STURESY 2026

"FROM EXPLORATION TO IMPACT : EMPOWERING THE NEXT GENERATION OF DENTAL RESEARCHERS"

DENTAL STUDENTS' RESEARCH SYMPOSIUM

Book of Abstracts

Volume 5



FACULTY OF DENTAL SCIENCES | UNIVERSITY OF PERADENIYA

Dental Students' Research Symposium

STURESY 2026

"From Exploration to Impact: Empowering the Next Generation of Dental Researchers"

Book of Abstracts

Volume 5

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

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Prof. N. S. Soysa
Prof. F. Noordeen
Dr. N. R. Amarasinghe

Message from the Chief Guest



It is with great pleasure that I extend my warmest greetings and best wishes to the Dental Faculty Undergraduate Research Symposium (STURESY 2026), organized by the Faculty of Dental Sciences, University of Peradeniya, under the timely and inspiring theme, "From Exploration to Impact: Empowering the Next Generation of Dental Researchers."

Undergraduate research is an essential component of a comprehensive university education. It provides students with the opportunity to move beyond the acquisition of knowledge and engage in the process of inquiry, critical thinking, problem-solving, and the generation of new knowledge. Such experiences are particularly valuable in the field of dentistry, where scientific evidence, innovation, and clinical practice must work together to address the evolving oral health needs of individuals and communities.

I am pleased to note that 35 final-year undergraduate research projects of the 2019/2020 batch will be presented at this symposium through oral and poster presentations. The breadth of these studies, encompassing Basic Sciences, Clinical Dentistry, Community Dentistry, and Dental Education, reflects the diverse dimensions of contemporary dental research.

STURESY 2026 provides an important platform for these young researchers to communicate their findings, exchange ideas, receive constructive feedback, and gain valuable experience in presenting scientific work. I am confident that this exposure will encourage them to pursue research with greater enthusiasm and to appreciate its potential to translate scientific discoveries into meaningful improvements in dental healthcare and education.

I also commend the Faculty of Dental Sciences for recognizing and encouraging excellence in undergraduate research. The awards and commendations presented at this symposium will serve not only as recognition of achievement but also as encouragement for students to continue their pursuit of scientific excellence and innovation.

I wish to congratulate all the student researchers, their supervisors, academic staff, and the organizing committee for their commitment and efforts in making STURESY 2026 a meaningful academic event. I hope this symposium will inspire our students to remain curious, innovative, and committed to research throughout their professional careers.

I wish STURESY 2026 every success and hope that the research presented in this volume will contribute to the advancement of dental science and inspire the next generation of dental researchers to transform exploration into meaningful impact.

Professor Terrence Madhujith
Vice-Chancellor
University of Peradeniya

Message from the Dean, Faculty of Dental Sciences



It is my great pleasure to extend my warmest greetings to all participants of STURESY-2026 – Dental Students Research Symposium, held under the inspiring theme, "From Exploration to Impact: Empowering the Next Generation of Dental Researchers."

Research is an essential pillar of dental education and an integral part of developing competent, reflective and innovative dental professionals. Undergraduate research provides students with an opportunity to move beyond established knowledge, ask meaningful questions, critically evaluate evidence and develop solutions to problems relevant to oral health and the wider community. The research presented at STURESY-2026 represents not only the culmination of the students' undergraduate research projects, but also their first significant steps into the world of scientific inquiry.

The journey from exploration to impact, however, extends beyond completing a research project or presenting its findings. The true value of research lies in its ability to generate knowledge, challenge existing understanding and ultimately contribute to improving patient care, public health and professional practice. I therefore encourage our students to view this symposium not as the conclusion of their research experience, but as the beginning of a lifelong engagement with evidence-based practice and scientific discovery.

I commend the final-year students for their commitment and perseverance in undertaking their research projects and acknowledge the invaluable guidance provided by their supervisors, academic staff and all others who supported this endeavour. I also appreciate the efforts of the organizing committee in creating a platform that celebrates and promotes a culture of research within the Faculty.

I am confident that the research presented at STURESY-2026 will inspire our students to continue exploring, questioning and innovating, and that many of them will emerge as future leaders who contribute to advancing dental science and improving the oral health of our communities.

I wish all presenters and participants a rewarding and intellectually stimulating STURESY-2026.

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

Message from the Chairperson, Faculty Research Committee



It is with great pleasure that I extend my warmest greetings to all participants, presenters, supervisors, and guests of our Undergraduate Research Symposium – STURESY 2026.

Undergraduate research represents much more than an academic requirement. It is an opportunity for students to develop curiosity and explore new ideas, and contribute to evidence that can ultimately improve not only oral health and patient care but also dental education and the overall wellbeing of the entire mankind.

This symposium provides a valuable platform for our undergraduate researchers to share their findings, exchange ideas, receive constructive feedback, and appreciate the diversity and relevance of research being conducted within our Faculty. Every research project presented here reflects not only the commitment and enthusiasm of our students, but also the guidance and dedication of their supervisors and examiners.

As the Faculty Research Committee, we are committed to nurturing a strong culture of research and innovation among our students. We believe that encouraging young researchers is essential for the continued advancement of dentistry.

I commend all our undergraduate researchers for their enthusiasm, perseverance, and courage in undertaking research and invaluable contribution of supervisors for guiding them throughout their journey. I also sincerely appreciate the unwavering support of the Vice Chancellor, the Dean, the keynote speaker, judges, sponsor and the STURESY 2026 organizing committee in making this event a reality.

I hope this symposium will inspire our students to look beyond the completion of their individual projects and recognize the broader possibilities that research offers. May the ideas presented today become the foundation for future discoveries and meaningful contributions to society.

I wish the symposium every success and all our young researchers an intellectually rewarding and inspiring experience.

Prof. M. P. Paranagama
Chairperson, Faculty Research Committee
Faculty of Dental Sciences
University of Peradeniya

Keynote Speech

From Ideas to Impact: Responsible AI and Multidisciplinary Research for Societal Challenges



Prof. Janaka Ekanayake
Chair Professor of Electrical and Electronic Engineering
Department of Electrical and Electronic Engineering
Faculty of Engineering
University of Peradeniya
ekanayakej@eng.pdn.ac.lk

Research careers rarely follow a straight line. They evolve in response to emerging societal needs, technological advances, and opportunities for collaboration across disciplines. This presentation traces one such journey, from foundational work in renewable energy, grid integration, smart grids, and artificial intelligence (AI) for power systems, to multidisciplinary research addressing pressing challenges in healthcare, agriculture, sustainability, and society.

Drawing on this experience, the presentation examines how impactful research begins: with an idea, an observation, a practical problem, or a gap in existing knowledge. It then outlines how such starting points can be developed into feasible, relevant, and timely solutions through systematic inquiry.

This approach is illustrated through ongoing healthcare research on the early detection of oral cancer in Sri Lanka. Because specialist dental services alone cannot meet population-wide screening needs, there is a strong case for scalable, technology-supported solutions. The presentation discusses the development of AI-supported approaches for screening, risk prediction, and clinical decision support.

Innovation, however, must be responsible and human-centred. The presentation highlights the importance of data ownership, privacy, explainability, human evaluation, and human oversight across the entire AI lifecycle. It also considers the growing energy and water demands of AI as emerging sustainability challenges that researchers can no longer overlook.

The central message is that successful research is not about applying the newest technology for its own sake. It is about identifying the right problem at the right time, bringing together the right disciplines, choosing feasible solutions, and ensuring that innovation remains responsible, sustainable, and beneficial to society.

Programme

9.00 a.m.	Technical Sessions
12.00 noon	Lunch
1.45 p.m.	Arrival of Guests
2.00 p.m.	Lighting of the Traditional Oil Lamp
2.10 p.m.	Welcome Address by Prof. B. M. H. S. K. Banneheka Dean, Faculty of Dental Sciences
2.20 p.m.	Address by the Chief Guest, Prof. W. M. T. Madhujith Vice Chancellor, University of Peradeniya
2.30 p.m.	Launching of the Book of Abstracts
2.35 p.m.	Keynote Speech by Prof. Janaka B. Ekanayake Chair Professor of Electrical and Electronic Engineering "From Ideas to Impact: Responsible AI and Multidisciplinary Research for Societal Challenges"
2.55 p.m.	Launching of the Faculty Journal by the Chief Editor
3.00 p.m.	Awards Ceremony
3.50 p.m.	Vote of Thanks by Prof. M. P. Paranagama The Chairperson, Faculty Research Committee
3.55 p.m.	National Anthem
4.00 p.m.	Refreshments

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Technical Session I - Oral Presentations

Sugar Consumption and Oral Hygiene Status in 6 - 10-Year-Old Children With and Without Cleft Lip and Palate Attending the Dental Hospital (Teaching), Peradeniya

A. A. D. K. H. Amarasinghe[1]*, D. D. P. Abeysinghe[1], M. A. F. Asha[1], W. M. P. S. K. Wijekoon[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19005@dental.pdn.ac.lk

Cleft lip and palate (CL/P) are common congenital anomalies that can adversely affect oral health due to anatomical and functional limitations and potentially compounded by dietary behaviours such as frequent sugar consumption. This study compared oral hygiene and sugar consumption between children with and without CL/P attending the Dental Hospital (Teaching), Peradeniya (DHT).

A comparative cross-sectional study was conducted over approximately four months among 62 children aged 6–10 years, comprising 31 children with CL/P (cases) and 31 pair-matched non-cleft children (controls), recruited using convenience sampling according to predefined inclusion criteria. Oral examinations were conducted at the Oral Surgery and Paedodontic Clinics, and total caries experience (DMFT/dmft) and plaque index (PI) were assessed. A researcher-administered questionnaire was used to collect information on the child's daily sugar consumption over the preceding three months from the primary caregiver through in-person interviews.

No statistically significant differences were found between cases and controls in Total Caries Experience (TCE), PI, or Daily Sugar Consumption (DSC). The cleft group showed slightly higher PI and DSC, while controls had marginally higher TCE. DSC showed a clinically important trend towards higher consumption among children with CL/P ($p=0.097$), illustrating possible statistical significance with a larger sample. A strong positive correlation was observed only between PI and TCE ($r=0.774$, $p<0.001$), showcasing that PI is the most immediate determinant of TCE.

In this matched sample, CL/P was not significantly associated with differences in TCE, PI, or DSC. However, the higher DSC observed among children with CL/P warrants further investigation in larger samples. The strong association between PI and TCE highlights the importance of effective oral hygiene and tailored preventive oral care for children regardless of cleft status.

Keywords: cleft lip and palate, daily sugar consumption, plaque index, total caries experience

Financial assistance from the University of Peradeniya is gratefully acknowledged.

