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SCHOOL OF DENTISTRY

STUDENT RESEARCH CONFERENCE 2017

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abstract booklet

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MESSAGE FROM HEAD OF SCHOOL

PROFESSOR PAULINE FORD

IT IS A PLEASURE TO WELCOME YOU TO THE 2017 UNDERGRADUATE RESEARCH CONFERENCE.

The school has a strong tradition in undergraduate student research. In 2016, the structure, support and focus of the final year capstone research course was significantly redesigned. An exciting addition was the Undergraduate Research Conference, an opportunity for students to share the outcomes of their work with their peers and staff. This year's Undergraduate Research Conference promises to be even bigger and better!

As soon to be graduates of this program, you will all continue to engage with research. Some will create it. All will be consumers of it. The UQ BDSc(Hons) program ensures that students are supported in developing not only the academic and technical skills required to deliver the highest quality dental care to their patients and their community, but that they also develop the skills and attributes that will distinguish them as UQ graduates, enhancing employability across their career span. These skills and attributes are more difficult to define but they are critically important to our graduates' success in a world where change is constant – leadership, resilience, adaptability, integrity, reflexivity and curiosity. An authentic research experience provides an opportunity for the development of many of these characteristics. Through this course, you have had the opportunity to gain hands on experience in research practice under the guidance of an expert mentor, with the possibility of publication in the academic literature thereby contributing to the professional knowledge base.

Our Alliance with Metro North Hospital and Health Services has created enormous opportunities for our School to take its teaching, research and patient care to the next level. Alliances between universities and public health services are central to tackling the health issues of the future. To do this it is recognised that we must embed research into the health system to pursue new knowledge and ways of doing things and identify ways to minimise adverse events and build cost effectiveness. It is equally important for universities to work in partnership with industry, to ensure research targets clinically important issues and translates to better patient outcomes. A great example of this is the generous support provided by Colgate in making today's event possible.

I would like to express my warmest congratulations to the students and staff involved for their achievements in the projects presented today, and hope that you all enjoy learning about the undergraduate research that has been undertaken in 2017.

Professor Pauline Ford
Head of School

MESSAGE FROM COURSE COORDINATOR

A/PROFESSOR RATILAL LALLOO

AS COURSE COORDINATOR I AM EXTREMELY PROUD OF THE RESEARCH PROJECTS CARRIED OUT BY ALL OF THE 5TH YEAR DENTISTRY STUDENTS.

The research projects included a diverse range of disciplines, ranging from dental education, dental public health, general dental practice, dental materials, endodontics, orthodontics, to oral surgery. All our students have made a massive effort to conduct the research, write the research report, and prepare and present a poster of their hard work. For many this was probably a first go at the full process of conducting research, from the initial idea to publishing their abstract in this booklet and presenting their poster at this research conference.

Students, we hope that you have learnt and appreciated the importance of research, of the ethical requirements of research, of the steps from the early research idea to publicising your findings and seeing the application of research to evidence-based clinical practice and its broader public health good. We also hope you enjoy the experience and opportunity to present at the 2nd School of Dentistry Student Research Conference.

Our sincerest thank you to all the supervisors who have mentored and supported our students to this important milestone of the research process.

Our thanks to the student administration team, school colleagues, assessors and judges who have all ensured that this course and all its components progressed smoothly and successfully.

Our gratitude to Colgate for their generous support for this research conference.

Wishing our students all the very best for a successful professional career.

Associate Professor Ratilal Lalloo
Course Coordinator

STUDENT ABSTRACTS

IN VITRO INVESTIGATION OF THE RADIOPACITY OF ENDODONTIC MATERIALS

RESEARCHERS: HANNAH BENOIT, TUULA KAINULAINEN, VINESSA RUAN

SUPERVISOR: PROFESSOR LAURENCE WALSH

BACKGROUND:

Radiopacity is an important feature of dental materials used in endodontics, as it allows radiographic assessment of treatment. The International Organization for Standardization (ISO) specifies the guidelines regarding radiopacity, however it is unknown whether new endodontic materials meet these current guidelines. Additionally, comparison between the radiopacities of endodontic materials and of enamel and dentine in intact teeth has not previously been undertaken.

OBJECTIVE:

This study assessed the radiopacity of contemporary endodontic materials in relation to ISO standards, and compared the radiopacity of these materials to enamel and dentine zones from multiple tooth types.

METHODS:

Radiographs were taken of a range of endodontic materials and intact teeth of various tooth types, following ISO protocols. The mean greyscale value of each sample was determined using Adobe Photoshop, and converted to the equivalent aluminium thickness (mmAl). The data were analysed with one-way ANOVA and Tukey's HSD test or Games-Howell test, where appropriate.

RESULTS:

Medicament pastes were sufficiently radiopaque for their intended purpose, except for Odontocide (0.37 mmAl) and Calasept (0.92 mmAl). Among temporary restorative materials and hard-setting MTA cements, only Biodentine (1.42 mmAl) and MTA-mix (1.73 mmAl) did not exceed the 2 mmAl ISO threshold for enamel. Furthermore, Biodentine did not meet the radiopacity claimed by the manufacturer (3.5 mmAl). The sealers and gutta percha met ISO standards for radiopacity. Radiopacity of zones in intact teeth exceeded the nominal ISO values for dentine and enamel. Statistically significant differences were found between tooth types for the following zones: foreground enamel ($p<0.001$), coronal dentine ($p<0.001$) and root dentine ($p=0.002$).

CONCLUSIONS:

All materials except Biodentine met ISO standards. Significant variations were found between the radiopacities of different endodontic materials. Comparisons of equal thicknesses of dental materials and tooth structure is an inadequate method for assessing the suitability of material radiopacity in a clinical setting.

EXPLORING POSSIBLE SOURCES OF CROSS CONTAMINATION TO THE GUTTA PERCHA CONES IN BETWEEN ENDODONTIC PROCEDURES.

RESEARCHERS: TAE HWAN CHOI, JUNBACK HUR, SANG HUN JUNG

SUPERVISORS: A/PROFESSOR ALEXANDER MOULE, DR YU-YAO TEOH

BACKGROUND:

Maintaining an aseptic environment during endodontic procedures is a crucial factor in ensuring a successful root canal treatment. However, there are multiple sources of cross contamination during endodontic procedure which can potentially introduce microorganisms into root canal system. The use of obturation material, gutta percha cones needs to be handled appropriately following aseptic protocol to maximise the prognosis of an endodontic treatment.

OBJECTIVE:

This research was aimed to expose possible sources of bacterial contamination and investigate types and amounts of microorganisms isolated from contaminated gutta percha cones, thereby accentuating the need for an aseptic technique during the handling of this material to minimize any bacterial exposure.

METHODS:

A convenience study was conducted to analyse both the qualitative and quantitative aspects of possible bacterial contamination present on gutta percha cones. Three students were conveniently selected for sample collection where one and three samples were collected under certain clinical scenarios. The samples were observed for a change in turbidity after 24 hours and were sent to the Australian Centre of Ecogenomics for bacterial genome testing.

