

STURESY 2025

"INNOVATIONS OF YOUNG MINDS FOR A BETTER FUTURE"

DENTAL STUDENTS' RESEARCH SYMPOSIUM

Book of Abstracts

Volume 4



FACULTY OF DENTAL SCIENCES | UNIVERSITY OF PERADENIYA

Dental Students' Research Symposium

STURESY 2025

“Innovations of Young Minds for A Better Future”

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Volume 4

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Panel of Judges

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Prof. S. U. B. Tennakoon

Dr. N. R. Amarasinghe

Technical Session II (Poster Presentations)

Prof. B. G. T. L. Nandasena

Prof. C. N. R. A. Alles

Prof. H. D. W. T. D. Dassanayake

Message from the Chief Guest



It is with great pleasure that I extend my warm greetings to the organizers, staff members, and undergraduate students of the Faculty of Dental Sciences on the occasion of the Dental Faculty Undergraduate Research Symposium (STURESY 2025), scheduled to be held on 06th January 2026 at the CPC Hall, Faculty of Dental Sciences, University of Peradeniya.

The theme of this year's symposium, "Innovations of Young Minds for a Better Future", aptly reflects the spirit of inquiry, creativity, and responsibility that must guide contemporary scientific research. I am delighted to note that this symposium provides a valuable platform for final-year undergraduates of the 2018/2019 batch to showcase the outcomes of their research through oral and poster presentations, emphasizing teamwork and collaborative learning.

The presentation of 25 undergraduate research projects, each undertaken by dedicated teams of three to four students, is a commendable achievement. Such scholarly endeavors not only strengthen students' analytical and research competencies but also contribute meaningfully to the advancement of dental sciences and evidence-based clinical practice.

I sincerely appreciate the commitment of the academic staff and organizers for nurturing a strong research culture among undergraduates. I am confident that STURESY 2025 will inspire young researchers to pursue innovation with integrity, curiosity, and a sense of service to society.

I wish the symposium every success and hope it will continue to be a source of inspiration for future generations of dental professionals.

**Professor Terrence Madhujith
Vice-Chancellor
University of Peradeniya**

Message from Dean, Faculty of Dental Sciences



It is with great pride and pleasure that I welcome you to the Undergraduate Research Symposium (STURESY 2025) of the Faculty of Dental Sciences, held under the inspiring theme "*Innovations of Young Minds for a Better Future.*" This symposium marks an important milestone in our academic journey, providing a platform to celebrate the creativity, dedication, and scholarly efforts of our undergraduate students as they take their first steps into research, innovation, and scientific discovery.

The integration of research into our revised undergraduate curriculum reflects the faculty's strong commitment to nurturing future dental professionals who are not only clinically competent but also capable of innovative thinking and meaningful scientific contribution. Engagement in research encourages curiosity, critical thinking, and problem-solving, while strengthening students' understanding of evidence-based practice—qualities that are essential for shaping the future of dental science and improving oral health care for society.

This symposium offers an invaluable opportunity for students to communicate their ideas, findings, and innovations in a formal academic setting. Developing effective scientific communication skills at this early stage prepares them for future academic and professional forums, empowering them to confidently share their knowledge and contribute to the global scientific community.

Furthermore, the collaborative nature of undergraduate research promotes teamwork, leadership, and mutual respect. By working together to explore novel ideas and innovative solutions, our students learn to value diverse perspectives and interdisciplinary approaches—attributes that are indispensable in the rapidly evolving field of dentistry. Through such collective efforts, a strong and sustainable research culture is cultivated within the faculty, driven by the energy and vision of young minds.

I extend my sincere congratulations to all participating students and their supervisors for their commitment, perseverance, and enthusiasm for inquiry and innovation. May STURESY 2025 inspire you to think creatively, challenge existing boundaries, and contribute positively toward a better future through research. I wish the symposium every success and look forward to witnessing the emergence of future leaders and innovators in dental science.

Prof. B. M. H. S. K. Banneheka
Dean, Faculty of Dental Sciences
University of Peradeniya

Message from the Chairperson, Faculty Research Committee



I am truly honoured to send this message on the occasion of the Dental students' research symposium (STURESY) 2025. This event is a significant milestone in the journey of 2018/2019 batch of dental undergraduates towards advancement of oral health through research and innovations.

The aim of this symposium is to foster a research culture among graduating dental students by providing a platform to showcase their research findings, recognizing their contribution towards advancement of science and honouring the outstanding young researchers. The theme of this year's symposium, "Innovations of young minds for a better future", reflects the necessity of novel ideas and novel findings of the new generation for making the world a better place. Indeed, the 11 oral presentations and 14 poster presentations lined up for this event provide evidence for the capability of our students to build a "better future" through enhancing the understanding of oral health-related phenomena as well as shedding light on practical solutions to enhance oral health.

The participants of this symposium will also have the opportunity to hear the success story of one of the world-renowned researchers of our university, Prof. Pradeepa Bandaranayake, in her keynote speech on "Research for Prosperity: Building Wealth from Fundamental Research".

I would also like to take this opportunity to deeply appreciate the guidance and advice of Prof. B. M. S. H. K. Banneheka, the Dean, Faculty of Dental Sciences and tireless efforts of Dr. K. S. N. D. Gunawardhana, Secretary, Faculty Research committee, Chairpersons of all subcommittees and all members of the STURESY 2025 organizing committee and the judge panels who volunteered to undertake the extremely difficult task of selecting outstanding presentations, to make this event a success.

Dear students, I wish you all the very best for today's presentations as well as for your future research endeavors. I am sure that this symposium will inspire you to engage in meaningful research throughout your career and be the pioneers of great discoveries and innovations of the future.

Prof. M. P. Paranagama
Chairperson, Dental Faculty Research Committee

Keynote Speech

Research for Prosperity: Building Wealth from Fundamental Research Prof. Pradeepa C. G. Bandaranayake



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Director, Agricultural Biotechnology Centre,
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This keynote address provides a compelling story on how curiosity-driven research is the vital foundation of a nation's prosperity. Using my own research journey with Ceylon cinnamon as a key example, I will demonstrate how a common local resource can be transformed into a source of scientific, economic, and social wealth. Our foundational work involved detailed characterization of the unique phytochemical profile of Ceylon cinnamon and confirming its biological activities. However, the most important outcome is the potential revival of the scientific name *Cinnamomum zeylanicum*, which has been considered a synonym for *Cinnamomum verum* since 1825. Our comprehensive molecular data, including DNA barcoding, chloroplast genomes, mitochondrial genomes, and nuclear genome analyses, clearly show that *C. zeylanicum* should be recognized as a distinct species. This basic science, published in peer-reviewed journals, was not the final goal but a crucial first step. It established a trustworthy base of knowledge that can be owned and built upon. From this foundation, a promising value chain develops, guiding the creation of evidence-based, value-added natural therapies, including for oral and systemic health; inspiring innovative product ideas that reach a premium in global "wellness" markets; and generating new high-value agricultural opportunities for our farmers and industries.