Comparing Peer And AI-Based Grading and Feedback of Written Assignments in Dental Education

H. M. K. G. K. Herath[1*], L. K. S. Harshana[1], S. F. Hima[1], J. A. C. K. Jayawardena[2] M. M. K. M. Manathunga[2], D. D. Ihalagedara[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka. [2]Dental E-learning Unit, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19031@dental.pdn.ac.lk

Increasing student numbers without a corresponding increase in academic staff has created challenges in providing timely, individualized feedback on written assignments. Peer assessment and artificial intelligence (AI)-based feedback may provide supplementary strategies; however, their use in undergraduate dental education requires further evaluation. This study compared peer-based and AI-based grading and feedback of written assignments, focusing on agreement with students' self-evaluation marks and perceptions of feedback.

A cross-sectional comparative study was conducted using 107 student assignments submitted through DentMoodle. The assignment evaluated comprised three distinct components (Questions 1.1, 1.2, and 1.3). Two AI platforms, designated as AI Model 1 (ChatGPT) and AI Model 2 (Claude), were evaluated under short and long feedback conditions. The same standard rubric was used for peer evaluation, self-assessment and AI evaluations. Wilcoxon signed-rank tests were used to compare grading differences, and Kruskal-Wallis tests with Holm-adjusted post-hoc comparisons were used to analyze perception outcomes.

Results showed that agreement between AI-generated marks and self-evaluation was inconsistent; both AI models exhibited a mix of significant deviations and non-significant agreement depending on the specific question part. Conversely, peer-reviewed marks consistently aligned with self-evaluations across all three individual questions ($p >= 0.051$). Regarding perceptions, AI feedback was rated significantly higher than peer feedback across all domains ($p < 0.001$), with no significant differences found between short and long AI feedback formats ($p > 0.05$).

AI may serve as a supportive formative feedback tool. Given the variable grading agreement with student self-evaluations, future studies should compare both approaches with expert examiner marks to establish true grading validity.

Keywords: artificial intelligence; peer assessment; dental education; feedback; written assignments

Financial assistance from the University of Peradeniya is gratefully acknowledged.

Clinicopathological Characteristics of Recurrent and Non-Recurrent Fibrous Epulis and Ossifying Fibrous Epulis

P. K. K. D. Kodithuwakku[1*], G. H. D. Jayatilake[1], M. M. Kalupahana[1], P. R. Jayasooriya[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19045@dental.pdn.ac.lk

Fibrous Epulis (FE) and Ossifying Fibrous Epulis (OFE) are common reactive, non-neoplastic gingival lesions with potential for recurrence. This study compared their clinicopathological characteristics, clinicopathological concordance, and collagen deposition patterns, addressing the lack of published Sri Lankan data.

A retrospective descriptive cross-sectional study analysed 198 FE cases (183 primary, 15 recurrent) and 150 OFE cases (134 primary, 16 recurrent) diagnosed at the Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, from 2015 to 2024. Masson's Trichrome staining was performed on 10 recurrent and 10 non-recurrent cases to assess collagen deposition and stromal cellularity related to recurrence. Statistical analysis included Chi-square test, Mann-Whitney U test, and Fisher's Exact test.

Non-recurrent FE occurred significantly in older individuals than OFE (mean age 42.63 vs. 37.05 years, p=0.010). Both lesions showed female predominance (FE: 63.4%, OFE: 70.1%) and predominantly affected the anterior gingiva (FE: 72.3%, OFE: 69.5%). Clinicopathological concordance was considerably higher in non-recurrent FE (19.7%) compared to OFE (2.4%). Higher number of OFE were discordant and clinically diagnosed as malignant compared to FE. OFE was significantly more often ulcerated (41.8% vs 22.4%, $p<0.001$), whereas FE showed higher inflammatory cell infiltration (41.5% vs 20.2%, $p<0.001$). Although statistical analysis was not possible due to the small sample, Masson's Trichrome staining revealed that non-recurrent lesions had predominantly loose collagen architecture, whereas recurrent lesions showed a predominance of dense collagen bundles.

The findings demonstrate distinct clinicopathological features, supporting OFE as a histopathological variant of FE. However, recurrence could not be predicted solely from these characteristics. Overlapping histopathological appearances and occasional clinical resemblance to malignancy highlight the importance of accurate histopathological diagnosis, appropriate treatment, and long-term follow-up.

Keywords: fibrous epulis, ossifying fibrous epulis, recurrence, clinicopathological characteristics, collagen pattern

Financial assistance from the University of Peradeniya is gratefully acknowledged.

Association Between Betel Quid Chewing and Oral Verrucous Lesions: A Retrospective Analysis

W. A. V. K. Perera[1]*, N. T. Nawarathna[1], K. A. D. K. Nimasha[1], B. S. M. S. Siriwardena[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka. [2]Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19060@dental.pdn.ac.lk

Oral Verrucous Lesions (OVLs) comprise a heterogeneous group of oral mucosal lesions with varying malignant potential. Betel quid chewing is prevalent in Sri Lanka and has been implicated in potentially malignant disorders. However, its relationship with the histological characteristics of OVLs remains insufficiently explored in the Sri Lankan population. This study aimed to determine the association between betel quid chewing and related habits with the histological characteristics of OVLs.

A retrospective descriptive study was conducted using the Oral Pathology database of the Faculty of Dental Sciences, University of Peradeniya. Records from 2010 to 2022 were reviewed, and 225 confirmed cases were included. Demographic and habit histories, clinical findings, grade of epithelial dysplasia, level of host immune response and occurrence of verrucous carcinoma were recorded. Associations were assessed using Chi-square or Fisher's exact tests and Spearman's correlation, with $p < 0.05$ considered statistically significant.

Out of 225 patients, 209 (92.9%) were betel quid chewers and 16 (7.1%) were non-chewers. The majority were male (79.1%), and the 60–69-year age group was most represented (31.6%). The buccal mucosa was the most commonly affected site (64.9%). Moderate dysplasia was most frequent among chewers (42.1%) and non-chewers (62.5%). Although severe dysplasia was more frequent among chewers (30.6%) than non-chewers (12.5%), the association was not significant ($p = 0.321$). No significant associations were observed between betel quid chewing and host immune response ($p = 0.757$) or verrucous carcinoma ($p = 1.000$). Combined habits (smoking and/or alcohol consumption) were also not significantly associated with dysplasia severity ($p = 0.759$).

Betel quid chewing was prevalent among patients with OVLs; however, no significant association was observed between the habit and histopathological characteristics. Future prospective multicentre studies with larger, more balanced comparison groups and appropriate controls are recommended.

Keywords: oral verrucous lesions, betel quid chewing, epithelial dysplasia, host immune response, verrucous carcinoma

Association Between Tooth Brushing Habits and Early Childhood Caries Among 4 - 5-Year-Old Preschool Children in Selected Districts in Sri Lanka

K. M. D. Rangika[1], R. A. T. P. S. Ranawaka[1], M. B. N. S. Rashmitha[1], S. M. S. Rashmithara[1], E. M. U. C. K. Herath[2], P. R. Jayasooriya[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19072@dental.pdn.ac.lk

In Sri Lanka, an Early Childhood Caries prevalence of 63.1% is reported among 5-year-old children, representing a major oral health issue among preschool children. Tooth brushing habits play a major role in reducing plaque accumulation and bacterial activity in the oral cavity, thereby lowering the risk of ECC. This study aimed to evaluate the association between tooth brushing habits and ECC among 4-5-year-old preschool children and ultimately encouraging effective preventive strategies in Sri Lanka. A descriptive cross-sectional study was done among 4-5-year-old preschool children in Kandy, Matale and Kegalle districts. Self-administered questionnaire and clinical examination were conducted to obtain information about dmft, dmfs, plaque score and brushing habits. A total of 263 children participated in the study. Nonparametric statistical tests, including the Mann-Whitney U test and Kruskal-Wallis test, were used to evaluate the association between brushing habits and oral health outcomes.

Among 263 preschool children aged 4–5 years, the prevalence of ECC was 66.92%, with 86.93% of affected children having untreated lesions. The mean dmft, dmfs, and plaque scores were 3.17, 5.82, and 39.71, respectively. Caregiver-reported brushing habits showed no significant association with caries indices or plaque score. However, directly observed brushing technique demonstrated significant negative correlations with dmft ($r = -0.330$, $p < 0.001$), dmfs ($r = -0.279$, $p < 0.001$), and plaque score ($r = -0.149$, $p = 0.016$), indicating high observation scores relate to low ECC risk. Multiple linear regression identified brushing observation score (95% CI: -0.634 to -0.308), total sugar intake (95% CI: 0.609 to 5.507) with dmft as significant predictors of caries experience. Strong positive correlations were found between dmft and dmfs, while plaque score moderately correlated with both indices.

The findings indicate a high ECC burden among preschool children in Kandy, Matale, and Kegalle districts. The use of proper brushing techniques may influence reducing ECC burden, emphasizing the importance of proper brushing techniques and dietary counseling in oral health promotion programs.

Keywords: Early Childhood Caries, tooth brushing habits, dmft, dmfs, plaque score

Financial assistance from the University of Peradeniya is gratefully acknowledged.

Postoperative Complications and Associated Factors in Patients Undergoing Surgical Removal of Impacted Mandibular Third Molar at the Oral and Maxillofacial Unit at the University Dental Hospital, Peradeniya

K. M. S. D. Rodrigo[1]*, H. H. N. Rupasinghe[1], R. Sabeeha[1], R.M.S.H.B. Medawela[2], D. L. Ratnayake[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka. [2]Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka. [3]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19079@dental.pdn.ac.lk

Surgical removal of impacted mandibular third molars is associated with substantial early postoperative morbidity, yet local evidence remains limited. This study assessed the proportion of postoperative complications and associated factors among patients undergoing surgical removal of impacted mandibular third molars.

A hospital-based cross-sectional analytical study was conducted among 100 consecutive patients aged 21–40 years with vertical or mesio-angulated impactions, recruited from February to May 2026. Data were collected using history and examination sheets and postoperative data extraction sheets. Pain was assessed using a Visual Analogue Scale at 24 hours, 72 hours and one week. Dental anxiety and patient satisfaction were assessed using a VAS. Facial swelling was measured using the tragus-to-corner-of-mouth method; trismus, infection, dry socket, bleeding and altered sensation were assessed clinically. Binary logistic regression was used to identify independent factors associated with pain and swelling.

At 24 hours, 90.0% of participants reported moderate-to-severe pain, 63.0% had moderate-to-severe facial swelling and 88.0% had trismus. Infection, dry socket and altered sensation occurred in 7.0%, 1.0% and 2.0%, respectively. Postoperative bleeding occurred in 14.0%. Dexamethasone use was independently associated with reduced facial swelling (OR = 6.014, 95% CI: 2.339–15.460, $p < 0.001$), although only 33.0% received it. Female sex was independently associated with moderate-to-severe pain at 24 hours (OR for males = 0.113, 95% CI: 0.018–0.697, $p = 0.019$). Low or no dental anxiety was associated with lower odds of pain at 72 hours. By one week, 11.0% reported moderate-to-severe pain and 63.0% reported high satisfaction.