RESULTS:

An initial turbidity testing illustrated a significant increase in most suspected areas. The subsequent bacterial genome testing showed a colonisation of 91 different DNA strands of bacteria with a predominance of *Staphylococcus epidermidis* (53.8%), *Lactobacillales* (50.0%) and *Propionibacterium acnes* (33.3%). The bacterial counts of gutta percha cones after dental dam placement and re-accessing the canals were greater than the cones left on the bracket table.

CONCLUSIONS:

There was a definite contamination of bacteria to the gutta percha cones during the three investigated clinical scenarios. Frequent change of gloves, the use of sterile tweezers and further research into chair side sterilisation of GP cones are required to maximise its sterility in the sealing of root canals which ultimately prevents possible root canal reinfection.

EFFICACY OF A NEW SONIC IRRIGATION DEVICE ON REMOVAL OF CALCIUM HYDROXIDE FROM ROOT CANALS USING OCTENIDINE

RESEARCHER: HSU YI, WONG
SUPERVISOR: DR UNNI KRISHNAN

BACKGROUND:

Apical periodontitis is due to the persistence of irritants in the root canal system, consequently leading to root canal treatment (RCT) failure. Placement of the calcium hydroxide ($Ca[OH]_2$) intracanal medicament is therefore aimed at disinfecting the root canal system. However, residual $Ca[OH]_2$ undesirably affects the success of RCT. As of yet, no activation system has been able to completely remove $Ca[OH]_2$ from the root canals. This experiment therefore involves the investigation of a novel sonic irrigation system to remove $Ca[OH]_2$ from root canals.

OBJECTIVE:

To determine the efficacy of a novel irrigation technology in removing $Ca[OH]_2$ from root canals.

METHODS:

Root canals of 48 extracted single-rooted teeth were prepared using ProTaper NEXT rotary system (Dentsply, Australia) to size 25, 0.06 taper. The roots were filled with $Ca[OH]_2$ then randomly allocated into two control groups (n = 4) and four experimental groups (n = 10) according to the irrigation system used: SI (Sonic Irrigation), MI (Manual Irrigation), XP (XP-Endo Finisher) and PUI (Passive Ultrasonic). $Ca[OH]_2$ removal was performed after 1 week. The remaining $Ca[OH]_2$ was evaluated using CBCT and analysed using a OnDemand 3D Dental Software, grouping the results using a 4-grade scoring system. The differences in $Ca(OH)_2$ scores among the experimental groups were analysed.

RESULTS:

Neither of the experimental groups were capable of completely removing $Ca[OH]_2$ from root canals. SI, XP and PUI removed significantly more $Ca[OH]_2$ than MI, with no significant differences between them. Octenidine was more efficient in removing $Ca[OH]_2$ when activated using SI, XP and PUI.

CONCLUSION:

None of the groups were able to render the root canal completely free from Ca[OH]2. In many studies, PUI has been said to be the most efficient at $Ca(OH)_2$ removal. The tested novel sonic irrigation technology however, was as effective as PUI and XP in removing $Ca[OH]_2$.

SOURCES AND CONTROL OF INSTRUMENT-CREATED NOISE IN THE DENTAL OPERATORY

RESEARCHERS: PHILIP Y-H. CHIEN, WILLIAM HO, EDEN TAM
SUPERVISOR: PROFESSOR LAURENCE WALSH

BACKGROUND:

Noise in the dental operatory has many detrimental effects, including elevating anxiety and causing annoyance to patients, and potentially contributing to hearing loss in dental staff. Little is known regarding major sources of noise and methods for control that are practical in a dental operatory.

OBJECTIVE:

This study quantified the different sources of noise in the dental operatory and examined the factors that influence their magnitude in decibels (dBA). The objective was to find recommendations for noise reduction that can be practically incorporated into future dental practices.

METHODS:

A series of experiments were conducted to measure the noise produced by dental instruments and how these noise levels changed in response to several independent variables. The outcome variables measured were the magnitude (dBA) and frequency (Hz) of noise. The independent variables included the incremental closure of a sliding door, the implementation of acoustic dampening via placement of anechoic foam, and the age of the dental handpiece.

RESULTS:

The only noise source that exceeded the 85 dBA threshold was the high-volume evacuator when partially obstructed with dental dam (97.5 dBA). Several sources of noise exceeded the 4000 Hz frequency threshold. Full door closure reduced high-speed handpiece noise transmitted outside the operatory room by 9.8 dBA, but also increased the noise level inside the room by 10.8 dBA. The placement of anechoic foam resulted in a 6.0 dBA reduction inside the room and 5.3 dBA reduction outside the room. From 0 to 30 minutes of operating a disposable air turbine handpiece, there was an increase of 7.6-17.3 dBA in noise level.

CONCLUSIONS:

Noise in the dental operatory has the potential to cause hearing loss. Door closure by itself does not appear to be a solution. Recommendations for noise control include better operatory design, acoustic dampening and regular maintenance of dental handpieces.

OPERATOR PREFERENCES BETWEEN ARTICAINE HYDROCHLORIDE 4% WITH EPINEPHRINE 1:100,000 VS. LIDOCAINE HYDROCHLORIDE 2% WITH EPINEPHRINE 1:80,000

RESEARCHERS: NICHOLAS LEE, KELVIN LIN, JONATHAN ZHAO
SUPERVISOR: DR AMRO FARAG

BACKGROUND:

Articaine is a newer local anaesthetic drug that was introduced to the Australian market in 2005. In 2012, Yapp's research study of dentists' perception of a new local anaesthetic drug – articaine, concluded that majority of Australian dentists who were using articaine cite continuing professional development courses along with scientific literature as influences supporting their use of articaine.

OBJECTIVE:

This study aimed to analyse the preferences of dental practitioners at the Oral Health Centre between lidocaine (2% with 1:80,000 epinephrine) and articaine (4% with 1:100,000 epinephrine), to identify any relationship between local anaesthetic preferences and year of graduation and to identify existing obstacles to the adoption of articaine as the gold standard anaesthetic used in general dental procedures.

METHOD:

A self-administered online questionnaire was sent via email to all 57 supervising dentists at the oral health centre. The 13-question questionnaire inquired on their year of graduation, preferences between articaine and lidocaine overall, between delivering via infiltration and inferior alveolar dental block, and preference of various properties of each anaesthetic.

RESULTS:

26 responses were returned of which a significant proportion (61.5%) of dentists preferred lidocaine over articaine (38.5%). Operators that selected lidocaine as their anaesthetic of choice cited safety and familiarity. Contrastingly those that favoured articaine predominantly mentioned increased efficacy, particularly in mandibular infiltrations and greater anaesthetic success. The main concerns cited with articaine usage was its higher neurotoxicity and the increased risk of paraesthesia in inferior dental blocks.