To the dental graduates of Peradeniya, your unique expertise positions you perfectly to see the unmet needs in oral health as opportunities for innovation. By applying a researcher's curiosity to our local resources, you can develop the next generation of preventive therapies and biomaterials, building a legacy that extends from the clinical chair to national prosperity.

Programme

8.15 a.m. Arrival of guests

8.30 a.m. Opening ceremony

8.40 a.m. Welcome address by Prof. B. M. H. S. K. Banneheka
The Dean, Faculty of Dental Sciences

8.50 a.m. Speech by the Chief Guest, Prof. W. M. T. Madhujith
The Vice Chancellor, University of Peradeniya

9.00 a.m. Keynote Speech by Prof. Pradeepa C. G. Bandaranayake,
Faculty of Agriculture, University of Peradeniya
“Research for Prosperity: Building Wealth from Fundamental
Research”

9.20 a.m. Awards Ceremony

9.35 a.m. Vote of Thanks by Prof. M. P. Paranagama
The Chairperson, Faculty Research Committee

9.40 a.m. Refreshments

10.00 a.m. Technical session I - Oral presentations

12.30 p.m. Lunch

1.15 p.m. Technical session II - Poster presentations

2.30 p.m. Awards ceremony

2.45 p.m. Closing ceremony

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Ratnatilake*

Technical Session I - Oral Presentations

A Retrospective Analysis of Clinico-pathological Characteristics of Pleomorphic Adenoma in a Group of Sri Lankan Patients

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Pleomorphic Adenoma (PA) is the most common benign salivary gland (SG) tumour. Despite abundant global data, published PA characteristics specific to the Sri Lankan population are limited. This study aimed to analyse and compare the clinico-pathological characteristics of PA and to identify specific clinicopathological characteristics associated with tumour recurrence in Sri Lankan patients.

A retrospective descriptive study was conducted using demographic details of 230 PAs reported at the Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya. Histopathological features of 70 non-recurrent and 10 recurrent PAs (RPA) were analysed for recurrence predictors. Statistical analysis was conducted using Chi square and Cramer's tests ($p<0.05$).

The majority of PA occurred in adults (67%), with a predilection for major SGs (54.3%) and females (61.7%). Significant associations based on the site were found; major SG PAs were significantly larger in size (>4 cm)(63.2%) compared to minor SG PAs (39%), ($p = 0.000$), while minor SG PAs were more frequently clinically misdiagnosed as malignant (53.3%), compared to PAs of major SGs (40%) ($p = 0.042$). Histopathologically, the mesenchymal-rich subtype was dominant in major SG PAs, and the epithelial-rich subtype in minor SG PAs ($p=0.000$). Multi-nodularity ($p=0.000$) and the mesenchymal-rich subtype ($p=0.001$) were significantly more frequent in RPA. Presence of a capsule showed a negative correlation ($p=-0.061$) with recurrence, indicating uncapsulated tumours having a higher chance of recurrence. Features such as location, gender, stromal component, keratine pearls didn't show statistically significant associations.

The present study demonstrates a female predilection, consistent with global literature. As minor SG PAs are more likely to be clinically misdiagnosed as malignant, definitive treatment should be preceded by an incisional biopsy or fine-needle aspiration biopsy to avoid overtreatment. Specific features such as multi-nodularity and the mesenchymal-rich subtype were found to be associated with recurrence; therefore, such lesions warrant longer follow-up periods.

Keywords: pleomorphic adenoma, tumour, Sri Lankan population

Knowledge, Attitudes and Opportunistic Screening Practices for Oral Potentially Malignant Disorders and Oral Cancer Among Medical Practitioners in Sri Lanka: A Cross-Sectional Study

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Sri Lanka's oral cancer (OC) incidence is rising and often diagnosed at advanced stages with severe consequences despite easy accessibility of the oral cavity for regular examination. OC is largely preventable due to its well-known risk factors, and early lesions—oral potentially malignant disorders (OPMDs)—can be detected and managed before malignant transformation. This study evaluated Sri Lankan medical practitioners' (MPs) knowledge, attitudes, screening practices (KAP), and barriers regarding OPMDs/OC.

A cross-sectional survey of MPs was conducted using a self-administered Google Form questionnaire. Data were analyzed using SPSS, employing descriptive statistics for continuous variables, frequency distributions for categorical variables, and ordinal regression analyses.

Among 505 respondents, 58% were males from the Western Province working in teaching hospitals. Most (72%) had never attended a continuing professional development program (CPD). While 93.8% recognized squamous cell carcinoma as a common OC presentation, only 48.2% and 29.9% correctly identified oral erythroplakia and proliferative verrucous leukoplakia, respectively, as high-risk OPMDs. Knowledge of risk factors was high, and inquiry about tobacco use was reported by 79.2%. Although 71.6% always performed lymph node examinations, only 12.7% always and 49.6% sometimes conducted intraoral examinations, citing lack of time as a constraint. Only 6.1% sometimes performed biopsies. Lack of experience, inadequate training in screening, and limited access to tools were the main barriers. Knowledge and attitude showed no significant demographic associations, whereas practice varied by qualification and institution; MBBS-only practitioners had significantly higher practice scores than specialists/consultants (OR = 9.91, p = 0.001).

Sri Lankan MPs show moderate KAP scores but notable gaps in recognizing high-risk lesions, identifying anatomical sites, and performing routine intraoral examinations. Most lack adequate training and confidence in lesion detection. Their strong interest in further education underscores the need for targeted CPD programs and curriculum reforms to strengthen early diagnosis and improve OC outcomes.

Keywords: early detection and prevention, oral cancer, oral potentially malignant disorders, opportunistic screening, medical practitioners

Development and Evaluation of Anticandidal Effect of Clove Oil-Containing Confectionery

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Candida albicans is the primary cause of oral candidosis, which is a common opportunistic infection. The increasing resistance to conventional antifungal drugs has prompted a growing interest in natural alternatives. Clove oil is known for its eugenol-rich antifungal properties. However, its incorporation into palatable and practical delivery systems for oral health remains inadequately explored. The objective of this study was to create a xylitol lollipop containing clove oil and assess its *in vitro* anticandidal efficacy against clinical isolates of *Candida albicans*.

In order to make lollipops, clove oil was added to a xylitol base at a controlled temperature of 55-60 °C. In addition to improving taste, xylitol provides anti cariogenic benefits by inhibiting the growth of cariogenic bacteria in oral environment. The anticandidal activity was assessed using the agar well diffusion method. A total of 30 clinical isolates of *Candida albicans* were tested using a lollipop solution prepared in artificial saliva, which mimics the oral environment. Nystatin and distilled water served as the positive and negative controls, respectively. The inhibition zones were measured and Tukey's HSD test and one-way ANOVA were used to analyze the data after inhibition zones were measured ($p < 0.05$).

The clove oil xylitol lollipop demonstrated significant anti-candidal activity, with an average inhibition zone of 19.65 ± 0.95 mm. Notably, the lollipop solution exhibited relatively constant inhibitory activity across all 30 clinical isolates, with individual mean zones ranging from 17.75 mm to 21.25 mm. Nystatin showed higher effectiveness (mean zone: 21.77 ± 0.70 mm; $p < 0.001$). The negative control, which exhibited no inhibition zone, was not effective compared to both active treatments.