Early postoperative morbidity was substantial but reduced markedly within one week. These findings support consideration of standardised perioperative protocols, including dexamethasone use in eligible patients, alongside patient-centred pain counselling. Prospective studies with larger samples are needed to validate these findings and guide evidence-based postoperative care.

Keywords: mandibular third molar, postoperative complications, dexamethasone, postoperative pain, facial swelling

Formulation of a Herbal Mouthwash and *In Vitro* Evaluation of Its Buffering Capacity

H. A. W. H. Weerasingha[1]*, U. A. W. Wellala[1], M. G. C. U. Wickramanayaka[1], G. J. Panagoda[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka. [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19101@dental.pdn.ac.lk

Salivary buffering capacity is an essential protective mechanism that maintains salivary pH above the critical level of 5.5, reducing the risk of enamel demineralization and dental caries. Although synthetic mouthwashes are effective, prolonged use may cause adverse effects, increasing interest in plant-based alternatives. Most studies on *Cuminum cyminum* (cumin) have focused on its antioxidant and antimicrobial properties, while its role in pH buffering remains largely unexplored. This study aimed to formulate a herbal mouthwash using cumin seeds and evaluate its effect on salivary buffering capacity *in vitro*.

A quasi-experimental study was conducted at the Division of Microbiology, Faculty of Dental Sciences, University of Peradeniya. The mouthwash was prepared using a simple water-based extraction method. Buffering capacity was assessed by acid titration using 0.1 M HCl in artificial saliva samples and stimulated human saliva samples from 30 healthy undergraduate volunteers aged 20–30 years, selected through convenience sampling. Human saliva trials were conducted on two separate days. Data were analyzed using a paired-sample t-test.

The formulated mouthwash significantly increased buffering capacity in both artificial and human saliva. In artificial saliva, mean buffering capacity increased from 6.367×10^{-6} mol/l/pH in the control group to 11.823×10^{-6} mol/L/pH in the test group. In stimulated human saliva, the test group showed a statistically significant improvement compared with the control group ($t(29) = 6.02$, $p = 1.49 \times 10^{-6}$), with a mean difference of 6.25×10^{-6} (95% CI: 4.132×10^{-6}–8.37×10^{-6}). Inter-individual variation in buffering response was observed among participants.

The cumin seed-based mouthwash increased salivary buffering capacity under the experimental conditions of this *in vitro* study. Further *in vivo* studies should assess long-term effects, explore combinations with other herbal ingredients, and investigate ultrasonication to improve extraction efficiency.

Keywords: salivary buffering capacity, *Cuminum cyminum*, herbal mouthwash, dental caries

Awareness and Behavioural Changes Among First-Degree Household Relatives of Oral Cancer Patients Attending the Dental Teaching Hospital, Peradeniya

W. G. L. C. Wickramasinghe[1*], R. Yalvily[1], A. Yogarajah[1], P. S. V. Pathirana[1], N. S. S. Jayasuriya[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
[*]d19106@dental.pdn.ac.lk

Oral cancer remains a major health concern in Sri Lanka, driven by avoidable lifestyle risk factors such as betel quid chewing, smokeless tobacco use, smoking and alcohol consumption. Beyond patients, it may also affect first-degree relatives (FDRs) sharing the same household exposures and risk behaviours. A patient's diagnosis may raise family awareness, yet its behavioural impact remains understudied in Sri Lanka. This study assessed awareness and behavioural changes among FDRs of oral cancer patients attending the Dental Teaching Hospital, Peradeniya.

This cross-sectional descriptive study assessed awareness levels and behavioural changes among FDRs of oral cancer patients attending the Dental Teaching Hospital, Peradeniya. Data were collected from 105 eligible participants using an interview-administered questionnaire capturing sociodemographic characteristics, awareness of the disease and its risk factors, levels of worry and habit modification. IBM SPSS 25 was used for descriptive statistics, correlation analysis, and multiple logistic regression.

Among the 105 respondents, males constituted the majority (68.57%), aged on average 39.19 years old and mostly children of oral cancer patients (50.48%). Awareness of risk factors was moderate: betel quid chewing (69.5%), tobacco use (67.5%) and smoking (65.7%). The most recognized symptom was a non-healing ulcer (61.9%). Many relatives reduced tobacco, betel quid, alcohol and cigarette use after diagnosis. Worry correlated significantly with stage of motivation (rho = 0.250, p = 0.010) and behavioural readiness to change (rho = 0.498, p< 0.001). Logistic regression identified worry as the only significant predictor of concern (p< 0.001); relationship to patient, duration since diagnosis and perceived comparative risk were not significant.

FDRs of oral cancer patients showed moderate awareness of major risk factors and early warning signs. A notable proportion changed their substance use after the patient's diagnosis. Cancer-related worry was significantly associated with motivation to quit, though worry alone appears insufficient to sustain behaviour change. These findings support integrating structured, family-centred education and brief motivational interventions into the oral cancer management pathway.

Keywords: oral cancer, first-degree household relatives, awareness, behavioural change, risk factors

Knowledge, Attitude and Practice on Infection Control Among Dental Supporting Staff in Government Dental Clinics in the Kandy District

R. R. Uyanahewa[1]*, J. A. L. Lakshan[1], S. Merlin[1], H. M. R. W. Angammana[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19sp110@pdn.ac.lk

Infection control is critical in dentistry due to direct contact with blood, saliva, and oral secretions, and the risk of indirect transmission via contaminated instruments. Dental supporting staff play a key role in preventing transmission, yet their knowledge, attitudes, and practices remain understudied in Sri Lanka's government sector. This study assessed knowledge, attitude, and practice (KAP) on infection control among dental supporting staff in government dental clinics in Kandy District, and examined associations with gender, age, education, occupation, and experience.

A descriptive cross-sectional study was conducted among 108 dental supporting staff (government nurses, dental nurses, dental surgery assistants, and attendants) using a validated, self-administered questionnaire in English, Sinhala, and Tamil. Knowledge, attitude, and practice levels were assessed using standard scoring methods, and associations with demographic variables were analysed using the Fisher-Freeman-Halton Exact Test.

The majority of respondents were female (94.4%), aged 41–60 years (40.7%), with over five years of experience (44.4%). Knowledge was moderate in 60.2% and poor in 34.3%, with only 5.6% showing good knowledge; gaps were identified in sterilization parameters, blood spillage management, and instrument storage duration. In contrast, 95.4% showed good attitudes and 99.1% achieved good practice. Occupation was significantly associated with knowledge level ($p < .001$): dental nurses had the highest proportion of moderate-to-good knowledge (93.5%), while attendants (44.7%) and government nurses (54.5%) had the highest poor-knowledge rates. Age was significantly associated with attitude level ($p = .037$), with neutral attitudes confined to the 41–60 year age group. No significant association was found between practice level and any demographic variable.

Despite highly positive attitudes and practice, significant knowledge gaps exist. Occupation-specific training is essential to address the knowledge-practice gap and establish a proper infection control system in government dental clinics.

Keywords: infection control, dental supporting staff, knowledge, attitude, practice

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Factors Associated with Xerostomia, Hyposalivation, and Its Impact on Quality of Life and Oral Health in Patients Attending the Dental Hospital, Peradeniya

A. Nixon[1]*, Y. H. M. Jayaprasadi[1], R. D. Jayasinghe[2], L. A. A. Pradeepika[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka; [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19113@dental.pdn.ac.lk

Xerostomia is the subjective feeling of dry mouth, which may occur with or without reduced salivary flow (hyposalivation). It can adversely affect oral health, daily functioning, and OHRQoL (Oral Health Related Quality of Life). Despite its clinical significance, limited data are available on xerostomia and its associated factors in Sri Lanka.

A cross-sectional descriptive study was conducted among 301 patients aged above 18 years attending the Dental Teaching Hospital, Peradeniya. Data were collected using an interviewer-administered questionnaire, followed by the self-administered Summated Xerostomia Inventory (SXI) and Oral Health Impact Profile-14 (OHIP-14) questionnaires. Participants with an SXI score ≥11 were considered to have xerostomia. Unstimulated salivary flow rate and oral health assessments were performed among patients identified with xerostomia based on the SXI score. Data were analyzed using descriptive statistics, Chi-square tests, t-tests, and Spearman correlation analysis.

The prevalence of xerostomia was 15.6%. Participants with xerostomia had a significantly higher mean age than those without xerostomia (p=0.006). No significant associations were observed with sex, smoking, alcohol use, or betel chewing. Xerostomia severity showed a weak negative correlation with salivary flow rate ($\rho = -0.192$), although this was not statistically significant (p=0.196). Participants with xerostomia demonstrated poorer OHRQoL, with significantly higher OHIP-14 scores compared to participants without xerostomia. A positive correlation was observed between xerostomia severity and OHIP-14 scores (r=0.284, p=0.053). Xerostomia severity showed a weak positive correlation with total DMFT score, although the association was not statistically significant ($\rho = 0.082$, p=0.583). Oral mucosal lesions were relatively uncommon.

Xerostomia was significantly associated with older age and poorer OHRQoL among patients attending Dental Hospital, Peradeniya. Early identification and appropriate management of xerostomia are important to improve OHRQoL.

Keywords: xerostomia, hyposalivation, salivary flow rate, oral health related quality of Life

Financial assistance from the University of Peradeniya is gratefully acknowledged.

Prevalence and Associated Risk Factors of Work-Related Musculoskeletal Disorders Among Dental Technicians in Sri Lanka

W. G. S. Weliketiya[1]*, P. L. A. S. Madhushyani[1], J. M. N. V. B. Jayasekera[1], R. M. S. G. K. Rasnayaka[2], I. P. Thilakumara[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Prosthetic Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19sp119@dental.pdn.ac.lk

Work-related musculoskeletal disorders (WMSDs) are a recognized occupational health concern among dental professionals, caused by repetitive movements, awkward postures, and prolonged static work positions. Dental technicians face unique ergonomic hazards, including sustained neck and back flexion and repetitive fine motor activity, yet remain understudied, with no published data available for Sri Lanka. This study aimed to determine the prevalence, identify associated risk factors, and to assess the impact of WMSDs on work-life of dental technicians.

A cross-sectional study was conducted among 124 dental technicians from government and private dental laboratories across Sri Lanka, recruited through convenience sampling. Data were collected using a structured questionnaire comprising socio-demographic information, occupational history and ergonomic exposures, and the Extended Nordic Musculoskeletal Questionnaire. Statistical analysis included descriptive statistics, Chi-square and Fisher's exact tests, Welch t-tests, Mann–Whitney U tests, Cramer's V analysis, and binary logistic regression.