CONCLUSION:

Most operators preferred lidocaine due to safety and familiarity, however most cited that articaine has increased efficacy and greater anaesthetic success. Overall there are still concerns regarding the safety of articaine preventing its adoption which contradicts the evidence provided by current literature.

A COMPARATIVE STUDY OF RECENT GRADUATES, GENERAL DENTAL PRACTITIONERS AND PROSTHODONTISTS' PREFERENCES IN TEMPOROMANDIBULAR DISORDER MANAGEMENT

RESEARCHERS: ANPING HONG, LEE L. WONG, MAY B. WONG
SUPERVISOR: A/PROFESSOR ALEX MOULE

BACKGROUND:
Temporomandibular joint disorder (TMD) is becoming a prevalent issue as more patients are seeking treatment from dental practitioners. In spite of existing literature outlining the management of TMD, it remains a difficult field to treat as there are various management options available with no gold standard approach. It is unclear how guidelines and recommendations in managing TMDs have been implemented clinically.

OBJECTIVE:
This study investigated the preferences and confidence level in managing TMD among recent dental graduates, general dental practitioners (GDPs) and prosthodontists in Queensland, Australia.

METHODS:
Four clinical scenarios representing typical TMD conditions were sent online as a structured two-part multiple-choice questionnaire to participants to assess their management preferences and confidence levels for managing TMD. The sample population comprised of recent dental graduates (N=68), GDPs (N=2658) and prosthodontists (N=25).

RESULTS:
The survey received responses from 53% of recent dental graduates, 1% of GDPs and 25% of prosthodontists. Treatment preferences among the 3 groups were similar in general ($p>0.05$) as the majority preferred non-invasive treatment options. A significantly ($p<0.05$) higher confidence level was observed among prosthodontists as compared to recent graduates and GDPs.

CONCLUSIONS:
The general consensus in conservative management of TMDs reflects successful incorporation of TMD study in undergraduate dental curriculums and continuing professional development courses. However, the wide variation in management preferences may reflect the challenges operators face in diagnosing and managing TMDs as there is controversial evidence regarding their effectiveness. In addition, GDPs and recent dental graduates had a lower confidence level in managing TMDs, indicating the need for more clinical experience and training.

DENTAL STUDENT ATTITUDES TOWARDS DENTAL DAM USE VERSUS THEIR ACTUAL CLINICAL APPLICATION: A SURVEY

RESEARCHERS: ANNA TSAI, HANH NGUYEN
SUPERVISOR: DR BRUCE KIDD

BACKGROUND:
Dental dam is considered the gold standard in infection and moisture control during both restorative and endodontic procedures and is widely taught by dental schools at an early stage of student training. However, there is significant discordance between this knowledge and the actual utilization of dental dam by dental practitioners.

OBJECTIVE:
This study investigated the attitudes towards dental dam use and its actual clinical application among Australian dental students to identify any discrepancy between knowledge and practice at the undergraduate level, and develop recommendations that may potentially address the reasons behind the discrepancy.

METHODS:
Paper and electronic questionnaires utilizing a five-point Likert scale were distributed to third, fourth and fifth year undergraduate students from the University of Queensland School of Dentistry. Descriptive statistics and Spearman's rank-order correlation were used to analyse survey responses and compare attitude and application.

RESULTS:
Sixty-four students participated in the study but only 58 complete responses were included. 82% of students believed their dental dam training had been adequate but only 32% predicted they would routinely use dental dam following graduation. Patient protection and moisture control were the main rationales for dental dam use while time taken for placement was the greatest deterrent. Almost all students considered dental dam important for endodontic procedures and reported routine use during all three stages of root canal therapy. Many participants believed that composite restorations required dental dam, however actual clinical application was poor. Moderately positive associations between perception and application were observed in both anterior and posterior restorations ($p \geq 0.001$).

CONCLUSIONS:
Discrepancy between attitudes and clinical application begin at the undergraduate level. Dental students perceived time consumption as the greatest deterrent to dental dam use which may be addressed by creating a more supportive learning environment in the undergraduate dental clinic.

THE CURRENT STATUS OF THE USE OF SALIVARY BIOMARKERS TO DETERMINE PERIODONTAL DISEASE SUSCEPTIBILITY – A LITERATURE REVIEW

RESEARCHER: SELENE TAM
SUPERVISOR: DR VINCENT O'ROURKE

BACKGROUND:
Over the last decade, saliva has been investigated extensively as a potential diagnostic tool due to its ease of collection and non-invasive accessibility along with its abundance of biomarkers. It would be highly desirable to identify biomarkers for early detection of periodontal disease and to recognize disease progression in individuals as periodontitis is still only diagnosed once connective tissue and bone destruction has occurred.

OBJECTIVE:
This literature review aimed to discuss the advances in salivary biomarkers in predicting periodontal disease susceptibility.

METHODS:
An electronic search of pertinent, English language, peer-reviewed literature was conducted through the PubMed database and explored through advanced searches. The search was conducted using the following key words either alone or in various combinations: "saliva/salivary biomarkers"/ "periodontal disease" and "periodontitis". The search was limited to materials published within the last 5 years though papers cited in the articles were included if relevant.

RESULTS:
At present, there is no single biomarker that is specific to determine periodontal disease susceptibility. Thus, to increase the specificity for diagnosing current periodontal or future disease progression, the identified salivary biomarkers from host and microbial origins could be used in combinations. Nevertheless, current evidence suggests interleukin-1-beta and matrix metalloproteinase-8 are the most robust salivary biomarkers for periodontal disease.

CONCLUSIONS:
Specific host and bacterial biomarkers could be detected using a practical chairside salivary test in the near future which would allow early identification of susceptible patients in order to initiate heightened risk-management strategies and preventive intervention to prevent the onset of disease.
For these findings to be applied to clinical settings, salivary collection methods need to be standardized and studies on large and diverse patient populations need to be validated.

PERCEPTIONS OF DENTISTRY IN FINAL YEAR DENTAL STUDENTS AT THE UNIVERSITY OF QUEENSLAND

RESEARCHERS: ALISHA AZAM, MICHELLE HUANG, VERA-MIN STEPHENSON

SUPERVISOR: DR KELSEY PATEMAN

BACKGROUND:

In recent years there have been significant changes to the dynamic of the dental profession in Australia. Decreased job opportunities, the rise of health-fund and corporate dental practices, and high student workload are all factors that may have impacted the perception of dentistry in Australian dental students. Poor career perception can lead to poor job satisfaction, which can affect the quality of work and patient care.

OBJECTIVE:

The objective of this study is to investigate the current perceptions of dentistry in final year dental students at the University of Queensland and explore the foundations of any changes during their degree program.

METHODS:

A cross-sectional qualitative exploratory study design was used. The online questionnaire was delivered to 59 final year dental students via email. Participants were asked nine open-ended questions to explore their perceptions of dentistry and the results were analysed using a conventional content analysis approach.

RESULTS:

28 responses were received giving a response rate of 47%. Data analysis identified five categories shaping student perceptions; job stability, lifestyle factors, shift to independent practice, challenges of dentistry, and personal factors.