The produced clove oil xylitol lollipop has shown significant anti-candidal efficacy against clinical isolates of *Candida albicans* *in vitro*. Although it was less successful than Nystatin, its natural origin, pleasant taste, and antifungal potential make it a promising adjunct or alternative treatment for oral candidosis.

Keywords: *Candida albicans*, oral candidosis, clove oil, xylitol lollipop, anti-candidal efficacy

Parental Awareness and Motivation on Orthodontic Treatment Needs of Children in Mixed Dentition in the Kandy Educational Zone, Sri Lanka

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Mixed dentition between 6–12 years represents a critical developmental period in which early identification of malocclusion can prevent long-term functional and aesthetic complications. This study assessed parental awareness, motivation, knowledge of orthodontic treatment options, and perceived treatment needs in relation to clinically assessed malocclusion among children in the mixed dentition stage in the Kandy educational zone, Sri Lanka.

A descriptive cross-sectional study was conducted among Grade 4 and 5 students and their parents from ten randomly selected schools. Parental awareness, motivation, knowledge, and perceived needs were assessed using a self-administered questionnaire, while children underwent oral examination and malocclusion severity was recorded using the Dental Aesthetic Index. Data were analysed using SPSS version 22 with descriptive statistics, Chi-square tests, and Cohen's Kappa, with significance set at $p \leq 0.05$.

Malocclusion was observed in nearly all children, with Class I malocclusion being the most prevalent. Although most children demonstrated a normative need for orthodontic treatment, only a small proportion of parents correctly perceived this need. Overall parental awareness and motivation were moderate to high, but knowledge of treatment options was limited, and financial constraints were the most commonly reported barrier. Agreement between perceived and clinically assessed treatment needs was poor. Despite the high prevalence of malocclusion, parental recognition remains inadequate, highlighting the need for improved parental education, early school-based screening, and better access to orthodontic services to support timely intervention.

Keywords: malocclusion, mixed dentition, parental awareness, orthodontic treatment need, dental aesthetic index

Practice Management of Private Dental Clinics in Sri Lanka

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Private dental clinics are a major provider of oral healthcare in Sri Lanka. Rising patient expectations, economic pressures and rapid technological change have increased the complexity of managing these clinics. Despite their importance, evidence on how private dental clinics are organised and managed remains limited. This study addresses this gap by evaluating key aspects of practice management in private dental clinics across Sri Lanka.

The objective of this study was to assess infrastructure, operational management, financial management, customer support and marketing practices in private dental clinics and to explore their association with practitioner income satisfaction.

A descriptive cross-sectional survey was conducted among approximately 100 private dental clinics selected by convenience sampling across Sri Lanka. Data were collected using a self-administered online questionnaire completed by dental practitioners and analysed using descriptive statistics and simple correlation analysis.

Seventy-three responses were received from 23 districts. Among 72 respondents who reported their engagement, 65.3% were part-time and 34.7% were full-time private practitioners, while 70.8% owned their clinic and only 28.2% employed a practice manager. Digital or panoramic radiography was available in most clinics, whereas intra-oral scanners were used in 30.0%. Rising overhead costs (43.1%) and patient flow management (41.7%) were the most frequently reported operational challenges. Paper-based records were used by 65.3% of clinics and 84.5% managed accounts manually. Word-of-mouth was the main marketing strategy (93.0%). Overall, 66.2% of practitioners reported satisfactory or highly satisfactory income, and years in private practice showed a moderate positive correlation with income satisfaction.

Private dental clinics in Sri Lanka are predominantly small, dentist-managed practices with limited adoption of digital technologies and formal management systems. Strengthening practice management skills, promoting digitalization and improving financial and marketing strategies may enhance sustainability and efficiency of private oral healthcare services. Further studies could explore interventions to improve management practices and patient outcomes.

Keywords: private dental practice, practice management, health services management, Sri Lankan practice management

Knowledge, Attitudes and Practices Regarding the Prescription of Antibiotics Among Dental Surgeons in Sri Lanka

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Antimicrobial resistance has emerged as a pressing global public health threat, and inappropriate antibiotic prescribing in dentistry is recognised as a contributing factor to its escalation. Despite the frequent use of antibiotics in dental practice, local evidence on the prescribing patterns of Sri Lankan dental surgeons remains scarce. This study sought to address this gap by evaluating the knowledge, attitudes, and practices related to antibiotic prescription among dental practitioners in Sri Lanka, thereby identifying existing strengths and deficiencies to support future stewardship initiatives.

The objective of this research was to assess the levels of knowledge, attitude, practice, and associated factors influencing antibiotic prescription among Sri Lankan dental surgeons.

A descriptive cross-sectional study was conducted among dental surgeons and dental interns registered with the Sri Lanka Medical Council. Data was collected through a self-administered, online questionnaire consisting of questions to collect demographic data and to assess knowledge, attitudes, and practices. Descriptive statistics and inferential analyses were performed using IBM SPSS Statistics Version 30.

Out of the 201 responses received, 191 complete responses were analysed. Adequate knowledge and attitude levels were demonstrated by 70.7% and 79.6% of participants, respectively, while only 52.4% exhibited adequate antibiotic-prescribing practices. Although no significant associations existed between knowledge and either attitude or practice, a weak positive correlation was observed between attitude and practice. Misalignment with current guidelines was evident, particularly regarding prophylaxis for penicillin-allergic patients, for whom clindamycin continued to be commonly prescribed. Two-thirds of participants reported using clinical guidelines, predominantly the Sri Lankan national guideline.

Overall, the findings highlight satisfactory knowledge and positive attitudes but substantial gaps in translating knowledge into evidence-based practices. Strengthening continuing professional development, improving access to standardised national guidelines, and implementing audit-feedback systems are recommended to promote prudent antibiotic use and enhance antimicrobial stewardship within Sri Lankan dental practice.

Keywords: antibiotic stewardship, dental prescribing practices, antimicrobial resistance, dental surgeons, Sri Lanka

Psychological Impact on Parents of Children with Cleft Lip and Palate (CLP) Before and After Reconstructive Surgery at the Faculty of Dental Sciences

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Cleft Lip and Palate (CLP) are the most common craniofacial congenital anomalies that affect the head and neck region. They can have significant implications for an individual's physiological, social, and functional status and lead to psychological distress in their parents.

The objective of this work was to understand the psychological impact on parents/caregivers raising a child with CLP, specifically focusing on their emotional experiences before and after the reconstructive surgery.

The study sample consists of 32 parents of patients with CLP from the pre-surgery group (sample A) and 69 parents from the post-surgery group (sample B) attending the OMF Clinic, Dental Hospital (Teaching), Peradeniya, over a period of five months, using judgmental sampling according to the inclusion criteria. The data collection was conducted using a self-administered questionnaire, which was physically distributed, and a phone survey, administered by an interviewer, among selected patients. The psychological level before the reconstructive surgery was assessed on both samples and psychological level after the reconstructive surgery was assessed only on sample B.