The overall prevalence of WMSD symptoms was 79.0%. The neck and shoulders were the most frequently affected body regions. Strong temporal persistence of symptoms was observed across recall periods (Cramer-V 0.62-0.92). Staying in the same posture ($p = 0.001$) and awkward posture ($p = 0.0013$) showed the strongest associations with WMSD status. Participants with WMSDs had a significantly higher mean BMI (24.70). In the regression analysis, age, staying in the same posture, and awkward posture were the only independent significant predictors of WMSDs. Among the participants, 75.5% reported difficulty performing work activities due to WMSDs, with a significant number of affected participants using medication or seeking medical consultation.

WMSDs are highly prevalent among dental technicians in Sri Lanka, with ergonomic exposures being the strongest risk factors and BMI and age being contributors, highlighting the need for targeted ergonomic and occupational health interventions.

Keywords: musculoskeletal disorders, dental technicians, ergonomic risk factors, occupational health, prevalence

Knowledge, Readiness and Confidence Level for Emergency Management of Dental Trauma among School Dental Therapists in Central Province, Sri Lanka

A. K. M. C. Perera[1] *, P. M. K. N. Jayawickrama[1], D. K. A. Lankawarne[1], S. Rasnayaka[2], P. A. Hewage[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Prosthetic Dentistry, [3]Department of Restorative Dentistry, University of Peradeniya, Sri Lanka.

*d19126@dental.pdn.ac.lk

Traumatic dental injuries (TDIs) are a major public health concern, particularly among school children. According to the International Association of Dental Traumatology (IADT) guidelines, timely and appropriate management is important for achieving a better prognosis. In Sri Lanka, school dental therapists (SDTs) can act as first responders to dental emergencies. Therefore, their ability to recognize, manage and appropriately refer TDIs is essential. This study aimed to assess the knowledge, readiness and confidence of SDTs in the emergency management of TDIs in Central Province, Sri Lanka.

The study consisted of a descriptive cross-sectional survey. A self- administered, pre-tested questionnaire was used to assess knowledge, readiness and confidence level related to TDIs. ANOVA and Pearson's correlation tests were used to assess associations and correlations between different variables, respectively.

A total of 39 SDTs participated in the study. Overall, the participants demonstrated a moderate level of knowledge. Most participants reported that their knowledge had been gained through academic training. Only 30.76% were aware of the IADT guidelines, while only 5.12% identified milk as the most appropriate storage medium for an avulsed tooth. Participants' confidence levels ranged from 'neutral to confident'. A significant association was found between participants' work district and their knowledge level ($p=0.014$) and a moderately positive correlation was found between knowledge level and level of confidence ($p=0.003$). No relationship was found between confidence and years of service. The availability of materials and facilities for managing TDIs varied between districts. All participants expressed an interest in receiving further training on the emergency management of TDIs.

In conclusion, the study showed that SDTs have a moderate level of knowledge and confidence regarding the emergency management of TDIs. School dental therapists should be better reinforced and updated on management of TDIs.

Keywords: traumatic dental injuries, school dental therapists, emergency management, Central Province, Sri Lanka

Geospatial Analysis of Accessibility to Government Dental Services for Elderly Population in Kandy District, Sri Lanka

K. H. A. A. Rathnayake[1], S. M. D. P. Samarakoon[1*], A. G. R. M. S. K. K. Ranaweera[1], R. R. G. B. W. W. C. Weraliyadda[1], G. Nawarathna[2], T. Hegoda[3], N. D. K. Dayawansa[4], N. S. Piyarathne[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Post Graduate Institute of Medicine, University of Colombo, Sri Lanka, [4]Department of Agricultural Engineering, Faculty of Agriculture, University of Peradeniya, Sri Lanka.

[*]d19129@dental.pdn.ac.lk

Access to government dental services among the elderly is influenced by individual and financial barriers as well as the spatial distribution of dental facilities. Geographic Information Systems (GIS) offer an objective tool to evaluate the dimension of geographical accessibility. This study aimed to analyze the geospatial distribution of government dental clinics relative to the elderly population (aged 65 or above) in the Kandy District, Sri Lanka.

Locations of government dental clinics were obtained from the RDHS Office Kandy. These were geo-coded using Google Earth. Elderly population data were obtained from the 2024 Population census. ArcGIS Pro was used to perform spatial analysis, including overlay mapping of clinic locations against elderly population clusters, calculation of elderly to clinic ratios across DS divisions, and generation of Thiessen polygons and heat maps to visualize geographic disparities in accessibility.

Fifty government dental clinics were identified, of which 43 were functional after excluding four Adolescent Dental Clinics and three nonfunctional clinics. Elderly population density was highest in divisional secretariats of Kandy four Gravets, Gangawata Korale, Akurana, and Pathadumbara. Number of elderly people per dental clinic ratio was highest in Pasbage Korale (8,777), Yatinuwara (8,543), and Harispattuwa (6,867), and lowest in Delthota (2,012.5) and Hatharaliyadda (2,489.5). Thiessen polygon analysis confirmed larger catchment areas in peripheral Grama Niladhari divisions such as Mahawala, Bembiya, while advanced treatments remained centralized at National Hospital Kandy and Teaching Hospital Peradeniya.

The results of the study revealed that the government dental clinics in Kandy District are unevenly distributed relative to the elderly population, leaving peripheral and rural divisions with larger service catchments and limited access to specialized care such as denture facilities despite an adequate overall clinic count within the district. Future spatial studies incorporating travel time and network analysis are recommended to refine geriatric dental service planning.

Keywords: GIS, spatial accessibility, government dental clinics, elderly population, Kandy District

Distribution of Cleft Lip, Cleft Palate and Associated Factors in Patients Presenting to Smile Train Center, Faculty of Dental Sciences, University of Peradeniya

R. B. I. L. Samarasinghe[1]*, J. Sakithya[1], K. Rusanthy[1], K.G. K.D. Kapugama[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19144@dental.pdn.ac.lk

Orofacial clefts (OFCs) are the most common congenital craniofacial anomalies worldwide. In Sri Lanka, nationally representative data mapping specific cleft phenotype against demographic and parental risk factors remain limited.

This study aimed to describe the distribution of Unilateral Cleft Lip (ULCL), Bilateral Cleft Lip (BLCL), and Isolated Cleft Palate (ICP) among patients presenting to the Smile Train Cleft Centre (STCC), University of Peradeniya, and to evaluate potential associations with demographic and socio - economic factors.

A descriptive cross-sectional study was conducted among 237 non-syndromic patients with OFCs who presented between January 2017 and December 2025 to STCC using data from clinical records and a structured questionnaire. Data were analyzed using descriptive statistics and Pearson's Chi-square tests, with significance set at $p<0.05$.

ULCL was the most frequent phenotype (39.2%, n=93), followed by BLCL (27.0%, n=64) and ICP (20.3%, n=48). Cleft type was significantly associated with sex ($\chi^2 = 10.511$, $p = 0.005$); males showed a marked predominance in BLCL (71.8%), while females were more affected by ICP (54.2%). No significant associations were found between cleft type and ethnicity, parental education, consanguinity, or parental age. Nearly half of the cohort originated from the Central Province (47.7%), with the highest presentation from the Kandy district. Most infants (77.6%) were brought for treatment within the first six months of life.

ULCL was the most prevalent presentation and sex was significantly associated with cleft phenotype, whereas demographic and parental factors showed no significant relationships. There's a necessity to strengthen antenatal screening for early detection of orofacial clefts during pregnancy, even though early postnatal referral pathways function efficiently. This study counts as the first to document regional distribution of OFCs in Sri Lanka. Larger multi-centre studies are recommended to better define national cleft patterns and improve multidisciplinary cleft care in Sri Lanka.

Keywords: Orofacial clefts, Sri Lanka, parental education, consanguinity, antenatal screening

Forensic Significance of Heat-Induced Alterations in the Colour and Physical Characteristics of Permanent Teeth Under Controlled Incineration Conditions

H. R. K. D. L. N. K. Munasinghe[1], R. H. H. M. Jayarathna[1], F. S. M. Muzammil[1*], N. S. Piyarathne[2], R. W. Pallegama[2,] A. K. S. Arambawatta[2]

Faculty of Dental Sciences, University of Peradeniya, Sri Lanka,
Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19154@dental.pdn.ac.lk

Forensic identification of burned human remains relies heavily on dental tissues due to their resistance to thermal destruction, yet standardized, population-relevant data on temperature-induced changes remain limited, particularly in Sri Lanka. This study aimed to evaluate structural and colourimetric alterations in permanent teeth following controlled incineration.

Forty extracted, caries-free premolars were randomly divided into four groups (n=10) and incinerated at 200 °C, 400 °C, 600 °C, and 800 °C for 60 minutes in a muffle furnace. Pre- and post-incineration weight was recorded using a microscale, macroscopic structural changes were assessed under 2.5× magnification, and root-surface colour was measured at three standardized points using the CIELAB system (L*, a*, b*) from standardized digital photographs. Data were analysed using one-way ANOVA ($\alpha = 0.05$).

Post-incineration weight differed significantly between groups ($F(3,36) = 3.498$, $p = 0.025$), with the greatest weight loss observed at 600 °C and 800 °C. L*, a*, and b* values also differed significantly ($p < 0.001$, $p = 0.007$, and $p < 0.001$, respectively), with progressive darkening at 400 °C (L* = 10.77 ± 7.03) followed by calcination-related lightening at 800 °C (L* = 71.37 ± 7.38). Morphological deterioration, including crazing, fissuring, and enamel-dentine separation, increased progressively with temperature, becoming near-universal at 600 °C and 800 °C.

Heat induces significant, quantifiable structural and colourimetric alterations in permanent teeth, detectable through accessible digital image analysis. These findings provide population-relevant reference data supporting standardized forensic protocols for identifying thermally altered dental remains in resource limited settings.

Keywords: forensic odontology, incineration, CIELAB colourimetry, tooth colour, dental identification

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Technical Session II - Poster Presentations

Clinical Assessment of the Accuracy of the Gutta-Percha Indentation Method for Working Length Measurement During Crown-Down Root Canal Treatment

P. A. S. L. Dayarathne[1*], K. K. G. P. L. Bandara[1], G. M. Chamodini[1], K. M. Wijerathne[2], M. C. N. Fonseka[2], S. Samita[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka,[2]Department of Restorative Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka.

*d19014@dental.pdn.ac.lk

Accurate working length (WL) determination is essential for successful root canal treatment. The gutta-percha (GP) indentation method is a simple supplementary technique, but limited clinical evidence is available. This study assessed its accuracy during crown-down root canal treatment.

An analytical cross-sectional clinical study was conducted at the Departments of Comprehensive Oral Health Care and Restorative Dentistry, Faculty of Dental Sciences, University of Peradeniya. Forty root canals in permanent premolars requiring root canal treatment were consecutively selected. WL was determined using tactile length (TL), electronic apex locator length (EALL), radiographic length (RL), and GP indentation length (GPIL) using ProTaper, Greater Taper and Standard GP. Calibrated operators obtained measurements under blinded conditions. Data were analysed using repeated-measures analysis of variance (ANOVA), correlation and regression, with EALL as the reference standard.