CONCLUSIONS:

Overall final year dental students generally have a positive attitude towards dentistry as a career, despite concerns regarding future employment prospects and joining the workforce. The implications of these concerns for dental educators and policy makers are explored.

FACTORS AFFECTING PERIODONTAL REFERRAL AND THE ADHERENCE TO GUIDELINES AMONG GENERAL DENTISTS

RESEARCHER: JOLENE SUM
SUPERVISOR: DR VINCENT O'ROURKE

BACKGROUND:
Current research highlights the value in investigating the factors affecting periodontal referral. Yet there is limited literature on periodontal referral in Australia and none of the publications have investigated the level of adherence to the periodontal referral guidelines.

OBJECTIVE:
This study analyses the factors affecting periodontal referral and the level of adherence to guidelines among general dentists in Queensland, Australia.

METHODS:
57 general dentists who are members of the Australian Dental Association (Queensland) undertook our online survey. The responses were analysed quantitatively. Comparisons on the mean adherence to guidelines were made between those who were aware of the guidelines and those who were unaware, as well as between those who undertook continuing professional development (CPD) courses in periodontics and those who did not. T-tests were used for these comparisons.

RESULTS:
The disease factor that was most regarded as important (90% of the respondents) was unresolved inflammation upon re-evaluation. The non-disease factor that was most regarded as important (79% of the respondents) was the operator's level of training. Among the respondents, there was low awareness of the guidelines (36.73%) yet a reasonable mean adherence to them (78.32%). Those who were aware of the guidelines have a statistically significant poorer adherence to the guidelines compared to those unaware ($p=0.03592$). There was no statistically significant difference in the adherence to guidelines between those who have and those who have not attended CPD courses ($p=0.6559$).

CONCLUSIONS:
Interestingly, those who were aware of the guidelines have a poorer adherence to them. The results from this study point to a need to refine the current guidelines to make it more meaningful and precise. Since the operator's level of training greatly influences decisions on periodontal referral, the refined guidelines may be introduced at the undergraduate and post-graduate level to encourage timely periodontal referrals in Queensland, Australia.

A COMPARISON OF SMARTPHONE, COMPACT AND DIGITAL SINGLE-LENS REFLEX (DSLR) DIGITAL IMAGES FOR TELE-ORAL MEDICINE

RESEARCHERS: ZHENG LIANG FOO, ELIZABETH GOH, TSAI-YU HUNG

SUPERVISORS: DR SARAH CHAW, A/PROFESSOR NEIL SAVAGE, PROFESSOR LAURENCE WALSH

BACKGROUND:

Access barriers to Oral Medicine specialists can delay management of oral mucosal diseases. Tele-Oral Medicine may minimise this delay by allowing assessment over distance of camera-acquired digital images. Image quality is therefore paramount and may be influenced by digital camera quality.

OBJECTIVE:

This study aims to compare digital images from smartphone, compact and digital single-lens reflex (DSLR) cameras for use in a tele-Oral Medicine setting.

METHODS:

51 patients at the University of Queensland Oral Medicine clinic were clinically diagnosed with normal or pathologic oral mucosal conditions. Digital images of the relevant sites taken with smartphone, compact and DSLR cameras were sent to six Australian Oral Medicine specialists (telespecialists) who provided a digital diagnostic assessment and rated image quality.

RESULTS:

From the digital images, telespecialists identified oral mucosal pathology with high sensitivity (95.93%) and normal mucosa with moderate specificity (61.67%). Overall diagnostic concordance between digital and clinical diagnoses was 64.38% and interexaminer agreement for the digital diagnoses was 67.97%, with insignificant differences among camera types. Telespecialists thought more DSLR images were diagnostically acceptable compared to compact images ($p = 0.015$). Image quality scores were highest for DSLR images, but did not differ significantly among camera types. Image quality was strongly correlated to image acceptability ($p = 0.034$). Camera types did not significantly affect the telespecialists' diagnostic confidence or time to make a diagnosis.

CONCLUSIONS:

Smartphone, compact and DSLR digital images provide similar clinical value in a tele-Oral Medicine setting. Tele-Oral Medicine cannot replace in-person clinical consultation, but can be valuable in overcoming access barriers as a triage tool.

EFFECT OF SALIVA AND BLOOD CONTAMINATION ON RESIN BOND STRENGTH IN DENTISTRY: A LITERATURE REVIEW

RESEARCHER: THANH Q. LE
SUPERVISOR: DR SANDRA MARCH

BACKGROUND:
Effective moisture control remains is essential for all dental procedures and forms a critical component to the success and longevity of restorative dental treatment. As such, it is important for clinicians to understand the possible effects of saliva and blood contamination on the bond strength of resin materials.

OBJECTIVE:
The aim of this review is to provide dental clinicians with an update on the recent literature regarding the effect of saliva and blood contamination on resin bond strength in dentistry.

METHODS:
An electronic search on PUBMED database (searched on 19 September 2017) was conducted for full-text English research studies published from 2010 onwards using specific search terms. Studies were included if they performed bond strength testing of resins on either contaminated tooth structure or ceramic restorations. Articles utilising artificial contaminants and animal teeth were excluded.

RESULTS:
A total of forty-five articles were retrieved and the resultant titles and abstracts were scanned for relevance. Data was extracted from eleven articles that met the inclusion criteria. Investigators in nine studies evaluated the bond strength of resin adhesives to tooth structure. There was a significant reduction in bond strength to both enamel and dentine when contaminated with blood before and after adhesive application. Two-step self-etch adhesives had significantly reduced bond strengths after saliva contamination as opposed to one-step self-etch adhesives, which had statistically similar bond strengths to that of the uncontaminated groups.

CONCLUSIONS:
Our findings show that both blood and saliva contamination can adversely affect bond strength at both the tooth-adhesive and adhesive-restoration interface. However, due to considerable differences in methodology among the studies, more research is needed before definitive conclusions can be drawn.

AN EXAMINATION OF THE SLOT DIMENSIONS OF A NOVEL PASSIVE SELF-LIGATING BRACKET

RESEARCHERS: SHU-YU CHEN, CHRISTINE CUI, CHANTAL LE
SUPERVISOR: A/PROFESSOR DAVID HEALEY

BACKGROUND:
Discrepancies in orthodontic bracket slot dimensions from the manufacturer's published values can influence the generation of forces necessary for tooth movement. Numerous studies performed previously demonstrated orthodontic bracket slot dimensions often differ significantly from the nominal values. It has been proposed the resulting clinical implications may include loss of effective torque and increased friction.

OBJECTIVE:
To measure the bracket slot dimensions of vertical slot height and wall parallelism, and examine surface irregularities in a selection of 0.022-inch passive self-ligating brackets from the TP Orthodontic NuEdge SL Mini series.