The analysis demonstrated that reconstructive surgery was associated with substantial improvements in parental psychological well-being. Depression, anxiety, and stress scores measured by the DASS-21 decreased significantly after surgery. Specifically, the proportion of parents classified as experiencing severe or extremely severe distress dropped to near zero post-operatively. Impact-on-Family Scale scores showed significant decreases in financial burden and social disruption after surgery. However, coping strategy assessments indicated increased use of both positive and negative coping mechanisms post-operatively. Further, most parents reported that health-care providers were their primary source of information about the surgery, with limited use of educational materials and peer support.

Findings of our study highlighted the life-changing impact of reconstructive surgery on reducing the parent/caregiver psychological burden. Emotional strain and poorly adjusted coping can persist even after treatment. Comprehensive care for families affected by CLP should integrate psychosocial support, targeted education, and opportunities for peer connection alongside surgical management to address both practical and emotional needs effectively.

Keywords: cleft lip and palate, congenital anomalies, coping strategies

Impact of Short-Term Mental Stress on the Recall Memory of Acute Pain Among Healthy Undergraduates of the University of Peradeniya

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Pain recall plays a critical role in clinical decision-making, yet it is often distorted by factors such as stress, anxiety, and pain catastrophizing, leading to inaccurate retrospective pain reports. Understanding these influences is essential for improving pain assessment and enhancing patient management in both clinical and dental settings. This study aimed to determine the effect of acute mental stress on pain recall accuracy among healthy undergraduates and to examine its association with dispositional pain catastrophizing.

A quasi-experimental study was conducted among 128 participants, randomly allocated to a test group and a control group. All participants completed the Pain Catastrophizing Scale (PCS). Acute pain was induced using a custom-made pressure pain algometer and rated immediately. The test group underwent the Stroop Colour Test and a mental arithmetic task for 3 minutes to induce stress, while the control group listened to relaxation music. Participants subsequently recalled and rated their pain. Data analysis included the Shapiro–Wilk test, Chi-square test, Mann–Whitney U test, and Pearson’s correlation. Participants exposed to acute stress overestimated pain intensity but demonstrated significantly greater pain recall accuracy ($p < 0.001$; $p = 0.017$). No significant association was observed between dispositional pain catastrophizing and pain-recall accuracy ($r = 0.043$; $p = 0.637$).

Acute mental stress influences both the experience and recall of pain. Although stress increases perceived pain, it appears to enhance recall precision. These findings highlight the importance of minimizing stress during clinical procedures, as a calmer environment may reduce exaggerated pain memory and contribute to improved quality of patient care.

Keywords: pain recall, mental stress, pain catastrophizing, memory accuracy, dental pain

Performance Anxiety Level, Associated Factors, and Its Effects on Academic Performance of Clinical Dental Undergraduates of Faculty of Dental Sciences, University of Peradeniya

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Performance anxiety is a psychological concern frequently observed among dental undergraduates, particularly during clinical training where students are required to perform complex procedures under supervision. The emotional strain associated with fear of error, patient management challenges, and continuous evaluation may affect both clinical competence and academic success. This study aimed to identify clinical situations that trigger performance anxiety, determine their levels and associated factors, and assess its effect on academic performance among clinical dental undergraduates at the Faculty of Dental Sciences, University of Peradeniya.

A cross-sectional analytical study was conducted using a self-administered online questionnaire that included socio-demographic details, clinical anxiety-provoking situations, a modified Generalised Anxiety Disorder-7 (GAD-7) scale to assess performance anxiety, and indicators of academic performance such as grade point average and in-course assessment marks. Data analysis included descriptive statistics, Mann-Whitney U and Kruskal-Wallis tests for associated factors, and simple linear and logistic regression models to determine the effect of anxiety on academic outcomes.

Among the 287 respondents, the majority of students demonstrated mild anxiety levels (43.6%), followed by those with minimal anxiety (33.8%), moderate anxiety (13.2%), while a smaller proportion experienced severe anxiety (9.4%). Highly anxiety-provoking situations included surgical extraction of third molars, root canal treatment of multi-rooted teeth, and managing uncooperative child patients. No statistically significant associations were found between performance anxiety and sex, academic semester, family income, or presence of non-communicable diseases. Performance anxiety has not significantly influenced academic performance.

In conclusion, performance anxiety is evident among clinical dental undergraduates, particularly during complex clinical tasks. Although anxiety have not significantly affected academic performance but there were students who experienced moderate to severe PA levels, its presence highlights the need for structured support mechanisms, including stress-management training, improved clinical mentoring, and accessible psychological support services to enhance students' clinical confidence and overall well-being.

Keywords: performance anxiety, dental undergraduates, clinical training, academic performance, anxiety-provoking situations

Determination of Fluoride Levels in Commercial Mouthwashes in Sri Lanka and Analysis of the Antimicrobial Activity of those Mouthwashes Containing Fluoride

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Dental caries continues to pose a major oral health burden in Sri Lanka, particularly among populations with inadequate access to preventive care. Fluoride is a cornerstone in caries prevention due to its dual role in enamel remineralization and suppression of cariogenic bacteria such as *Streptococcus mutans* and *Lactobacillus*. Fluoride-containing mouthwashes are widely recommended; however, little is known about the actual fluoride content and antimicrobial efficacy of these products in the Sri Lankan market. This evidence gap limits informed public health recommendations and consumer trust.

This study aimed to evaluate the fluoride concentrations in commonly used commercial mouthwashes in Sri Lanka and to assess their antimicrobial activity against *Streptococcus mutans* and *Lactobacillus*, along with their impact on bacterial acid production and biofilm formation.

Fifteen commercially available mouthwashes were selected via convenience sampling. Fluoride levels were determined using a fluoride ion-selective electrode. Products containing detectable fluoride were subjected to disc diffusion assays and tested for effects on acid production and biofilm formation under in vitro conditions.

Only three mouthwashes (20%) contained measurable fluoride level (381.33 \pm 10.42, 223.66 \pm 6.34, and 191.66 \pm 4.06 ppm), and two of which were locally manufactured. Among them, one product produced an inhibition zone (14.66 \pm 0.57 mm) against *S. mutans*, while the other two showed no activity. None of the fluoride-containing mouthwashes inhibited *Lactobacillus*, whereas the positive control yielded 17.00 \pm 0.50 mm and 9.16 \pm 0.28 mm zones against *S. mutans* and *Lactobacillus*, respectively. In acid production assays, fluoride-containing mouthwashes raised pH modestly (5.05-5.34) compared to the untreated control (pH 3.97), though lower than the positive control (pH 6.46). No significant reduction in biofilm formation was observed.

This study reveals fluoride content and antimicrobial efficacy of mouthwashes in Sri Lanka, raising concerns about product effectiveness and regulatory oversight. Further laboratory and clinical studies are needed to validate the antimicrobial potential of fluoride-containing mouthwashes and to determine their effectiveness in real-world oral health care.

