treatment.

They reported that, unlike the other two groups, patients who used mouthwash containing matcha showed a significant reduction in the level of *P. gingivalis*. Given the findings, the study supports the use of matcha as part of a treatment

plan for people with periodontal disease.

“Elimination of *P. gingivalis* in the oral cavity has been at the centre of attention for more than three decades in periodontology,” the authors wrote. “In the present study, we report that matcha, a product of *Camellia sinensis*, hampers *Porphyromonas gingivalis*, a major periodontal pathobiont, in not only a series of *in vitro* experiments but also a pilot intervention clinical trial of patients with periodontitis, in which matcha mouthwash statistically significantly reduced the *P. gingivalis* number in saliva, as compared to the pre-intervention level. Taken together, we suggest that matcha may have clinical applicability for prevention and treatment of periodontitis,” they concluded.

The study, titled “Multimodal inhibitory effect of matcha on *Porphyromonas gingivalis*”, was published online on 21 May 2024 in *Microbiology Spectrum*, ahead of inclusion in an issue. ◀◀

Oral health among minority populations

US study links lack of supervised brushing in childhood to caries.
Dental Tribune International



■ Although many college students recognise the impact that lifestyle choices have on oral health, minority students often have limited access to dental health information and services and thus their oral health can be overlooked. Seeking to investigate the link between oral hygiene behaviours, oral health attitudes and oral health problems in

minority undergraduate students, a recent study found that certain self-reported oral health issues had an impact on the participants' quality of life and on their attitudes towards oral health. The findings indicate a need to enhance oral hygiene practices among minority students and to ensure that they regularly visit the dentist in order to reduce

dental problems and improve their quality of life.

The study included approximately 150 students attending a state university in Florida in the US who identified themselves as either Black, Hispanic, Asian, Native American or Pacific Islander. In the study, the researchers collected informa-

tion on the participants' oral hygiene behaviours, such as brushing habits, dental visits and diet, as well as historical data on their oral hygiene habits as children. They then compared the participants' responses with the occurrence of self-reported dental health problems.

According to the findings, more than 40% of the participants reported untreated dental caries or gingival bleeding. Additionally, 63% of those who reported dental caries said they had experienced caries in adolescence. A further 59.3% of the students with caries and 56.0% of those with gingival bleeding had not been supervised when brushing their teeth as children.

The researchers found that poor oral health affected the participants' quality of life. Namely, gingival bleeding was associated with difficulty chewing, pain, impaired speech, and school and work absences. Similarly, dental caries was linked with all of the aforementioned factors as well as with xerostomia, disturbed sleep and the avoidance of smiling.

It was also found that diet during childhood was linked to caries prevalence in adulthood. More than a third of the participants with caries (39%) reported a high consumption of sweets in childhood. After enquiring into participants' brushing habits, the researchers found that those who brushed for

1 minute or less were more likely to report gingival bleeding.

The researchers also found disparities among various ethnic groups. For example, only 9% of the Hispanic students reported untreated dental caries, whereas the proportion was much higher for Black students, at 32%. Additionally, Hispanic and Black adolescents were found to be more likely to have multiple missing teeth and untreated caries.

Given the findings, the study called for increased access to oral health education and preventive care for minority students. “Improving oral health education resources for minorities and free preventative care beginning in adolescence may help improve oral health practices among minorities over their lifetime,” the authors wrote. They then concluded: “Furthering education on the importance of preventative oral care and providing financial equality of dental care would ideally improve oral health among minority populations.”

Since the study relied on self-reporting, the researchers cautioned that there was a potential for bias, as some students might have been unable to recall certain past events accurately.

The study, titled “Examining oral hygiene behaviors, oral health-related quality of life, and attitudes toward oral health among minority students”, was published online on 13 May 2024 in *Cureus*. ◀◀

Indian paediatricians want to know more about oral health

In a survey, over 90% agreed that medical curricula should feature more oral health topics.
Dental Tribune International

■ Nearly half of all children in India have early childhood caries (ECC), and research shows that reducing ECC incidence requires the participation of healthcare practitioners who work with children and caregivers. Researchers at Manav Rachna Dental College in the northern state of Haryana recently surveyed paediatricians to assess their perspectives and knowledge relating to oral care, and they found that older clinicians working in hospitals or universities had a more positive attitude towards paediatric dental care, and most respondents agreed that medical curricula should include more oral health education.