METHODS:
10 brackets each of the upper left central incisor, upper left lateral incisor, upper right central incisor and upper right lateral incisor were examined. Vertical bracket slot height, inbuilt torque angle and parallelism of slot walls were measured using a light microscope and digital imaging software. Surface texture of the brackets was assessed under both light and scanning electron microscopy.

RESULTS:
All bracket slots examined were found to be significantly larger than the nominal value of 0.022-inches, ranging from 4.94 per cent to 5.53 per cent oversized compared to manufacturer specifications. Bracket walls were found to be either parallel or divergent. Microscopic surface irregularities were observed in the majority of brackets.

CONCLUSIONS:
his study confirmed the findings of previous researchers, with brackets exhibiting discrepancies in all parameters analysed. As bracket deficiencies may result in loss of clinical torque thus inhibiting effective tooth movement, actual bracket measurements should be verified. It is recommended that manufacturers should publish bracket slot size tolerances as this may differ due to manufacturing methods and material composition.

THE USE OF TEMPORARY ANCHORAGE DEVICES BY ORTHODONTISTS IN AUSTRALIA AND NEW ZEALAND

RESEARCHERS: ALEX ANG, SURAJ ASHOK

SUPERVISORS: DR ELISSA FREER, A/PROFESSOR DAVID HEALEY

BACKGROUND:

A temporary anchorage devices (TAD) is a device inserted into bone to increase orthodontic anchorage, thereby reducing or eliminating the need for anchorage from other teeth, mucosal support or extraoral structures. Several studies conducted outside of Australia and New Zealand have indicated that TADs have a relatively low failure rate. However, anecdotally, use of TADs by orthodontists in Australia and New Zealand appears low.

OBJECTIVE:

The primary objective of this study was to measure the current use of TADs amongst orthodontists in Australia and New Zealand. Additionally, this study aimed to identify correlations between TAD usage and factors such as orthodontic training background, years of experience and location.

METHOD:

A questionnaire survey was sent to members of the Australian Society of Orthodontists (ASO) and the New Zealand Association of Orthodontists (NZAO). A multivariate linear regression model and one-way ANOVAs were conducted to investigate the effect of variables (such as dental school, years of experience and location) had on the level of TAD usage.

RESULTS:

A total of 31 orthodontists participated in the survey. The weighted average TAD use rate was calculated as 7.8% i.e. 7.8 TADs placed per 100 cases on average. No statistically significant correlations were identified between TAD use rate and the factors investigated. However, some of the descriptive findings of the results aligned with trends seen in similar studies.

CONCLUSION:

A larger sample size is needed to produce more reliable results and robust statistical analyses. The use of TADs in Australia and New Zealand appears to be low compared to in the US but higher compared to in India. Comparable surveys from other parts of the world are lacking. The trend in the relevant literature, which this study generally follows, is that the more education and training in TADs, the higher the level of use.

ASSESSING THE SERUM CARBOXY-TERMINAL CROSSLINKING TELOPEPTIDE (CTX) LEVEL CHANGES IN PATIENTS DEEMED AT RISK OF 'ANTIRESORPTIVE RELATED OSTEONECROSIS OF THE JAW' (ARONJ) DEVELOPMENT DURING A SCHEDULED DRUG HOLIDAY (LNR)

RESEARCHERS: YOUNG SU LEE, THILEN NAIDOO, JASON PHAN
SUPERVISORS: DR IRINA LEONIDA, PROFESSOR BRYAN BURMEISTER

BACKGROUND:

Patients undergoing extraction are at risk for antiresorptive-related osteonecrosis of the jaws (ARONJ). ARONJ is a debilitating condition that results in necrosis of exposed bone associated with use of antiresorptive medications. The C-terminal crosslinking telopeptide (CTx) test is a blood serum measurement of bone turnover. CTx levels lower than 150ng/L has been suggested as a predictor of ARONJ risk in patients undergoing invasive oral procedures.

OBJECTIVE:

The authors aimed to identify any differences in the rate of changes of CTx levels in patients taking different antiresorptive medications in order to implement more reliable drug holiday protocols.

METHODS:

A report from the ISOH database with Hervey Bay Dental Clinic clientele was conducted for patient's taking antiresorptive medications with a 'CTx result' in their file. Of the 226 results, 53 were identified to have results before and after a drug holiday. The difference between the two CTx results were then assessed relative to the time (months) between the two results.

RESULTS:

The 53 results were categorised into three antiresorptive medications – nine Actonel (16.98%), five Fosamax (9.443%) and 39 Prolia (73.58%). Within the Prolia group, a positive correlation was found between the change in CTx levels and the time between those CTx results during a drug holiday. The rate of change was found to be 28.27ng/L/month ($P < 0.01$). Actonel and Fosamax had a rate of change of 12.69ng/L/month and 20.75ng/L/month respectively. However, both lacked sufficient sample size ($P > 0.05$). Prolia was subdivided into genders with a rate of change of 37.86ng/L/month and 22.63ng/L/month for female (n=12) and male (n=15) respectively ($P < 0.01$). Any comparison between the ages of patients proved inconclusive.

CONCLUSION:

There is evidence to support that shorter drug holidays can be prescribed for patients taking Prolia, however further research is required in this field.

THE EFFECT OF ACTIVE INGREDIENTS IN TOOTHPASTES ON *CANDIDA ALBICANS*

RESEARCHER: SURAJ ASHOK MURTHY
SUPERVISOR: DR NIHAL BANDARA

BACKGROUND:

The prevalence of fungal infections in the oral cavity has significantly increased since the 1980s. Commercial toothpastes are well established as a cheap and effective option to improve oral health given their antimicrobial properties, however there is a lack of literature to support their antifungal properties.

OBJECTIVE:

The objective of this study was to evaluate the effect of active ingredients found in commercially available dentifrices on *Candida* biofilm *in vitro*.

METHODS:

The effect of triclosan, sodium fluoride, sodium monoflurophosphate and potassium nitrate on *Candida albicans* SC5314 was studied using a standard biofilm assay. The metabolic activity of *in vitro C. albicans* biofilms treated with the active ingredients at 90 minutes, 24 hours and 48 hours was quantified by XTT reduction assay. Confocal laser scanning microscopy (CLSM) was utilised to qualitatively analyse the biofilm forming cells and their respective structures.

RESULTS:

At the initial adhesion phase of the *C. albicans* biofilm, following 90 mins incubation, a significant inhibitory effect was observed with triclosan, NaF and MFP. In contrast, KNO3 ($P<0.05$) exhibited a stimulatory effect. After 24 hrs of incubation, a significant inhibitory effect was observed with only triclosan and MFP ($P<0.05$) across the range of concentrations tested. On further incubation for 48 hrs, only triclosan across the range of concentrations tested and the highest concentration tested of MFP ($P<0.05$) exhibited an inhibitory effect on the preformed C. albicans biofilm. These findings were confirmed by the CLSM analysis. The inhibitory effect of triclosan was demonstrated by a poorly formed architecture with a reduced number of cells compared to the densely colonised and profuse control biofilms, while the stimulatory effect of KNO3 at the initial adhesion phase presented with an increased number of yeast cells, but reduced pseudo-hyphae presence compared to the control biofilm.