Keywords: Fluoride, mouthwashes, dental caries, antimicrobial activity, Sri Lanka

Manual Dexterity and Self-Perceived Skills of Dental Undergraduates of University of Peradeniya and Their Effect on the Performance at Skills-Based Assessments

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Manual dexterity is essential in dental education, as clinical procedures require precision and motor control. Additionally, students' perception of their abilities can also impact learning outcomes and confidence during clinical practice. This study aimed to evaluate the manual dexterity and self-perceived skills of third-year dental undergraduates at the University of Peradeniya, correlation of them, and how both factors impact outcomes in skills-based assessments. A cross-sectional study included all third year students who had completed the preclinical phase, excluding those who repeated or missed the batch.

A self-administered questionnaire was used to assess the self perceived skills while the Purdue Pegboard test and O'Connor Tweezer test evaluated manual dexterity under direct and indirect vision. Finally, Skills-based assessment marks were collected. Data were analysed using descriptive statistics, Pearson's and Spearman's correlation, and stepwise multiple linear regressions.

In total, 114 students participated, with a majority being female (71.93%) and right-handed (85.96%). The mean score for the Purdue pegboard test under direct vision was 15.08, with females performing better in all tests. Males reported higher self-perceived skills than females. A weak correlation was found between manual dexterity and self-perceived skills (O'Connor Tweezer Test-Direct Vision $p=0.032$), with no significant correlation between skills-based assessments and self-perceived skills (p -values- Class II cavity; 0.250, Teeth setting; 0.121, Debridement on mannequin; 0.620).

Overall, the study concluded that third-year dental students displayed higher manual dexterity compared to the general population, with females displaying better performance, however the correlation between manual dexterity, self-perceived skills, and assessment outcomes was weak.

Keywords: manual dexterity, self-perceived skills, skills-based assessment, dental undergraduates

Technical Session II - Poster Presentations

Analysis of Fluoride Content and pH of the Extracts of Oral Healthcare Formulae Developed at the Faculty of Dental Sciences

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Oral healthcare formulae targeted at prevention of dental caries should ideally contain an optimum fluoride concentration (1000-1500 ppm for toothpastes and 200-900 ppm for mouth rinses) and a pH close to the natural pH of the oral cavity, which is around pH 7. This study aimed to determine the fluoride concentration and pH of the herbal extracts which are being tested for development of oral healthcare formulae at the Faculty of Dental Sciences.

Extracts of five herbal oral healthcare formulae were tested for fluoride concentration and pH using a fluoride meter and a pH meter, respectively. A commercially available, commonly used synthetic mouthwash and a herbal mouthwash represented positive controls, and distilled water represented a negative control. All samples were analyzed in triplicate (n=3). Data were analyzed using one-way ANOVA followed by post hoc Dunnett's test ($p \leq 0.05$).

According to our results, extract A showed the highest concentration of fluoride (0.2040 ppm \pm 0.002), while solutions B-E showed 0.0173-0.0343 ppm. Fluoride concentration of positive control 1 (synthetic mouthwash) was below the recommended fluoride level (~225 ppm), while that of positive control 2 (herbal mouthwash) exceeded it. Fluoride content in all tested extracts was significantly lower than that of positive controls. The pH of the tested extracts ranged from 4.4 \pm 0.18 to 5.2 \pm 0.07, which were below the critical pH for enamel dissolution (5.5). Significant difference of pH was observed between synthetic mouthwash and samples C and E, as well as between herbal mouthwash and samples A, B and D. With distilled water, all samples of extracts showed a significant difference.

The tested extracts have lower fluoride levels and lower pH values compared to the recommended ideal level for an oral healthcare formula targeted at prevention of dental caries. Therefore, it is recommended to adjust the pH and incorporate fluoride into these extracts when formulating into marketable products.

Keywords: dental caries, Fluoride concentration, pH, herbal oral healthcare products, oral health prevention

Outcome of Conventional Ameloblastoma: A Retrospective Study

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Conventional ameloblastoma is a benign but locally aggressive odontogenic tumour with a recognised tendency for recurrence, creating significant challenges in long-term management. Although several international studies have examined recurrence patterns, evidence from Sri Lanka remains limited. This study aimed to assess the relationship between treatment modality, histopathological subtype, demographic factors, tumour location, and recurrence in conventional ameloblastoma.

A retrospective study was conducted on 278 histologically confirmed cases diagnosed between 2006 and 2016 at the Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya. Demographic data, anatomical site, histopathological subtype, treatment type, and recurrence status were extracted from archived records. Statistical analysis was performed using descriptive statistics and Pearson's chi-square test to identify significant associations.

Among the 278 patients, 64 (23%) developed recurrence. Recurrence showed no statistically significant association with age ($p = 0.454$), sex ($p = 0.167$), or tumour location ($p = 0.642$), although higher recurrence was observed in individuals aged 20–39 years and in posterior mandibular lesions. Histopathological subtype demonstrated a significant association with recurrence ($p = 0.018$).

Acanthomatous (34.8%) and follicular (26.9%) subtypes showed the highest recurrence rates, whereas desmoplastic, granular cell, and basal cell variants exhibited low recurrence. Treatment modality did not show a statistically significant association with recurrence ($p = 0.149$); however, enucleation resulted in the highest recurrence rate (31.5%), while segmental resection showed comparatively lower recurrence (20.3%), particularly in extensive lesions.

In conclusion, histopathological subtype emerged as the most important predictor of recurrence in conventional ameloblastoma. Although demographic factors, tumour site, and treatment type were not statistically significant, clinical patterns indicate that conservative treatment yields higher recurrence, especially in aggressive subtypes. Careful histopathological evaluation, appropriate surgical planning, and long-term follow-up are essential. Further multicentre studies are recommended to refine recurrence-risk prediction and guide treatment protocols.

Keywords: ameloblastoma, recurrence, histopathology, mandible, treatment modality

Evaluation of Maxillary Anterior Teeth and Their Relation to the Golden Proportion in a Sample of Sri Lankan Population

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Dental aesthetics largely depends on harmonious tooth dimensions, particularly in the maxillary anterior region. The golden proportion has been widely advocated as an aesthetic guideline in restorative dentistry; however, evidence suggests that its applicability varies across populations. Data regarding the prevalence of the golden proportion in Sri Lankan individuals remain scarce, highlighting the need for population-specific evaluation.

The objective of this study was to assess the presence of the golden proportion among maxillary anterior teeth and to evaluate sexual dimorphism in these proportions in a sample of the Sri Lankan population.

This descriptive cross-sectional study analysed 116 maxillary dental casts (57 males, 59 females) of individuals aged 18–30 years. The casts were selected from the general population and were originally prepared for academic and research purposes, not specifically for this study, and were obtained from the Comparative Human Biology Laboratory, Faculty of Dental Sciences, University of Peradeniya. The perceived mesiodistal widths of maxillary anterior teeth were measured using a digital vernier calliper. Normality was assessed using Kolmogorov–Smirnov and Shapiro–Wilk tests. One-sample t-tests were performed to compare measured ratios with the golden proportion (0.62), independent t-tests assessed gender differences, and univariate discriminant analysis was used for sex estimation. Statistical significance was set at $p<0.05$.