The study focused on paediatricians working in the western regions of the northern state of Uttar Pradesh, and it drew 600 respondents, who mainly worked in hospital or university settings. Nearly half had ten or fewer years of clinical experience.

The vast majority (87.00%) knew the correct age for a child's first dental visit and 83.57% accurately identified ineffective methods of alleviating teething discomfort. The primary causes of caries were recognised by 72.59%, and 85.59% understood the factors that contribute to bottle



mouth caries. Gaps in knowledge were identified relating to the bacteria involved in bottle mouth caries and the critical pH level for tooth demineralisation, which was correctly identified by just 79.76%.

In the area of dental hygiene, 90.8% supported the inclusion of oral health education in medical curricula for children, and 81.8% recognised the need to educate healthcare providers about

caries prevention and infant oral health. The vast majority (88.70%) favoured collaboration with paediatric dentists to combat ECC and advance children's oral health, and 95.74%

agreed that their role in providing dental healthcare advice to parents was essential.

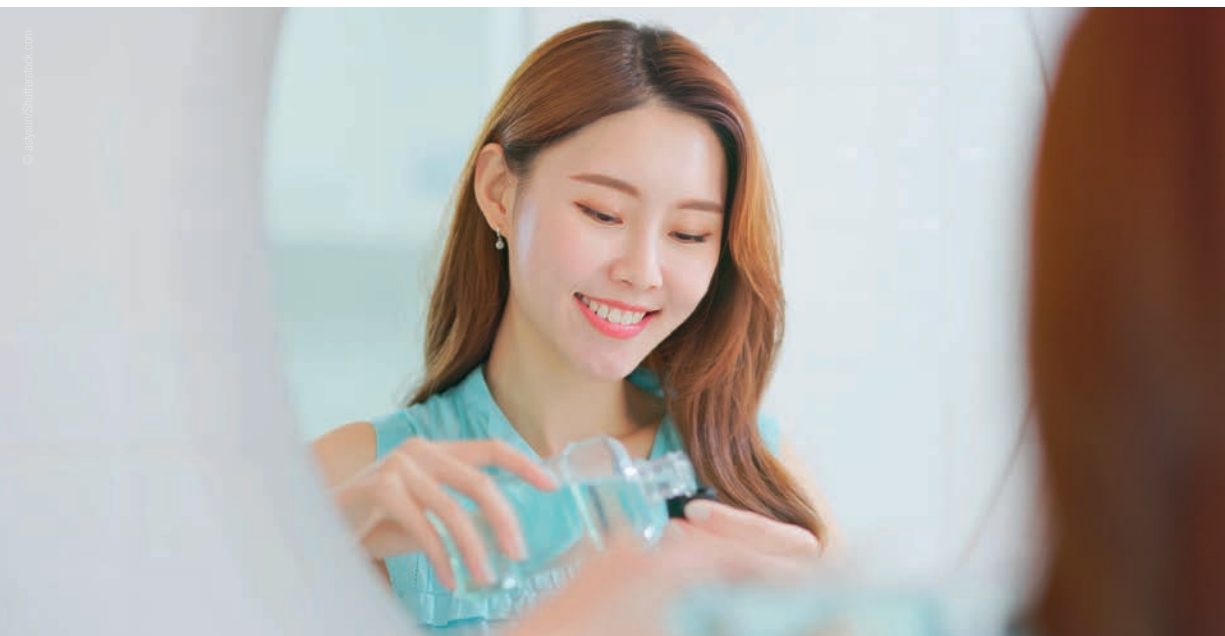
Discussing the results, the researchers highlighted "an encouraging pattern: a significant proportion of practitioners had deep expertise in critical facets of child dental treatment". Nonetheless, they pointed out that just 80.05% of participants agreed with incorporating oral health check-ups into daily paediatric practice, indicating that integration of dental care into broader medical practice remains a topic of debate.