A significant difference was observed among the WL determination methods ($p<0.001$). TL differed significantly from EALL ($p<0.001$), whereas RL and all GP indentation methods did not differ significantly from EALL. Greater Taper GP showed the strongest correlation with EALL ($r = 0.998$), followed by Standard GP ($r = 0.989$) and ProTaper GP ($r = 0.973$). Greater Taper GP demonstrated the highest agreement with EALL within ± 0.5 mm.

Within the limitations of this study, the GP indentation method showed strong agreement with EALL and may serve as a simple supplementary technique for WL determination during crown-down root canal treatment. Further clinical studies with larger samples are recommended.

Keywords: gutta percha indentation, working length, electronic apex locator, root canal treatment, crown-down technique.

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Assessment of Awareness, Normative and Perceived Needs of Malocclusion Among Second Year Undergraduates in Non-Health Faculties at the University of Peradeniya

S. H. K. De Silva[1*], D. M. B. T. M. Dissanayake[1], D. M. K. S. Dissanayake[1], W. B. M. C. R. D. Weerasekara[2], T. Hegoda[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Postgraduate Institute of Medicine, University of Colombo, Sri Lanka.

*d19015@dental.pdn.ac.lk

Malocclusion is a developmental dental condition affecting individuals worldwide, yet awareness and perceived treatment needs among young adults remain understudied, particularly in Sri Lanka. This study assessed the prevalence of malocclusion, awareness, perceived and normative orthodontic treatment needs among second-year undergraduates in non-health faculties at the University of Peradeniya. It also assessed factors contributing to delays in seeking orthodontic treatment and malocclusion traits using the British Standards Institute (BSI) incisor classification and Index of Orthodontic Treatment Need (IOTN).

A descriptive cross-sectional study was conducted among 403 second-year undergraduates from five non-health faculties (Arts, Agriculture, Engineering, Management and Science). Data were collected using a pretested self-administered questionnaire. Normative need was assessed through an oral examination using the IOTN, incorporating the Dental Health Component (DHC) and Aesthetic Component (AC). Malocclusion traits were classified using the BSI incisor classification. Data were analyzed using R software.

Among participants, 66.7% were female and 33.3% were male. Awareness of malocclusion was limited (48.6%) and significantly associated with gender and faculty ($p<0.05$). Perceived treatment need was low, with 90.6% reporting no perceived need and 3.2% perceiving definite need. Normative need for definite treatment was higher at 9.4% (IOTN-AC) and 5.7% (IOTN-DHC). Class I incisor relationship was most common (44.7%), followed by Class II Division 1 (29.0%) and Class III (20.1%). Major barriers to seeking treatment were high cost (n=192) and long treatment duration (n=152).

Awareness and perceived orthodontic treatment need were limited, while normative need was higher. Fair agreement (κ=0.367) existed between perceived and normative needs, emphasising the need to improve oral health awareness and address orthodontic care barriers in this population.

Keywords: malocclusion, awareness, orthodontic treatment need, IOTN, undergraduates

A Retrospective Study of Traumatic Dental Injuries in Permanent Dentition in Children Below 16 Years Treated at the Dental Teaching Hospital, Peradeniya, Over a Period of Three Years (2021–2023)

K. T. D. Gunarathne[1]*, D. M. V. V. Dissanayake[1], H. R. M. Ekanayake[1], E. M. U. C. K. Herath[2], P. R Jayasooriya[3]

[1] Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3] Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19024@dental.pdn.ac.lk

Traumatic Dental Injuries (TDI) are a major paediatric public health concern, yet recent Sri Lankan tertiary-care data are limited. This study analysed the epidemiology, patterns, treatment and outcomes of permanent-tooth TDIs among children under 16 treated at the Dental Teaching Hospital, Peradeniya, 2021–2023.

A retrospective study reviewed all eligible records using a standardised form, with clinical or radiographic follow-up where possible. Data were analysed in SPSS v26 using descriptive statistics, Chi-square and inferential tests ($p<0.05$).

Of 444 children (71.6% male; mean age 10.68 ± 2.27 years) with 619 TDIs, most were rural (82.5%) and Sinhalese (83.5%). Uncomplicated crown fractures were the commonest (59.8%), followed by complicated fractures (15.3%) and subluxation (13.7%); falls caused around 78% of injuries. Common treatments included glass ionomer restorations, oral hygiene instruction and composite build-ups. Complications occurred in 72.8% (short-term) and 27.2% (intermediate-term) of followed-up cases, mostly restoration dislodgement or fracture. Males had a higher proportion of sports-related etiology (OR = 2.09, 95% CI: 0.99-4.42, $p=0.049$). Complicated crown fractures showed a significant shift towards male gender ($p<0.001$) and older age group (12-15 years), ($p=0.016$) over the study period. The study identified a considerable follow-up loss among patients.

These findings highlight TDI burden and outcomes among Sri Lankan children, supporting improved emergency dental services, standardised protocols, and prevention targeted at rural male children, alongside better follow-up education.

Keywords: traumatic dental injuries (TDI), International Association of Dental Traumatology (IADT), permanent dentition, retrospective study, Sri Lanka

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Effect of *Lactobacillus* Isolates in Selected Sri Lankan Dairy Products on Inhibiting *Streptococcus mutans* Biofilm Formation

I. M. V. D. V. Gunasekara[1], M. H. Hafla[1], A. J. A. Hamna[1*], K. S. N. D. Gunawardhana[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.
*d19028@dental.pdn.ac.lk

Dental caries remains a major global oral health burden, with *Streptococcus mutans* playing a pivotal role in cariogenesis through biofilm formation and acid production. Fermented dairy products represent potential reservoirs of probiotic microorganisms. Traditional Sri Lankan curd (meekiri) may harbour *Lactobacillus* strains with antimicrobial and anti-biofilm properties; however, their activity against *S. mutans* remains insufficiently characterized. This study evaluated the in vitro effects of selected *Lactobacillus* isolates from Sri Lankan curd on *S. mutans* growth, biofilm formation, and culture-medium acidification.

The antimicrobial and anti-biofilm activities of *Lactobacillus acidophilus*, *Lactobacillus rhamnosus*, and *Lactobacillus paracasei* isolates recovered from Sri Lankan curd were evaluated against *S. mutans*. The antibacterial effects of viable *Lactobacillus* cultures and their cell-free supernatants on *S. mutans* were assessed using the disc diffusion assay, while the effect on *S. mutans* biofilm formation was evaluated using a 12-well microplate model. Co-cultures were incubated anaerobically at 37 °C for 24 h and biofilm formation was assessed by safranin staining, and culture-medium pH was measured to evaluate acidification. A 0.2% chlorhexidine solution and tryptic soy broth (TSB) served as positive and negative controls. All assays were performed in triplicate.

Assessment of the selected *Lactobacillus* isolates revealed no measurable antagonistic activity against *S. mutans* in the disc diffusion assay, whereas 0.2% chlorhexidine produced a distinct inhibitory effect. Evaluation of biofilm formation similarly showed no appreciable reduction following exposure to either viable *Lactobacillus* cultures or their respective cell-free supernatants. Culture-medium pH remained acidic in the *Lactobacillus*-treated groups (4.03 to 4.15), whereas chlorhexidine-treated cultures showed a comparatively higher pH of 6.71.

These findings indicate that the tested dairy-derived *Lactobacillus* isolates did not demonstrate measurable anti-*S. mutans* activity under the in vitro conditions evaluated, highlighting the strain- and assay-dependent nature of probiotic functionality. Nevertheless, traditional fermented dairy products in Sri Lanka may represent a source of diverse indigenous *Lactobacillus* strains, warranting further screening and characterization to identify strains with demonstrable potential for oral health applications.

Keywords: *Lactobacillus*, *Streptococcus mutans*, curd, biofilm, antimicrobial activity

A Comparative Study on Oral Health Status and Oral *Candida* Carriage between Overweight/Obese and Normal-weight Children

J. M. V. M. Jayasundara[1]*, S. Iswariya[1], S. M. Inas[1], J. A. M. S. Jayathilake[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19037@dental.pdn.ac.lk

Overweight/obesity may influence oral health and oral *Candida* carriage during childhood. However, evidence regarding this association remains limited, particularly in Sri Lanka. This study aimed to compare oral health status and oral *Candida* prevalence and carriage between overweight/obese and normal-weight children.

A comparative cross-sectional study was conducted among 63 children aged 6–14 years, comprising 32 overweight/obese and 31 normal-weight children, attending the Obesity Clinic, Teaching Hospital Peradeniya, and the Outpatient Department of Sirimavo Bandaranayake Specialized Children's Hospital. Children with any chronic medical conditions unrelated to overweight or obesity were excluded. Data were collected through parental interviews, oral examinations and microbiological analysis. Oral health was assessed using decayed, missing and filled teeth (DMFT/dmft), plaque index (PI) and bleeding on probing (BOP). Oral *Candida* carriage was quantified as colony-forming units per millilitre (CFU/ml) from oral rinse samples cultured on Sabouraud Dextrose Agar, with speciation performed using CHROMagar. Data were analysed using SPSS version 21.0.

The normal-weight group demonstrated higher mean DMFT/dmft, PI and *Candida* carriage, whereas mean BOP was higher among overweight/obese children. A statistically significant difference in *Candida* carriage was observed between the groups, with higher mean ranks in normal-weight children (37.40) than in overweight/obese children (26.77). A moderate positive correlation was observed between body mass index and PI among overweight/obese children.

Most oral health parameters and *Candida* carriage were lower among overweight/obese children. Further studies involving larger and more representative populations are recommended to clarify these associations.

Keywords: overweight, obesity, children, oral health, *Candida*

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Periodontal Health-related Misinformation on Social Media: Exposure, Perceptions Regarding Credibility and Its Impact on Oral Health Behaviour Among Undergraduates of a Sri Lankan University

P. P. Liyanage[1]*, W. H. M. S. M. Kumari[1], J. Lakshika[1], D. Leuke Bandara[2], P. H. G. J. Pushpakumara[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Faculty of Medicine & Allied Sciences, Rajarata University of Sri Lanka.

*d19049@dental.pdn.ac.lk

Social media provides health information to young adults, but the extent of periodontal misinformation and its relationship with oral health behaviour remain unclear. This study assessed the accuracy of social media content, undergraduates' exposure to periodontal misinformation, credibility perceptions and associated behavioural responses.

A cross-sectional study combined a self-administered questionnaire survey of 430 University of Peradeniya undergraduates with an audit of 490 publicly accessible periodontal health videos from YouTube, Facebook and TikTok. Survey recruitment used proportionate allocation by faculty and year of study. Videos were classified against predefined evidence-based criteria. Data were analysed using descriptive and non-parametric statistics.