The mean lateral incisor to central incisor (LI/CI) and canine to lateral incisor (C/LI) ratios were 0.7408 and 0.7417, respectively, both significantly deviating from the golden proportion ($p < 0.001$). The occurrence of the golden proportion was limited to 17.24% for LI/CI and 24.14% for C/LI ratios. Although males exhibited significantly larger tooth dimensions than females ($p<0.001$), no significant gender differences were observed in proportional ratios.

The golden proportion is not commonly present in the maxillary anterior dentition of the Sri Lankan population. These findings emphasize the importance of individualized and population-specific aesthetic guidelines rather than reliance on universal proportional ideals.

Keywords: golden proportion, maxillary anterior teeth, dental aesthetics, sexual dimorphism, Sri Lankan population

Exploring the Association Between Gestational Diabetes Mellitus and the Development of Oro-facial Clefts in Children Treated at the Cleft Centre, Dental Hospital (Teaching), Peradeniya

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Orofacial clefts (OFCs) are common congenital anomalies influenced by both genetic and environmental factors. Gestational diabetes mellitus (GDM) has been suggested as a possible risk factor for congenital anomalies, although local evidence in Sri Lanka remains limited. This study aims to explore the association between maternal GDM and the development of OFCs in children treated at the Cleft Centre, Dental Hospital (Teaching), Peradeniya.

A retrospective descriptive cross-sectional study was conducted in a sample of 60 children with cleft lip and/or palate recorded in the Oral and Maxillofacial Clinic, Dental Hospital, Peradeniya within the time-period between September 2023 and September 2024. A structured questionnaire and antenatal and neonatal records were used for data collection. Statistical analysis was performed using SPSS Software.

Among the 60 mothers surveyed, 6.7% (n = 4) reported having GDM during pregnancy. All four children of these mothers presented with isolated cleft palate, and none had cleft lip with or without palate. A statistically significant association was found between maternal GDM and the development of orofacial clefts. (p = 0.029).

In conclusion, the findings indicate a significant association between maternal GDM and the development of isolated cleft palate in offspring. Although the sample size is limited, the study highlights the importance of early screening and management of GDM as a potentially modifiable risk factor for orofacial clefts. Further research with larger sample sizes is recommended to validate these findings and support preventive maternal-fetal health strategies.

Keywords: gestational diabetes mellitus, orofacial clefts, isolated cleft palate, congenital anomalies, maternal risk factors

Optimizing Local Anesthetic Utilization in Undergraduate Dental Training: A Quantitative Evaluation of Wastage and Dosing Practices

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Efficient use of local anesthetics (LAs) is essential for safe, sustainable, and cost-effective dental practice. Despite their routine use, data on anesthetic wastage and adherence to dosing protocols in undergraduate dental settings remain limited. This study investigated the magnitude of LA wastage, evaluated compliance with dosing standards, and explored the relationship between students' knowledge and clinical performance in LA administration.

A prospective observational cross-sectional study was conducted at the Oral Surgery Clinic, Faculty of Dental Sciences, University of Peradeniya. A total of 163 single-tooth extractions performed by 7th-semester dental undergraduates were analyzed. Data were collected using structured observation checklists and pre-rotation questionnaires assessing knowledge of maximum recommended therapeutic doses (MRTDs) and injection techniques. Withdrawn, administered, and residual LA volumes were measured to calculate wastage proportions.

Across 163 procedures, the mean local anesthetic (LA) wastage was 29%, with only 23% of cases achieving zero residual volume. In total, 145 mL of LA, which is equivalent to approximately five 30-mL vials was discarded, resulting in a financial loss of LKR 685. Molar extractions demonstrated the highest mean wastage (0.9 mL per procedure), followed by premolars (0.64 mL) and anterior teeth (0.53 mL). While adherence to injection technique exceeded 90%, consistency in volume accuracy was notably lower. Only 7% of students complied with maximum recommended therapeutic doses (MRTDs) for palatal injections, and 34–41% administered volumes exceeding guideline limits for infiltrations and inferior alveolar nerve (IDN) blocks. Although over 90% of students were familiar with commonly used injection techniques, only one-third accurately recalled MRTDs, revealing a clear discrepancy between theoretical understanding and clinical dosing precision.

The study highlights a notable gap between theoretical knowledge and clinical dosing accuracy among dental undergraduates. Targeted educational reinforcement, standardized supervision, and structured feedback mechanisms are recommended to promote resource-efficient and safe anesthetic practices within dental training environments.

Keywords: local anesthesia, dental education, anesthetic wastage, dosing adherence, clinical efficiency

Feedback in Skill Training: Dental Students' Expectations and Prototype Tool Evaluation

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Increasing student enrolment and limited academic staffing have resulted in a high student-to-staff ratio, creating significant challenges in the timely and consistent delivery of feedback in preclinical skills training. Artificial intelligence offers a scalable alternative by providing immediate, customized, and repeatable feedback, thereby reducing staff workload while supporting students' learning needs.

The aim of this study was to explore dental students' expectations and preferences regarding the design and functionality of an AI-assisted feedback tool for cavity preparation training, as well as to evaluate the accuracy of the prototype tool based on four established clinical criteria for Class I cavity preparation for amalgam restorations.

One hundred and thirty seven images of student-prepared Class I cavities, each accompanied by expert-recorded feedback, were used to develop a prototype capable of assessing four predefined features. A needs-analysis survey was completed by dental students who had been previously trained in cavity preparation. Students consistently identified timely, actionable, and stepwise guidance as the most important feature of such a tool.

Accuracy analysis revealed variable performance across criteria: smooth outlines (62.10%), cavity depth (51.61%), flat floors (42.74%), and undercuts (47.58%). These findings indicate strong student demand for personalized, timely feedback while highlighting the need for further refinement of the AI tool to improve assessment accuracy.

In conclusion, the study demonstrates both the high demand for and the potential utility of an AI-assisted feedback system in dental skills training. Further technological improvements and broader validation are recommended to enhance its accuracy and integration into preclinical curricula.

Keywords: AI-assisted feedback tool, artificial intelligence, dental education, dental skill assessment, educational technology

Knowledge, Attitudes, and Practices Regarding Dental Caries and Its Prevention Among First-Year Students at the University of Peradeniya

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Dental caries remains one of the most prevalent chronic conditions globally, significantly affecting young adults. A considerable proportion of university students engage in poor oral health behaviors, such as infrequent brushing, high sugary snack consumption, and limited dental visits, making them a key group for study.

This study aimed to assess the knowledge and awareness of dental caries and its prevention among first-year students at the University of Peradeniya. The specific objectives were to evaluate students' understanding of the causes and progression of caries, assess oral hygiene practices and knowledge of preventive strategies, and identify barriers to seeking dental care or adopting preventive measures.

A cross-sectional descriptive study was conducted at the University of Peradeniya among first-year students from nine faculties, recruited using a stratified sampling method. Data was collected via a self-administered questionnaire. A total of 415 students participated. High level of theoretical knowledge was observed- 87% had satisfactory knowledge, 93.1% knew sugar intake causes caries, 90.7% knew brushing prevents it, but there's a gap between knowledge and practice or comprehensive awareness (only 52.4% had satisfactory preventive awareness). Behavioral findings revealed that 65% brushed twice daily, but less than 30% brushed for the recommended 2-3 minutes and only 19.3% replaced their toothbrush when bristles flared. Over 90% reported using fluoridated toothpaste. A significant gender difference was found in knowledge, with females scoring higher ($p<0.001$), though no such difference existed for preventive awareness ($p=0.157$). Statistical analysis showed no significant correlation between awareness and behavior, or knowledge and behavior among health-related and non-health-related faculties. A significant gap exists between knowledge and practice among first-year students. The findings underscore the need for targeted, behavior-oriented oral health promotion programs to address practical application and habitual change across all faculties.