"The data underscores a commendable understanding and positive attitude toward the preventive aspects of dental health among participants. Yet, it also pinpoints areas, like knowledge about critical pH levels for tooth demineralisation, where continued education is imperative," the researchers concluded.

The study, titled "Reconnoitering the dental knowledge and attitude of pediatricians in the Western Uttar Pradesh region of India, was published online on 10 May 2024 in *Cureus*. ◀

Microbial-level functionality of mouthwash

New journal supplement explores the role of mouthwash in oral care.
Iveta Ramonaite, Dental Tribune International



■ The value of mouthwash as part of routine oral hygiene has often been questioned in the literature. Seeking to provide the most current data on the role of mouthwash in oral care, FDI World Dental Federation has curated a topic-specific *International Dental Journal* supplement that includes six peer-reviewed articles looking at the effectiveness of mouthwash in managing oral disease, the effect of mouthwash on the oral microbiome and on systemic disease, and alternatives to mouthwash and its potential future development.

Discussing the importance of the supplement, a co-author of three of the articles, Dr Michael McCullough,

who is professor of oral medicine at the Melbourne Dental School, told Dental Tribune International (DTI) that the lack of consensus worldwide regarding the use of mouthwash prompted FDI to form a task team to further explore the topic. "This supplement provides an easy-to-read guide on mouthwash use based on the current best available evidence," he said.

The efficacy of mouthwash use in maintaining oral health is well documented in the literature. However, it often shows varying degrees of evidence. "Mouthwash use decreases plaque and gingivitis in many short-term studies, most of these studies assessing chloro-

hexidine-containing mouthwashes. However, the evidence for their effectiveness in preventing periodontal disease is not currently available," Prof. McCullough explained.

"There is moderate evidence for the adjunctive use of fluoride-containing mouthwashes for the prevention of coronal caries in children and adolescents but not in adults. Further, there is limited evidence of the effective use of mouthwashes to aid healing post surgery, chemotherapy-induced mucositis and the management of alveolar osteitis. Finally, there has been a great deal of interest in the antiviral properties of mouthwash recently, particularly asso-

ciated with the COVID-19 pandemic. However, more clinical research is needed to show a clear benefit," he continued.

Besides its potential benefits, mouthwash has been shown to have adverse effects. For example, DTI has previously reported on research that indicates that mouthwash may impede the benefits of exercise and raise blood pressure.

"There is increasing evidence, particularly using modern tools assessing bacterial metagenomics, to suggest that mouthwash use can result in a dysbiosis in oral bacteria as well as potentially lead to antimicrobial resistance. Further, links between mouthwash use and cardiovascular disease, diabetes mellitus, oral cancer, Alzheimer's disease and pre-eclampsia have been proposed, however with variable and limited levels of evidence," Prof. McCullough explained.

The supplement also delves into the future directions of mouthwash, including alternatives to conventional mouthwashes. In this regard, DTI has reported on a study that examined the effectiveness of cannabinoid-infused mouthwashes in fighting plaque, comparing them with chlorhexidine mouthwashes.

Discussing the emerging role of mouthwash in dentistry, Prof. McCullough commented: "There are currently several types of mouthwash being developed that may be able to modulate oral immune reactions for the treatment of oral mucositis, as well as nanoparticle-



• Dr Michael McCullough, who is professor of oral medicine at the Melbourne Dental School in Australia.

containing mouthwashes that have the potential for more-targeted antimicrobial action. There are also the impacts on the environment of widening mouthwash use with more new products, including increased use of packaging, potential antimicrobial resistance and possible detrimental effects on marine life, that need to be considered."

"The long-term use of mouthwash has to be recommended with a balance between the known benefits and these potential adverse effects," he concluded.

On its continuing online education platform, a webinar on the role of mouthwash in oral care is available on demand and free of charge. Please visit www.fdiworlddental.org.

The journal supplement, titled "The role of mouthwash as part of routine oral care", is available online at www.fdiworlddental.org. ◀