Of the audited videos, 304 (62.0%) contained misinformation, commonly involving herbal and home-based remedies and unconventional oral hygiene practices. Among 383 participants reporting exposure to oral health content, the median misinformation exposure score was 11 (interquartile range: 8-14). Of these participants, 196 (51.2%) reported confusion about correct oral health practices and 195 (50.9%) reported behavioural changes following exposure to periodontal content. Misinformation exposure scores were significantly higher among participants reporting behavioural changes than among those reporting none ($p<0.001$). However, among participants reporting changes, no statistically significant correlations were found between exposure and beneficial ($r = 0.025$, $p = 0.725$) or potentially harmful behavioural change scores ($r = 0.111$, $p = 0.121$).

Periodontal misinformation was prevalent across platforms and widely encountered by undergraduates, while behavioural responses may be influenced by factors beyond exposure alone. Strengthening digital oral health literacy and greater engagement of dental professionals in evidence-based social media communication are recommended, alongside longitudinal studies of exposure and behaviour.

Keywords: periodontal misinformation, social media, misinformation exposure, oral health behaviour, digital health literacy

Operational Dynamics of Dental Supply Companies in Sri Lanka: An Analysis of Business Models, Turnover, Supply Chains and Corporate Social Responsibilities in the Dental Industry

L. D. Premalal[1*], R. G. D. S. Rajamanthree[1], M. D. Rajiv[1], V. S. N. Vithanaarachchi[2], D. De Silva[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

[*]d19062@dental.pdn.ac.lk

Dental supply companies underpin oral healthcare, yet in Sri Lanka, an import-dependent market recently strained by economic crisis, they remain largely unstudied. This study aimed to classify them by legal structure and products supplied, evaluate supply chain efficiency and challenges, and describe turnover and corporate social responsibility (CSR) activities.

This descriptive cross-sectional study targeted all 30 companies identified through professional networks and online sources; 25 (83.3%) provided complete data. A pre-tested structured questionnaire, distributed online in February 2026 and supplemented by telephone interviews with senior representatives, assessed company profile, products, turnover, supply chains, compliance and CSR. Data were analysed descriptively using IBM SPSS 21.

Most firms were private limited companies (84%) with 1–10 employees (64%), most commonly supplying equipment and instruments (60%) or consumables (52%). The median annual turnover category was LKR 10–15 million, with 72% below LKR 20 million. Almost all (92%) relied solely on imports, chiefly from China and India; none reported research and development investment, and only 20% had distribution centres outside Colombo. Customs delays (64%), regulatory issues (64%) and shipping costs (56%) were the leading supply chain challenges; 76% maintained warehouses, but only 36% used inventory or supply chain software. Compliance with National Medicines Regulatory Authority registration, international certification and customs documentation was each reported by 88%. Sponsorships and workshops (76%) and donations (68%) were the commonest CSR activities, while environmental initiatives were rare (12%).

The surveyed sector was small-scale, import-dependent with limited distribution infrastructure outside of Colombo. Despite high self-reported regulatory compliance and frequent CSR activity, customs and regulatory barriers and limited digitalisation were evident. Larger longitudinal studies using a comprehensive sampling frame and market-share data are recommended.

Keywords: dental materials, supply chain, corporate social responsibility, business model, import dependence

Periodontal Disease Severity, Risk and Preventive Care Gaps Among Patients Attending a Periodontology Clinic

P. C. Rathuwadu[1*], R. M. U. S. K. Rathnayake[1], R. M. T. N. M. Rathnayake[1], T. M. B. S. H. Samarakoon[1], D. Leuke Bandara[2], P. H. G. J. Pushpakumara[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Faculty of Medicine & Allied Health Sciences, Rajarata University of Sri Lanka.
[*]d19077@dental.pdn.ac.lk

Periodontal disease is a chronic inflammatory condition affecting the supporting structures of teeth and remains a leading cause of tooth loss among adults worldwide. Oral hygiene practices, healthcare-seeking behaviors and periodontal awareness are key determinants of periodontal health and disease progression. This study aimed to evaluate the association between periodontal disease severity, periodontal risk profile, oral hygiene behavior, oral healthcare-seeking behavior and periodontal awareness among patients attending the Periodontology Clinic, University Dental Hospital, Peradeniya.

A descriptive cross-sectional study was conducted among 180 newly diagnosed periodontitis patients. Data were collected using an interviewer-administered, structured questionnaire and clinical periodontal records. Disease severity was classified according to the 2017 AAP/EFP Classification, while periodontal risk was assessed using the Periodontal Risk Assessment (PRA) model. Oral hygiene behavior, oral healthcare-seeking behavior and periodontal awareness were assessed using predefined scoring criteria. Data were analyzed using IBM SPSS Statistics version 26, with $p<0.05$ considered statistically significant.

Advanced periodontal disease was common, with 45.6% of participants classified as Stage IV periodontitis and 60.6% as Grade C periodontitis. Most participants (88.9%) belonged to the high-risk PRA category. Despite 81.1% reporting twice-daily toothbrushing, 92.8% never performed interdental cleaning. Moderate oral hygiene behavior and periodontal awareness were observed in 61.1% and 53.9% of participants, respectively, while 53.3% demonstrated poor oral healthcare-seeking behavior. No significant associations were identified between periodontal disease severity and oral hygiene behavior, periodontal awareness, or oral healthcare-seeking behavior scores ($p>0.05$). However, periodontal awareness showed a weak positive correlation with oral healthcare-seeking behavior.

The findings emphasize the importance of strengthening preventive oral health education, promoting regular dental attendance, and encouraging positive oral hygiene practices to reduce the burden of periodontal disease.

Keywords: periodontitis, periodontal risk assessment, oral hygiene behavior, oral healthcare-seeking behavior, periodontal awareness

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Speech Development in Children with Cleft Lip and/or Palate Treated at Cleft Centre, Dental Hospital (Teaching), Peradeniya

I. M. Siyambalapitiya[1*], W. M. D. Sandeewani[1], A. M. Safry[1], H. M. T. D. K. Herath[2]

[1]*Faculty of Dental Sciences, University of Peradeniya, Sri Lanka,* [2]*Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.*

[*]d19088@dental.pdn.ac.lk

Cleft lip and/or palate (CL/P), a common congenital anomaly, can impair speech, language and communication development. Despite primary surgical repair restoring oral structure and function, some children have persistent speech and language difficulties, and local evidence is limited. This study aimed to assess developmental milestones and speech quality after primary cleft surgery at the Cleft Centre, Dental Hospital (Teaching), Peradeniya.

This retrospective descriptive study included 50 children with non-syndromic CL/P aged 4–7 years as of December 2025. Cleft type, developmental milestones, oral examination findings and speech outcomes were extracted from Child Health Development Records, paediatric and speech therapy notes and the Smile Train database using a structured extraction sheet, and analysed with SPSS version 22. The chi-square test assessed associations between cleft type and speech development.

Of these, 42 % had complete cleft palate, 10 % submucous cleft palate and 48 % cleft lip variants. All had normal hard palate structure, while tongue movement (96 %) and lip function (94 %) were near-normal. Cleft type was significantly associated with expressive language development ($\chi^2 = 10.44$, $p = 0.015$) but not with general communication milestones ($p = 0.963$). Inadequate expressive language was most frequent in submucous cleft palate (60 %, 3/5), followed by complete cleft palate with unilateral cleft lip and alveolus (23.1 %, 3/13) and isolated complete cleft palate (9.5 %, 2/21), but absent in unilateral cleft lip and alveolus (0/11). Children with delayed speech milestones achieved other milestones normally.

Most children showed normal developmental progress, but expressive language outcomes varied with cleft type. Long-term speech and language follow-up is recommended, particularly for children with more extensive palatal involvement. Larger prospective studies with standardised speech assessments are needed to confirm these findings.

Keywords: cleft lip, cleft palate, speech development, expressive language, developmental milestones

Knowledge, Practices, Self-Perceived Skills, and Attitudes in Oral Health Promotion during Pregnancy, Infancy and Early Childhood among Field Public Health Midwives in Kandy District

R. Vijayapradhap[1]*, S. A. V. S. Ukwatta[1], S. Vinothan[1], D. L. Ratnayake[2], D. A. Gunawardane[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka.

*d19098@dental.pdn.ac.lk

Oral health during pregnancy, infancy, and early childhood has a profound impact on lifelong health and wellbeing. In Sri Lanka, Field Public Health Midwives (FPHMs) play a pivotal role in maternal and child health promotion, serving as a primary contact for mothers and young children. However, evidence on their competence in oral health promotion is limited. This study assessed the competence of FPHMs in Kandy District in promoting oral health during these critical stages.

A cross-sectional descriptive study was conducted among FPHMs in Kandy District. Knowledge, attitudes, self-reported practices, and self-perceived skills were assessed using a structured, self-administered online questionnaire distributed through an official WhatsApp group. Attitudes were assessed using an interviewer-administered questionnaire of 23 statements rated on a seven-point scale using a Q-sort grid among FPHMs from five selected Medical Officer of Health areas. Data were analyzed using Jamovi statistical software.

Among 118 participants, the median age was 42 years (range: 27–59 years) and the median work experience was 14 years (range: 1–34 years). The response rate was 23.45%. The median knowledge score was 18 (range: 9–22). Although 99% knew the appropriate time to initiate toothbrushing in infants, only 50% and 53% knew the recommended toothbrushing frequency and benefits of fluoridated toothpaste, respectively. Although FPHMs reported frequently providing oral health education, 57.6% rated their skills in demonstrating correct toothbrushing techniques as limited or inadequate. FPHMs strongly agreed that promoting oral health is essential to their role, while time constraints were not seen as a major barrier.

Regular professional training and skill-based workshops are recommended to strengthen the knowledge, practical skills, and confidence of FPHMs in delivering oral health promotion.

Keywords: field public health midwives, oral health promotion, pregnancy, infancy, early childhood

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Association Between Perceived Stress and Periodontitis Among Patients Attending Peradeniya Dental Teaching Hospital

S. V. N. Hewagama[1*], R. K. Dilshan[1], E. M. K. G. Ekanayake[1], L. A. A. Pradeepika[2], B. M. C. A. Bandaranayake[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19120@dental.pdn.ac.lk

Periodontitis is a chronic inflammatory condition driven by dysbiotic plaque, leading to severe destruction of tooth-supporting tissues. Although psychological stress is thought to alter host immune responses and self-care behaviors, clear evidence linking perceived stress levels directly to periodontitis severity in regional clinical settings remains limited. This cross-sectional study aimed to assess the association between perceived stress and periodontitis severity while exploring the influence of socio-demographic factors.