CONCLUSIONS:

These data are indicative that the active ingredients in toothpastes modulate *in vitro C. albicans* biofilm formation in a concentration and time dependant manner. The biological and clinical relevance of these findings are yet to be explored.

ELECTROSPINNING OF GENTAMICIN-ENTRAPPED PVA/PCL CORE-SHELL NANOFIBERS FOR CONTROLLED RELEASE IN VITRO

RESEARCHERS: LI HAO RAN, YONG JIAN PERRY LIM, RAKILA LAKICEVIC

SUPERVISORS: DR CHUN XU, PROFESSOR ADAM YE

BACKGROUND:

Coaxial electrospinning allows for the fabrication of nanofibers with antibacterial properties and sustained drug release, depending on properties of core and shell materials. This has potential applications in periodontal regeneration where local long-term antibacterial properties is beneficial to healing of the wound site.

OBJECTIVES:

This experiment aims to fabricate core-shell nanofibers for controlled drug release. There are three specific objectives. Firstly, to establish desirable parameters for fabrication of PVA/PCL core-shell nanofibers. Secondly, to load gentamicin into PVA/PCL core-shell nanofibers. Finally, drug release properties of gentamicin-loaded PVA/PCL core-shell nanofibers was tested.

METHODS:

Desirable electrospinning parameters were determined through analysing changes in various parameters using SEM and ImageJ. PVA, PCL, and PVA/PCL core-shell nanofibers were fabricated using these parameters. Gentamicin was then loaded into PVA and PCL solutions and PVA, PCL, and PVA/PCL core-shell samples electrospun. Antibacterial properties of these nanofibers were tested using agar diffusion tests with E. coli, and dissolution tests investigated drug release over 48hrs.

RESULTS:

The parameters established were: 25kV applied voltage; 15cm working distance; flow rate 0.5ml/hr (PVA) and 1.0ml/hr (PCL); #19 core, #15 shell needles, room temperature. Gentamicin-loaded core-shell nanofibers produced a zone of inhibition smaller than that of gentamicin-loaded PVA or PCL nanofibers. Gentamicin-loaded PVA/PCL core-shell nanofibers had a slower dissolution rate compared to gentamicin-loaded PVA alone.

CONCLUSIONS:

Gentamicin-loaded PVA/PCL core-shell nanofibers were successfully fabricated. The PVA control group had a high initial burst release of gentamicin before drug release plateaus. In contrast, core-shell nanofibers had a fast initial release of gentamicin, followed by slow sustained release. Potential applications include guided tissue regeneration where secondary infection can be reduced with antibiotics entrapped core-shell nanofibers.

EFFICACY OF PRE-PROCEDURAL RINSES ON REDUCING THE VIABLE BACTERIA IN DENTAL AEROSOLS: A LITERATURE REVIEW

RESEARCHER: JOE CHIA-YU WEI
SUPERVISORS: DR BRUCE KIDD, DR SANDRA MARCH

BACKGROUND:
Aerosols generated in dental procedures pose a health hazard to the dental staff and patients due to the possible spread of infectious diseases via an airborne route. Previous studies have suggested that pre-procedural rinsing with antimicrobial mouth rinses should be implemented to reduce the bacterial load in dental aerosols.

OBJECTIVE:
This review examines the existing literature to determine the efficacy of several antimicrobial mouth rinses when used before dental procedures in reducing the levels of viable bacteria contained in dental aerosols and splatter.

METHODS:
An electronic search of full-text English language studies published between 2007 and 2017 was conducted on MEDLINE (Pubmed), Cochrane and SCOPUS online databases. Studies were included if they investigated the efficacy of an antimicrobial mouth rinse to reduce bacteria in dental aerosols in clinical trials using similar methodology. After application of exclusion and inclusion criteria, 14 articles were selected for analysis, summarised and their results compared.

RESULTS:
All 14 studies found that chlorhexidine (CHX) was effective in reducing the amount of viable bacteria in dental aerosols. Two studies concluded that cetylpyridinium chloride rinses were equally effective as CHX. Two studies found that CHX was more effective than essential oil rinses. One study concluded an herbal formulation was equally as effective as CHX whereas another study found that a tea tree oil formulation was less effective than CHX but still had effect. A single study found povidone iodine to be as effective as CHX and ozonated water to have a lesser but still significant effect. Another study found a chlorine dioxide (ClO_2) rinse to be as effective as CHX.

CONCLUSION:
Pre-procedural rinsing with CHX is strongly recommended to reduce infection risk from dental aerosols. A few rinses have shown to be as effective as CHX in limited trials but further research is required before recommendation.

ARE UNIVERSITY OF QUEENSLAND DENTAL STUDENTS READY FOR INTERPROFESSIONAL PRACTICE?

RESEARCHERS: HAE IN HAN, MIN JI KIM
SUPERVISOR: DR EMMA BARTLE

BACKGROUND:

The importance of interprofessional practice in improving healthcare outcomes for patients has become increasingly acknowledged. As such, the provision of interprofessional education in curriculums for future healthcare professionals is crucial in ensuring continuation of effective interprofessional practice. This study aimed to evaluate the readiness of current undergraduate dental students at the University of Queensland towards interprofessional education.

OBJECTIVE:

This study assessed the readiness of dental students at the University of Queensland towards interprofessional education and, in extension, interprofessional practice.

METHODS:

Two validated questionnaires, Readiness for Interprofessional Learning Scale and Interdisciplinary Education Perception Scale, were administered to students enrolled in years 1, 3, and 5 of the Bachelor of Dental Science (Hons) program. The collected data was analysed using Microsoft Excel 2016.

RESULTS:

A total of 70 students participated in the study. There was a general decrease in the questionnaire scores from Year 1 to Year 5.

CONCLUSIONS:

Despite the decrease in scores shown by the study, the raw scores from all three year levels showed a reasonably high level of readiness for interprofessional education. This is expected to be maintained by further incorporation of effective in the curricula, and further longitudinal studies to evaluate the changes in attitudes to interprofessional education is recommended.

FROM DENTAL SCHOOL TO WORKING LIFE: HOW MUCH DO STUDENTS KNOW ABOUT INTEGRATING AND MANAGING A DENTAL PRACTICE?

RESEARCHERS: HYE RIM MOON, SHANNON MC SIA, JO ANN WONG

SUPERVISOR: DR DAVID JOO

BACKGROUND:

Graduates are expected to complete their training with the skills and knowledge outlined in the Australian Dental Council's document "Professional Competencies of the Newly Qualified Dentist", but these competencies do not explicitly cover the business and managerial aspect of dentistry. It is questionable whether the undergraduate dental curricula in Australia adequately prepare students to independently manage a dental practice upon graduation.

OBJECTIVE:

This study assessed the knowledge and confidence levels of final year undergraduate dental students at the University of Queensland regarding practice management.