Keywords: dental caries, oral health knowledge, oral health behavior, university students, Sri Lanka

Awareness, Attitudes, and Use of Oral Self-Care Products Among Patients Attending the University Dental Hospital Peradeniya

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Good oral health is essential for general well-being and a better quality of life. Oral self-care practices play a central role in preventing dental caries and periodontal diseases, particularly in resource-limited contexts like Sri Lanka. However, despite the availability of various oral self-care products, awareness and usage patterns are inconsistent. This study aimed to assess the awareness, attitudes, and usage of oral self-care products among patients attending the University Dental Hospital, Peradeniya.

A cross-sectional analysis involving 430 systematically selected new patients (F 283; M 147; age ranged from 18 years and above) was performed using a validated, self-administered, structured questionnaire. Data were analyzed with descriptive statistics and non-parametric tests (Mann-Whitney U, Kruskal-Wallis, Spearman's correlation).

Overall, 66.7% demonstrated low awareness of oral self-care products. Higher awareness was significantly associated with urban residence ($p = 0.005$), higher education level ($p < 0.001$), younger age (18-30 yrs) ($p < 0.001$), and higher income ($p < 0.001$). Almost all participants used a toothbrush and toothpaste (99.3%). Toothpick use was more common (17.2%) than dental floss (4.2%) or interdental brushes (7.2%). Regular mouthwash use was reported by 23.5% of participants. Only 30.7% exhibited a positive attitude toward oral self-care products, with females showing significantly more positive attitudes than males ($p = 0.008$). The main barriers to oral self-care product use were lack of knowledge (15.1%) and forgetfulness (13.5%).

Awareness and use of oral self-care products, particularly interdental cleaning aids, were suboptimal among patients in this study. Strengthening targeted education, especially for low-income and rural populations and improving accessibility and affordability of these products are recommended to support effective plaque control and prevent oral diseases.

Keywords: oral self-care products, awareness, attitudes, usage patterns, socio-demographic factors

Morphometric Analysis of Hard Palate in Sri Lankan Skulls

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The hard palate is a critical anatomical structure with relevance to clinical dentistry, maxillofacial surgery, forensic anthropology, and craniofacial biology. Major foramina in the hard palate exhibit population-specific variations that influence clinical procedures such as nerve blocks and dental implant placement. However, there is limited morphometric data on the hard palate in the Sri Lankan population. Hence, this study aimed to evaluate the morphometry of the hard palate and assess sexual dimorphism using adult Sri Lankan skulls. Specifically, the objective was to assess the positions of the greater palatine foramen, lesser palatine foramina, and nasopalatine foramen in relation to sexual dimorphism.

A cross-sectional study was conducted on 64 dry adult Sri Lankan skulls (32 male and 32 female) from an osteological collection. Standard linear and angular measurements were taken using digital callipers, protractors, and anatomical reference points. Parameters included palatal length, width, height, palatine index (PI), palatine height index (PHI), direction and diameter of Graterpalatine foramen & Incesive foramen, bone contributions, and number of LPFs. Data were analysed using independent t-tests and Mann-Whitney U tests, with significance set at $p < 0.05$.

No statistically significant differences were found between males and females for palatal length ($p = 0.81$), width ($p = 0.53$), height ($p = 0.15$), or PI and PHI categories ($p > 0.05$). The most common PI type was Brachystaphyline (65.63%) and PHI type was Chamestaphyline (71.88%). GPF and IF showed consistent orientation across sexes with no significant dimorphism. The palatine bone contributed approximately 27% and the maxillary palatine process 73% to the hard palate in both sexes. LPF counts ranged from 1 to 3, with no sex-related trends.

The study demonstrates a lack of significant sexual dimorphism in hard palate morphology within the Sri Lankan population. The findings emphasize the need for population-specific anatomical references and suggest that hard palate measurements alone are insufficient for reliable sex estimation in forensic contexts.

Keywords: hard palate, cross-sectional study, Sri Lankan skulls, sexual dimorphism

Oral Health-Related Quality of Life and Its Associated Factors in Patients with Oral Squamous Cell Carcinoma Following Surgical Management - A Cross-Sectional Study in Kandy District, Sri Lanka

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This study aimed to determine the OHRQoL using Oral Health Impact Profile (OHIP-14) and to assess its associations with clinical and surgery-related factors in patients with OSCC managed at the Teaching Hospital Peradeniya and National Hospital Kandy.

An analytical cross-sectional study was conducted n=50 OSCC patients, were recruited using nonprobability convenience sampling, following informed written consent. Inclusion criteria were age above 18 years, primary disease, within 3-6 months post-surgery. Patients with relapses and secondary cancers, mentally compromised, and pregnant or lactating mothers were excluded. Data was collected through an interviewer-administered questionnaire using a validated Sinhala version of the OHIP-14. Higher OHIP-14 scores indicate poorer OHRQoL. Data was analyzed using GraphPad Prism. Subgroup comparisons were performed using Mann-Whitney U and Kruskal-Wallis's tests.

OHIP-14 scores varied from 3-55, the mean \pm SD was 32.4 ± 11.5 , and the median was 33. Statistically significant associations were observed between OHIP-14 scores and type of glossectomy performed ($p = 0.0428$), Tracheostomy ($p = 0.0073$), and intra-operative teeth extraction ($p < 0.001$). In contrast, lesion site, biopsy margins, distant metastasis, neck dissection type, flap type, and donor site comorbidities showed no statistically significant variation with OHRQoL scores. Patients' sociodemographic and risk factors did not show any significant associations with OHRQoL scores.

Our results reveal that OHRQoL in OSCC patients following surgical management is significantly impacted by clinical and surgery related factors.

Periodical monitoring and assessment of OHRQoL should be incorporated into routine care pathways of OSCC patients and a holistic, patient-centered approach with psychosocial support, counselling, and rehabilitation may help reduce the negative impacts of surgical treatment.

Keywords: oral squamous cell carcinoma, oral health-related quality of life, oral health impact profile - 14, Sri Lanka

Comparison of the Effectiveness of Two Indirect Restoration Methods for Grossly Carious Teeth

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Restoring grossly decayed teeth is challenging due to compromised tooth structure and uncertain long-term prognosis. Although several indirect restorative options exist, evidence comparing the clinical effectiveness of New Design Indirect Restoration (NDIR) and Resin Bonded Bridges (RBB), the latter widely practiced in the Comprehensive Oral Health Care (COHC) unit, remains limited.

This study evaluated and compared the short-term effectiveness of NDIR and RBB, focusing on retention time, survival and patient reported Oral Health Related Quality of Life (OHRQoL).