A total of 124 patients aged 30 to 60 years attending the Periodontology Clinic at the Dental Teaching Hospital, Peradeniya, were enrolled via consecutive sampling. Perceived stress was evaluated using the validated 10-item Perceived Stress Scale (PSS-10). Periodontal condition was assessed using the Basic Periodontal Examination, a six-point pocket chart, intraoral radiographs and staged under the 2017 AAP/EFP classification system. Data were analyzed using Chi-square, Fisher's exact and one-way analysis of variance at a 5% significance level.

High perceived stress was strongly associated with advanced periodontitis ($p = 0.001$), with 100% of high-stress individuals exhibiting Stage III or Stage IV disease. Conversely, Stage I disease was most common among low-stress participants (30%). Younger participants aged 30–40 and those without formal education reported significantly higher mean stress scores ($p = 0.0284$ and $p = 0.0083$, respectively). Additionally, employment status significantly correlated with disease severity ($p = 0.0253$), where most workers showed Stage IV periodontitis.

In conclusion, higher perceived stress levels closely align with increased periodontal disease severity among the study sample. Thus, it can be concluded that psychological stress, driven heavily by middle age and competitive academic milestones, may serve as an aggressive indicator of advanced periodontal tissue destruction, emphasizing the importance of integrating stress screening into routine dental care across Sri Lanka.

Keywords: perceived stress, periodontitis, PSS-10, socio-demographic factors, chi-square

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Perceived Complaints, Clinical Presentation and Stage of Periodontitis Among Patients Attending the Periodontology Clinic, Faculty of Dental Sciences, University of Peradeniya

R. R. Deshan[1*], U. D. C. Deudunee[1], P. A. D. I. Gunathunga[1], B. M. C. A. Bandaranayake[2], L. A. A. Pradeepika[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

[*]d19132@dental.pdn.ac.lk

Periodontitis is a common chronic inflammatory disease that may progress with limited subjective symptoms, particularly during its early stages. This study assessed the perceived complaints, clinical presentation, and stage of periodontitis among patients attending the Periodontology clinic, Faculty of Dental Sciences, University of Peradeniya. Additionally, the study evaluated the association of perceived complaints with socio-demographic factors, clinical periodontal parameters, and the severity of periodontal disease.

A retrospective study was conducted by examining 260 patient records. Data regarding socio-demographic characteristics, presenting complaints, medical and habit history, brushing behaviours, and clinical periodontal parameters were obtained from the records. Multinomial logistic regression analysis, Fisher's exact test, Kruskal-Wallis test, and Dunn's post-hoc test were used for statistical analysis.

Among patients with Stage IV periodontitis, tooth mobility was the most commonly observed presenting complaint (29.34%), whereas halitosis was the least commonly reported complaint (4.63%). Bleeding on probing (BOP) was not significantly associated with presenting complaints (p=0.4261). However, tooth mobility was more frequently reported in Stage IV periodontitis (35.71%) compared with Stage III (10.00%). According to the regression analysis, patients presenting with tooth mobility were more likely to have Stage III/IV periodontitis. Early stages of periodontitis, particularly Stage I and Stage II, were difficult for patients to distinguish subjectively based on their perceived complaints.

The findings demonstrate that while early stages of periodontitis (Stages I and II) may be difficult for patients to distinguish subjectively, progression to Stages III and IV is associated with a more apparent functional symptom, particularly tooth mobility. Patient-reported tooth mobility may therefore serve as an important screening indicator for identifying patients with advanced periodontitis and facilitating timely periodontal assessment and management.

Keywords: periodontitis, perceived complaints, tooth mobility, clinical presentation, periodontal disease severity

A Retrospective Evaluation of the Effectiveness of the Twin Block Appliance in Correcting Class II Division 1 Malocclusion at the Dental Hospital (Teaching), University of Peradeniya

N. A. S. S. Nanayakkara[1*], K. Jinuthra[1], S. Kokulapriyan[1], H. S. K. Ratnathilake[2], S. P. Abeysundara[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Statistics and Computer Science, Faculty of Science, University of Peradeniya, Sri Lanka.

[*]sarani.nana621@gmail.com

Class II Division 1 malocclusion, commonly caused by mandibular retrognathism, is a prevalent orthodontic condition affecting facial aesthetics, oral function, and psychosocial wellbeing. The Twin Block appliance is widely used to treat this malocclusion through growth modification, but population-specific evidence, particularly among Sri Lankans, remains limited. This study aimed to evaluate the skeletal, dentoalveolar, and soft tissue changes following Twin Block therapy, and to compare treatment outcomes between genders.

A retrospective cephalometric study was conducted at the Dental Hospital (Teaching), Peradeniya, using pre- and post-treatment lateral cephalograms of 43 patients (23 males, 20 females) aged 9-16 years. Cephalometric tracings were performed by three blinded investigators using Steiner's analysis, measuring 18 cephalometric variables. Changes in pre- and post-treatment values and gender differences were assessed, while multiple linear regression was used to identify factors associated with overjet correction.

SNB angle increased significantly (1.64°, $p<0.001$) and mandibular length (Go-Gn) increased by 3.00 mm ($p<0.001$), while ANB angle decreased significantly (1.05°, $p=0.001$); SNA showed no significant change. Females demonstrated significantly greater increases in anterior facial height (N-Me, ANS-Me) than males ($p=0.001$). Upper incisors retroclined markedly (7.12°, $p<0.001$), more in males ($p=0.030$), while lower incisor proclination was non-significant. Overjet and overbite reduced significantly (5.17 mm and 1.67 mm, $p<0.001$). Nasolabial angle increased significantly (5.13°, $p<0.001$) with upper lip retraction. Regression showed that mandibular advancement (SNB) (31.7%) and upper incisor inclination (19.8%) were the largest contributors to overjet correction.

Twin Block therapy effectively corrected Class II Division 1 malocclusion, primarily through mandibular skeletal advancement supplemented by dentoalveolar changes, with distinct gender-specific responses. Its cost-effectiveness may make it a suitable treatment option in resource-limited settings like Sri Lanka, warranting further longitudinal research.

Keywords: twin block appliance, class II Division 1 malocclusion, cephalometric analysis, mandibular advancement, gender-based variation

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Cost Analysis of Fixed Appliance Treatment for Class II Division 1 Malocclusion in Two Tertiary Care Institutions in Sri Lanka

R. S. U. Wimalaratne[1*], T. A. D. S. D. Siriwardane[1], K. K. Pabasara[1], W. A. N. S. Wickramasinghe[1], D. De Silva[2], W. B. M. C. R. D. Weerasekara[2]

[1]*Faculty of Dental Sciences, University of Peradeniya, Sri Lanka,* [2]*Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.*

[*]d19147@dental.pdn.ac.lk

Orthodontic treatment is an important component of modern dentistry, improving dental aesthetics, oral function, and oral health–related quality of life. In Sri Lanka, most orthodontic services are provided free of charge through the government healthcare sector. However, information regarding the recurrent provider cost of orthodontic treatment remains limited. Among the various malocclusions, Class II Division 1 malocclusion is one of the most common conditions requiring fixed appliance therapy in adolescents. Therefore, this study aimed to determine the recurrent provider cost of fixed appliance treatment for a typical Class II Division 1 malocclusion in two tertiary care dental institutions in Sri Lanka.

This descriptive cross-sectional study employed the Time-Driven Activity-Based Recurrent Costing method to estimate recurrent provider costs from the provider's perspective at Dental Teaching Hospital, Peradeniya (DTHP), and the Institute of Oral Health, Maharagama (IOHM). The study population included 12–16-year-old patients with Class II Division 1 malocclusion receiving fixed appliance therapy. Due to time constraints, a synthetic cohort was used. Provider costs were categorized into professional services, materials and consumables, and overhead costs. Professional service costs were calculated using the Time-Driven Activity-Based Recurrent Costing method, while material and overhead costs were estimated using procurement records, overhead records, and expert opinion.

Two treatment approaches were considered: extraction and non-extraction. The total recurrent provider cost for extraction and non-extraction treatments at DTHP was LKR 74,724.38 and LKR 65982.07, respectively. IOHM, the corresponding costs were LKR 61,551.84 and LKR 55425.97, respectively. Professional services and materials and consumables were the major contributors to the total provider cost at both institutions. Extraction cases demonstrated higher recurrent provider costs due to increased clinical procedures, material usage, and treatment duration.

DTHP demonstrated higher recurrent provider costs than IOHM for both extraction and non-extraction cases. Variations in staff involvement, material usage, and institutional resource allocation may have contributed to these differences. The study identified potential areas for cost optimization, including bulk purchasing, improved workflow efficiency, and efficient utility utilization.

Keywords: Class II Division 1 malocclusion, fixed appliance, provider cost, time-driven activity-based costing, orthodontics

Occupational Health Injuries Among Dental Surgeons in Sri Lanka: Prevalence, Knowledge, And Preventive Practices

C. I. Udagedara[1]*, K. V. K. Mudalige[1], V. S. Wakishta[1], R. M. Jayasinghe[2,3], R. D. Jayasinghe[4], S. P. Abeysundara[5]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Prosthetic Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Faculty of Dentistry, MAHSA International College (Penang) (MICP) Malaysia, [4]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [5]Department of Statistics and Computer Science, Faculty of Science, University of Peradeniya, Sri Lanka.

*chamiduudagedarai@gmail.com

Accurate assessment of current status and factors conducive to occupational health of dental surgeons is paramount for the betterment of dental surgeons as well as for a successful clinical practice. This study therefore assesses the common occupation related health injuries (ORHIs) among dental surgeons in Sri Lanka, along with any associations with socio-demographic and professional characteristics of dental surgeons.

A cross-sectional study was conducted from February 2026 to May 2026 using a self-developed electronic questionnaire. The questionnaire was distributed to a convenience sample of dental surgeons through multiple electronic means.

The majority of the study respondents were females (59%). The respondents' age ranged from 28 to 65 years, with a median of 39 years. The respondents were distributed across 24 of the 25 administrative districts of Sri Lanka. The most common ORHI was percutaneous exposure incidents at 75%. This was followed by Stress (49%), musculoskeletal disorders (40%), and ocular events (35%). The least common ORHI was dermatitis at 20%. Approximately three quarter of respondents reported receiving training on infection control. Moreover, only 5% of the respondents rated their knowledge on infection control as either below average or very poor. Interestingly, 63% of the respondents stated that they are willing to hold an X-ray film/ sensor on patient's mouth if the patient is unable to do so. Additionally, only 24% of the respondents reported storing excess/ waste amalgam in a radiographic fixer.

The reported prevalence of ORHIs among practising dental surgeons is highly variable. Associations were noted among years of practice and stress, dermatitis, and career satisfaction. Education level was related to awareness of advantages of ergonomic practice and evaluated radiation concepts/ principals, with those who qualified with MSc., MD or equivalent demonstrating a higher understanding. Additionally, a highly satisfactory vaccination rate for COVID-19 and HBV was observed. However, the observed mercury hygiene was unsatisfactory.