METHODS:

All final year students of the Bachelor of Dental Science (Honours) program at the Oral Health Centre, University of Queensland were invited to participate in an online questionnaire. The questionnaire was divided into 4 parts: confidence levels regarding dental competencies; knowledge on the basic principles of independent practice management; sources to seek information about practice management; and lastly, an open-ended question about managerial philosophy. The data was analysed and responses evaluated using descriptive statistics to estimate frequency. The Mann-Whitney U-Test and Cronbach's α (Alpha) were used to test for statistical significance and internal consistencies within the questionnaire.

RESULTS:

At total of 39 final year dental students participated in this survey. 69.2% respondents were considering opening their own dental practice independently, and none felt prepared to do so immediately upon graduation. With regards to their knowledge on managing a dental practice, 76.9% of respondents showed little or no confidence, and less than 11% obtained a score of eight or above out of a total of eleven questions. Additionally, 71.4% desired business management to be incorporated into the curriculum.

CONCLUSION(S):

Final year dental students at the University of Queensland lack a working knowledge of independent practice management and the dental curriculum should be expanded to cover business management.

ANALYSIS OF THE RELATIONSHIP BETWEEN RESILIENCE AND PERCEIVED STRESSORS AMONGST AUSTRALIAN DENTAL STUDENTS

RESEARCHER: YUNJIA LUO

SUPERVISORS: A/PROFESSOR DAVID HEALEY, PROFESSOR PAULINE FORD

BACKGROUND:

Dental students experience significant amount of stress during their studies. Mental health interventions for other health science students currently focuses on resilience building which can potentially be applied to dental students. However, it is unknown if resilience and stress has a significant relationship in the dental student cohort. Additionally, while perceived stressors of dental cohorts have been investigated internationally, there is no known literature concerning perceived stressors of Australian dental students.

OBJECTIVES:

To examine the relationship between resilience and stress in Australian dental students. To explore which dental student groups were vulnerable to stress, and the latent constructs within the Dental Environmental Stressor Questionnaire (DES) in an Australian cohort.

METHODS:

Secondary analysis was conducted on data from a previous unpublished paper. The data consisted of survey results from 246 dental students from the University of Queensland using the DES and the Wagnild and Young Resilience Scale. Exploratory factor analysis was conducted on the results of the DES, and four stress factors emerged: Academic, patient care, personal, and lack of self-esteem. The results of both measurement tools were descriptively analysed in conjunction with demographic variables. Linear regression analysis was conducted to predict resilience from the four obtained stressor factors.

RESULTS:

Students living with family experienced greater stress compared to students living independently, and postgraduate-entry students experienced less stress than school-entry students. Stress and resilience were significantly negatively correlated, and self-esteem stressors were the most strongly negatively correlated with resilience, followed by patient care and academic stressors.

CONCLUSIONS:

These results show that resilience building may be an important focus for mental health interventions in dental institutions, and certain student groups may require more mental health related support during their dental education.

AUSTRALIAN PUBLIC DENTAL WAITLISTS: A BIG PICTURE IN 2016

RESEARCHER: BI Q. ONG, MICHAEL TAN, ZHEN Z. WANG
SUPERVISOR: A/PROFESSOR RATILAL LALLOO

BACKGROUND:
Lengthy public dental waitlists in Australia have been under the limelight recently. Federal initiatives have been implemented by States and Territories to address this issue, with a recent funding scheme effected in 2015/2016. However, there seems to be a lack of updated research on the nation's public dental waitlists.

OBJECTIVE:
Present the open data available regarding waitlists, wait times, eligibility criteria and waitlist categories for Australian public dental services in 2016 and assess the degree of access to these information by stakeholders.

METHODS:
For each State and Territory, quarterly public dental waitlist data, mean wait times, waitlist classifications and eligibility criteria in 2016 were collected from health department websites and news reports. Population data were collated from the 2016 Census and the 2013 National Dental Telephone Interview Survey. The proportion of the eligible population on waitlists were also determined.

RESULTS:
Publicly available waitlist figures for QLD, NSW, VIC, TAS and WA could be sourced while SA, NT and ACT were not found. QLD showed the largest proportion of its eligible population on waitlists (10.55%) while WA had the smallest proportion (1.31%). Mean wait times for VIC, SA, WA and ACT were publicly available while those for QLD, NSW, TAS and NT were not. SA had the highest mean wait time (12.4 months). Common eligibility criteria were healthcare cardholder and pensioner concession cardholder status. Waitlist structures across the nation had 'Emergency' and 'General Dental Treatment' categories but details varied by region.

CONCLUSION:
Nationally, there was inconsistent and limited access to State and Territory information regarding public dental waitlist figures and wait times in 2016. QLD had the highest waitlist number in 2016 while SA had the highest mean wait times for dental care. On the other hand, eligibility criteria and waiting list categories were readily available nationally.

THE RELATIONSHIP BETWEEN THE SOCIAL PROGRESS INDEX, AND ITS COMPONENTS, AND ORAL HEALTH: A GLOBAL PERSPECTIVE

RESEARCHERS: KARE LIN, NADIAH KHAIRUL
SUPERVISOR: A/PROFESSOR RATILAL LALLOO

BACKGROUND:
Despite explicit strategies to address health inequalities by various international organisations, oral conditions such as dental caries and periodontal diseases remain highly prevalent. Behavioural factors alone cannot account for this, and thus the underlying social determinants need to be further investigated in order to achieve a sustainable shrinkage in oral health inequality. One such socio-environmental indicator is the Social Progress Index (SPI).

OBJECTIVE:
To determine if there is an association between SPI, and its components, and national prevalences of: deciduous caries, permanent caries, severe periodontitis, and severe tooth loss. Additionally, to identify components of the SPI that show a significant association with the aforementioned oral conditions.

METHODS:
Data from 160 countries were sourced from the 2016 SPI methodology report and the 2015 Global Burden of Disease study. Independent variables included the SPI and its components. Dependent variables included national prevalences of deciduous caries, permanent caries, severe periodontitis and severe tooth loss. The Statistical Package for the Social Sciences (SPSS) version 18.0 was utilised for regression analysis.

RESULTS:
The results showed an observable association between the four oral conditions and the SPI and its 12 components, with severe tooth loss showing the strongest association ($r = 0.605$, $p = 0.000$), followed by severe periodontitis ($r = -0.217$, $p = 0.012$), and then permanent caries ($r = 0.178$, $p= 0.040$), and lastly deciduous caries ($r = -0.166$, $p = 0.056$).

CONCLUSION:
Severe tooth loss most clearly reflected differences in SPI and its components between countries; the association between deciduous caries and SPI was not significant at a 0.05 level. Factors such as nutrition and basic medical care, water and sanitation, shelter, and access to basic knowledge showed the most significant association to permanent caries, severe periodontitis, and severe tooth loss.