An observational study using convenience sampling was conducted among 36 adult patients ($n = 18$ per group) aged over 18 years who had received either NDIR or RBB 1.5 years prior at the COHC unit. Clinical examination assessed retention time in days, survival status of restorations, and abutment health. OHRQoL was evaluated using the interviewer administered Sinhala translated Oral Health Impact Profile 14 (OHIP-14) questionnaire. Data analysis was conducted using the JASP software, with group comparisons and associations evaluated using the Mann-Whitney U test and Fisher's exact test.

Overall, 83.3% of indirect restorations in both groups remained defect free. Defective but surviving restorations were recorded in 11.1% of RBB and 5.6% of NDIR cases. Dislodgement occurred in 5.6% of RBB and 11.1% of NDIR restorations. Median retention time did not differ significantly ($p = 0.478$). However, OHIP-14 scores showed a significant difference, with NDIR demonstrating better patient-reported OHRQoL ($p = 0.006$). Restoration survival showed no association with treatment type ($p = 1$).

This study highlights that NDIR provides short-term retention and effectiveness comparable to RBB for grossly decayed teeth. While both treatments improved OHRQoL, NDIR showed a higher advantage during observed time period, potentially linked to the benefits of the preserved root function, warranting the need for further long-term evaluation in future by addressing limitations.

Keywords: new design indirect restoration, resin bonded bridge, oral health related quality of life, oral health impact profile

Awareness, Knowledge, Perception and Practices Related to Digital Dentistry Among Dental Undergraduates at the Faculty of Dental Sciences, University of Peradeniya

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Digital dentistry (DD) represents a transformative evolution in dental education and practice through technologies such as computer-aided design and computer-aided manufacturing (CAD/CAM). Understanding the preparedness of dental undergraduates to adopt these technologies is vital for future curricular planning.

This descriptive cross-sectional study aimed to assess the levels of awareness, knowledge, perception, and practices related to DD among pre-clinical and clinical dental undergraduates at the Faculty of Dental Sciences, University of Peradeniya.

A pre-tested, self-administered online questionnaire was distributed among 235 students selected from a population size of 599 through stratified random sampling. Sample size was calculated using General Sample Size Formula with Finite Population Correction. Data were analyzed using descriptive analysis and Chi-square test at a significant level of 0.05 with MINITAB 18.

Results showed that awareness of CAD/CAM terminology increased from 23.7% (1st year-1st sem) to, 30.95% (1st year- 2nd sem), 75% (2nd year), 69.39% (3rd year), 58.33% (4th year), and 100% (5th year), with a statistically significant association between clinical status and awareness of digital impression, restoration design, and milling processes ($p<0.05$). However, over 80% of students reported no hands-on exposure to CAD/CAM systems, Intraoral scanners, or 3D-printers. Despite positive perceptions toward DD's efficiency and patient benefits, many students felt that the current Bachelor of Dental Surgery (BDS) curriculum inadequately addresses DD.

The study concludes that while awareness and theoretical knowledge improve with the year of study, practical exposure to digital dentistry remains limited. Enhanced curriculum integration and access to digital tools are recommended to prepare graduates for modern clinical practice.

Keywords: digital dentistry, CAD/CAM, intraoral scanning, 3D printing, undergraduate education

Soft Drink Consumption Patterns and Awareness of the Detrimental Effects of Soft Drink Consumption Among Undergraduates of the University of Peradeniya, Sri Lanka

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The increasing consumption of soft drinks among the young generation raises concern over its potential health effects such as obesity, diabetes and dental problems. This descriptive cross-sectional study assessed soft drink consumption patterns and the level of awareness regarding their detrimental effects among 480 first, second, and third year undergraduates from all nine faculties of the University of Peradeniya. Participants were selected using proportionate sampling based on faculty populations, followed by simple random sampling. Data were collected using a self-administered questionnaire and analysed using R statistical software. Chi-square tests were used to identify associations between sociodemographic characteristics and consumption or awareness levels.

Participants had a mean age of 22.8 years (SD = 1.35), with 67.7% being female. Over half (51.25%) consumed soft drinks less than once a week, with consumption frequency decreasing as students progressed through their academic years. Males consumed soft drinks more frequently than females. The most common reasons for consumption were thirst relief and taste, with purchases mainly from hostel canteens and nearby shops. Only 7.5% experienced health issues after consumption, including tooth sensitivity, gastric discomfort, and bloating.

Overall awareness was low, with an average score of 4.98/10 (SD = 2.36), awarded for each correct answer. Awareness of soft drink-related health risks was higher among students with higher income ($p = 0.134$) and differed across faculties ($p = 0.002$), but was not associated with gender ($p = 0.673$) or residential area. Higher awareness was associated with lower consumption frequency, showing a weak negative correlation (Kendall's $\tau = -0.053$).

This study highlights inadequate awareness and continued soft drink consumption among undergraduates, emphasizing the need for targeted educational interventions to promote healthier beverage choices.

Keywords: soft drinks, awareness, undergraduates, consumption patterns, cross-sectional study

Assessment of the Oral Hygiene and Oral Hygiene Practices Among Patients Undergoing Fixed Orthodontic Treatment Attending Orthodontic Clinics in Dental (Teaching) Hospital, Peradeniya and National Hospital, Kandy

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Fixed orthodontic appliances create plaque-retentive areas that make maintaining oral hygiene challenging, increasing the risk of gingivitis, enamel demineralization, and white spot lesions during treatment. Understanding hygiene practices and identifying patient-related and appliance-related factors that influence plaque accumulation is essential for improving clinical outcomes. This study aimed to assess oral hygiene status, evaluate hygiene practices, and identify barriers faced by patients undergoing fixed orthodontic treatment in two major government hospitals in Sri Lanka.

A descriptive cross-sectional study was conducted among 121 patients who had worn fixed orthodontic appliances for at least six months. Data on socio-demographics, appliance characteristics, hygiene practices, and challenges were gathered using a structured questionnaire. Plaque accumulation was assessed using a modified Silness and Löe plaque index after disclosing, and data were analysed using SPSS 27.

Most participants were aged 18-24 years and female. Overall, 66% demonstrated poor oral hygiene. Patients with only secondary education and those with lower monthly income showed higher plaque scores. A decline in hygiene was noted with increasing duration of appliance wear, with the poorest outcomes beyond three years. Participants who received both verbal and written oral hygiene instructions showed comparatively better plaque scores than those who received only verbal instructions. Brushing after every meal was associated with the best oral hygiene, while brushing once daily showed the poorest outcomes. Trauma from the appliance, difficulty cleaning around brackets, and discomfort were the most commonly reported barriers.

Oral hygiene among fixed orthodontic patients was influenced by multiple interrelated factors including age, education level, brushing frequency, and duration of appliance wear. Despite high reported motivation, most patients demonstrated poor plaque control. Reinforced and multimodal oral hygiene education, together with targeted preventive strategies addressing mechanical and behavioural barriers, is essential to improve oral health outcomes during orthodontic treatment.

Keywords: oral hygiene, orthodontics, plaque accumulation, oral hygiene practices, fixed appliances



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