Keywords: dental surgeons, occupational injuries, prevalence, Sri Lanka

Self-Awareness, Psychosocial Impact, and Treatment Awareness Among 15–19-year-old School-Children with Moderate and Severe Dentoalveolar Crowding in Kandy Educational Zone

R. M. M. H. Bandara[1]*, R. M. S. P. Medawela[1], P. G. W. D. Karunarathne[1], B. M. H. S. K. Bannehaka[2], H. S. K. Ratnatilake[3]

[1] *Faculty of Dental Sciences, University of Peradeniya, Sri Lanka,[2]Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.*

*d19157@dental.pdn.ac.lk

Dentoalveolar crowding imposes significant functional and psychosocial burdens during adolescence. Yet, self-awareness, psychosocial impact, and treatment awareness remain poorly characterized among Sri Lankan adolescents with moderate and severe crowding.

A cross-sectional descriptive study enrolled 297 school-children (aged 15–19) with moderate and severe dentoalveolar crowding from 10 conveniently selected government schools in the Kandy Educational Zone. A self-administered questionnaire assessed self-awareness, psychosocial impact using Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ), complication awareness, and treatment awareness. Associations were examined using Chi-Square, Fisher's Exact, Mann-Whitney U, Kruskal-Wallis, and multivariate regression analyses.

Self-awareness was significantly associated with gender (males 69.9% vs. females 48.1%; $p = 0.001$), parental education, family income, and external social feedback. In contrast, psychosocial burden was uniformly distributed across all demographic groups; self-awareness was the sole independent predictor of PIDAQ scores ($\beta = -7.45$, $p = 0.001$). Approximately 50% of participants lacked awareness of crowding-related complications, equally across all socioeconomic strata. Treatment awareness (57.6%) was independently predicted by complication awareness and orthodontist visits, not by demographics. A sequential health-seeking pathway was identified: self-awareness → complication awareness → treatment awareness → orthodontist visits.

The psychosocial burden of moderate and severe crowding is socioeconomically universal, driven by self-awareness rather than demographic factors. Poor complication and treatment awareness across all social strata calls for universal, complication-focused school oral health programmes paired with accessible orthodontic referral pathways.

Keywords: dentoalveolar crowding, self-awareness, psychosocial impact, treatment awareness, oral health literacy

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Prevalence of Bullying due to Untreated Malocclusion and its Association Among Adolescent Orthodontic Patients Attending Tertiary Care Centers in Kandy District

S. L. P. Dhanesha[1*], V. G. K. D. Rajapaksha[1], B. M. K. S. Basnayake[1], E. M. E. W. U. W. Kumarihami[1], W. B. M. C. R. D. Weerasekera[2], T. Hegoda[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Postgraduate Institute of Medicine, Colombo, Sri Lanka.
[*]d19159@dental.pdn.ac.lk

Bullying involves repeated negative behavior or intentional harm toward a victim by perpetrator(s), where there is an imbalance of power. Bullying may occur in physical, verbal, social, relational, or cyber forms, causing a wide range of complications. Adolescence is a transitional stage where they are vulnerable to bullying due to increased concern about appearance and peer acceptance. Although bullying can occur due to multiple contributory factors, malocclusion may increase the risk as it negatively affects the facial appearance.

Despite global research on malocclusion related bullying, evidence from Sri Lanka remains limited. Therefore, this study aims to assess the prevalence, type and frequency of bullying due to malocclusion; assess need of the malocclusion using the Index of Orthodontic Treatment Need (IOTN); and evaluate the association between the type of malocclusion and bullying experience among adolescents seeking orthodontic treatment at tertiary care centers in Kandy district.

A descriptive cross-sectional study was conducted among 200 adolescents aged 10-19 years seeking orthodontic treatment at tertiary care centers in Kandy district. Data were collected using a pretested self-administered questionnaire based on the Olweus Bully/Victim Questionnaire and clinical assessment using IOTN. Descriptive statistics and chi-square tests were performed using SPSS version 26, with statistical significance set at $p<0.05$.

The prevalence of bullying due to untreated malocclusion was 27%. Bullying was significantly associated with Crossbite ($p=0.018$), while no significant associations were found with age, gender, monthly family income, parental education level, school type and category. Being called mean names (81.5%) was the most common type, with no significant association between the bullying type and gender. The findings indicate a significant relationship between bullying and certain features of malocclusion.

Keywords: bullying, adolescent, malocclusion, prevalence

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Association of Sociodemographic Factors, Awareness of Dental Caries, Oral Hygiene Practices and Dietary Habits with Caries Experience Among First Year Undergraduates of the University of Peradeniya

G. P. L. M. Pathirana[1]*, W. V. D. K. Sankalpana[1], B. Mathusan[1], M. R. Zaynah[1], M. C. N. Fonseka[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Restorative Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19165@dental.pdn.ac.lk

Dental caries is the most common non-communicable disease, resulting from acid production by cariogenic bacteria through the metabolism of fermentable carbohydrates. University life is a transitional period during which lifestyle changes may influence oral health. This study aims to assess the relationship between sociodemographic factors, awareness of dental caries, oral hygiene practices, dietary habits with dental caries experience (measured using the DMFT index) among participants.

A descriptive cross-sectional study was conducted among 343 first-year undergraduates of the University of Peradeniya selected through stratified sampling across nine faculties, followed by simple random sampling. Data were collected using an interviewer-administered questionnaire comprising four sections: sociodemographic characteristics, awareness of dental caries, oral hygiene practices and dietary habits. Data were analysed using appropriate parametric and non-parametric statistical tests.

The mean DMFT score was 3.57 (SD=2.384), with untreated caries contributing most to the overall score. Although most participants reported brushing twice daily, interdental cleaning aid use was limited, and most sought dental care only when experiencing pain. Sugar consumption was low to moderate in frequency, while daily tea and coffee consumption was common. Higher maternal educational attainment was significantly associated with lower DMFT scores, whereas gender, family income and faculty were not significantly associated. Students from health-related faculties demonstrated greater awareness of dental caries; however, awareness was not associated with lower caries experience.

Oral hygiene practices and dietary sugar intake are important modifiable factors associated with dental caries. Maternal educational attainment was associated with lower caries experience. Despite differences in awareness, awareness alone did not predict caries experience, highlighting a gap between knowledge and preventive oral health behaviour.

Keywords: DMFT, oral hygiene, knowledge, diet, socio-demographic factors

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Self-reported Prevalence of Temporomandibular Disorder (TMD) Among Advanced Level Students in Kandy Zone

H. R. F. Hamdha[1*], W. R. C. N. Y. Wijesundara[1], H. Prakalathan[1], R. A. D. Madushanka[1], R. D. Jayasinghe[2]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

*d19168@dental.pdn.ac.lk

Temporomandibular disorders (TMD) are a group of musculoskeletal and neuromuscular conditions affecting the temporomandibular joints, masticatory muscles, and associated structures, commonly presenting with orofacial pain, joint sounds, and restricted jaw movements. Psychological stress and poor sleep quality are recognized risk factors. Advanced Level (A/L) students, particularly in academically competitive regions such as the Kandy, may be vulnerable due to academic stress and irregular lifestyles.

To assess the self-reported prevalence of TMD among A/L students in the Kandy educational zone and evaluate its associations with subject streams, grade level, sex, and stress levels.

An observational descriptive cross-sectional study was conducted among 514 A/L students from six randomly selected government schools in the Kandy zone. Data were collected using a self-administered questionnaire incorporating Sinhala and Tamil versions of the Fonseca Anamnestic Index (FAI), together with demographic and academic information. Data were analysed using SPSS version 32, with chi-square tests and one-way ANOVA.

The overall self-reported prevalence of TMD was 46.9% (n=241), comprising mild TMD 39.1% (n=201), moderate TMD 6.8% (n=35), and severe TMD 1.0% (n=5). Grade levels were significantly associated with TMD presence (p=0.017), with higher prevalence among Grade 13 students (58.2%) than Grade 12 students (44.4%). Subject stream was also significantly associated with TMD presence (p=0.020), with the highest prevalence in technology (58.2%) and commerce (54.8%) streams and the lowest in arts (38.7%). No statistically significant association was found with sex (p=0.392). The mean total TMD score was 18.66 (SD=15.86). Stress-TMD associations could not be assessed due to insufficient stress-related data.

Self-reported TMD symptoms are highly prevalent among A/L students in the Kandy zone, affecting nearly half of those surveyed. Grade level and subject stream were significantly associated with TMD, while sex was not. Increased awareness, school-based screening, and stress management interventions may benefit this population.

Keywords: temporomandibular disorders, advanced level students, Fonseca Anamnestic Index

Provider Cost and Out-of-Pocket Expenditure for the Management of Cleft Lip and Palate Patients at the Dental Hospital (Teaching), Peradeniya in 2026

K. K. Maheesha[1*], A. H. M. M. Dissanayaka[1], K. B. D. K. Karunathilake[1], H. L. Asurappuli[1], N. T. P. Wickramarathna[1], D. De Silva[2], W. M. P. S. K. Wijekoon[3]

[1]Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [2]Department of Community Dental Health, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka, [3]Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka.

[*]d19173@dental.pdn.ac.lk

Cleft lip and/or palate is the most common congenital anomaly affecting the head and neck region and requires long-term multidisciplinary management. This study evaluated the provider cost for the management of cleft lip and palate (CLP) patients from birth until completion of cleft palate (CP) surgery, and out-of-pocket expenditure (OOPE) for cleft lip (CL) and CP surgeries at the Dental Hospital (Teaching), Peradeniya (DHTP), in 2026.

A descriptive cost analysis was conducted at the DTHP. A synthetic cohort of CLP patients was developed using a process map representing the care pathway from birth until completion of CP surgery. A work study involving direct observation of 36 patients across the identified stages of the process map was conducted to estimate the provider costs using a Time-Driven Activity-Based Costing approach. Mean provider costs were estimated across the Oral and Maxillofacial (OMF) clinic, OMF Ward, Dental Operating Theatre, and Smile Train Cleft Centre, including professional services, machines, medicines, materials and consumables, overheads, and investigations. Mean OOPE per patient was assessed using an interviewer-administered data collection form among 13 patients admitted either for CL or CP surgery. Major components of OOPE were transportation, accommodation, and food.

The estimated total provider cost for the management of a CLP patient from birth until completion of CP surgery was LKR 253,538. The estimated provider costs for CL and CP surgeries were LKR 88,140 and LKR 89,446, respectively. The mean OOPE for CL and CP surgeries was estimated to be LKR 6,742 and LKR 7,616, respectively.

The findings provide evidence on the major cost drivers contributing to provider cost and OOPE associated with CLP management. These estimates may support government healthcare planning, resource allocation, and budgeting, while providing a reference for private sector pricing costing of CLP-related services. The findings may further contribute to the development of strategies to reduce the financial burden on affected families.

Keywords: cleft lip, cleft palate, provider cost, out-of-pocket expenditure

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