A CONTENT ANALYSIS: COMPARISON OF CARIOGENIC AND EROSIVE ADVERTISING IN CHILDREN'S AND ADULT'S TELEVISION

RESEARCHERS: SAM ADEBAJO, RUOYING PU, ROBYN SHARMA
SUPERVISOR: DR MONICA THOMPSON

BACKGROUND:

Background: The diet of children in Australia is influenced by advertising on television by food and drink companies. Currently standards for advertising of food and drink on television are considered self-regulatory without firm guidelines. There is minimal current research that shows how effective this self-regulation is in limiting children's exposure to advertising of foods that encourage a diet with high cariogenic potential.

OBJECTIVE:

This study was aimed to contribute to existing research and assess if advertising containing cariogenic products were more prevalent during peak children's viewing times or peak adult's viewing times, and to determine if further legislative work will be necessary to address this discrepancy.

METHOD:

Advertisements over six channels were analysed in one-hour blocks over a viewing period of 10 weeks. The length of each advertisement was recorded and they were each categorised into one of five categories.

RESULTS:

A statistically significant positive correlation was found between advertisements containing any level of cariogenic products and age group, such that adults were more frequently exposed to cariogenic ads than children in the sample ($r = .195$, $p > .001$), in contradiction to the hypothesis. The results demonstrated that a large proportion of food and drink advertisements marketed consumables of high cariogenic potential with the proportion significantly higher during peak adult viewing periods.

CONCLUSIONS:

Although there are no current regulations restricting the advertising of cariogenic consumables, the amount of cariogenic advertising to children is still nominal, however, a high proportion of food advertisements targeted at children were found to be of high cariogenicity. Further investigation into adults advertising may be needed as it appears that a large number of high cariogenicity products may be targeted at adults.

PERSPECTIVES AND PARTICIPATIONS IN DENTAL VOLUNTEERING

RESEARCHER: PAUL NGIENG
SUPERVISORS: DR ARCHANA PRADHAN, NICOLE STORMON

BACKGROUND:

Access to oral care is not a universally available option. Much of this deficiency is unaddressed and one of the stopgap measures, even though insufficient, is dental volunteering.

OBJECTIVE:

This pilot study is aimed to investigate and highlight the way dental students & professionals perceive dental volunteering as well as participations of the dental population in dental volunteering.

METHODS:

The data for this study was obtained through an online voluntary questionnaire sent to dental professionals via relevant organisations. The questionnaire measured demographics including age, gender and profession. Open-ended questions were used to explore the motivational reasons of volunteering or lack of, type of & frequency of past volunteering experience as well as likelihood of future dental volunteering.

RESULTS:

90.99%(101) of participants expressed interests in future dental volunteering regardless of previous volunteer experience. While a low proportion of dentists – 9%(10) responded to the survey, a general positive trend towards dental volunteering motivated by recognising needs of underserved populations, helping others, giving back to the community and professional responsibility can be noted. Word of mouth was the most prevalent- 37.8%(42) for dental professionals in finding out about opportunities for dental volunteering.

CONCLUSION:

A high degree of interest in participating in dental volunteering was observed in this study. This is seemingly independent of the existence of previous volunteering experience, however previous volunteering experience for most seem to be a reinforcing point in further dental volunteering. The high rates of interest in dental volunteering can be useful towards further exploration of the differences between holding an interest and actual rates of dental volunteering.

A STUDY OF THE SELF-REPORTED ORAL HEALTH ATTITUDES AND IN FIRST YEAR UNDERGRADUATE DENTAL STUDENTS IN AUSTRALIA

RESEARCHERS: DEAN WONG, FANG YU (JENNY) LIU
SUPERVISOR: DR KELSEY PATEMAN

BACKGROUND:
Prospective dental graduates play a key role as future dentists in education and promotion of oral health. Literature shows that a dentist's oral health and behaviour can affect their capacity to deliver oral health care. With globalisation, the Australian dental student demographics are increasingly multicultural with a significant proportion of international students. Research has been done into oral health attitudes and culture has been conducted by comparing dental students from different countries and different educational institutions. However, there is no research exploring the attitudes of students educated at the same institution with different cultural backgrounds.

OBJECTIVE:
To assess the differences between oral health attitudes and behaviours between local and international dental students exposed to the same education, considering the effects of culture and gender and culture.

METHODS:
First year dental students were invited to complete the survey which included demographics questions and the Hiroshima University-Dental Behavioural Inventory (HU-DBI). non-parametric Mann-Whitney test was used to analyse the effect of student status and gender towards the overall score; while non-parametric Kruskal-Wallis test was used to analyse the effect of culture identity and languages spoken.

RESULTS:
Student status was observed to have a significant affect to the overall score (U = 115, P = .034). There was no significant affect observed for gender. Similarly, there were no significant affect observed for culture identity and other language they speak other than English.

CONCLUSIONS:
Due the relatively small sample size and limited statistical power of the study, and the highly skewed nature of the data, further study needs t o be conducted to analyse the differences in oral health attitudes between international and domestic dental students.

ACCESS TO ORAL HEALTH CARE FOR PEOPLE WITH DISABILITIES: A LITERATURE REVIEW

RESEARCHER: TREVOR LEE
SUPERVISOR: DR ARCHANA PRADHAN

BACKGROUND:

The World Health Organisation has estimated that over a billion people in the world have some form of disability. People with disabilities all have the same oral health needs as the general population but find greater difficulty in accessing appropriate services. Oral health disparities identified in the literature have been attributed to barriers that hinder access to oral health care. These barriers must be addressed to improve access to oral health care, to improve the oral health of people with disabilities and thus reducing the present oral health inequalities.

OBJECTIVE:

The objective of this study was to review the current published literature on barriers to oral health care for people with disabilities.

METHODS:

A literature search was conducted on MEDLINE/ PubMed, ProQuest Central and Scopus (Elsevier) for key terms 'access', 'dental care OR oral health care', and 'people with disabilities'. The following inclusion criteria was used to select relevant studies: study population of adults with disabilities, reporting on access to oral health care, and English publication in peer-reviewed journals.

RESULTS:

Studies reviewed were conducted from perspectives of people with disabilities, their carers, dentists and dental practices. The evidence all identified similar barriers to accessing oral health care. Main barriers identified were: (1) individual-mediated factors (cost of treatment, fear of the dentist and communication difficulties), (2) dental profession-mediated factors (a lack of qualified/willing dentist to treat people with disabilities) and (3) structural factors (transportation, and physical barriers). The studies recommend further education in special needs dentistry for general dentists, and to raise awareness in the importance of oral health to people with disabilities, their families and carers.

CONCLUSION:

There is consistent evidence reporting barriers to oral health care faced by people with disabilities. Implementing the recommended strategies would contribute to meeting the oral health needs of people with disabilities.

ACCESS TO DENTAL CARE FOR THE ELDERLY IN RESIDENTIAL AGED CARE FACILITIES: A LITERATURE REVIEW

RESEARCHER: JAMES MCANULTY
SUPERVISOR: DR ARCHANA PRADHAN

BACKGROUND:
There is a health inequality for the elderly in residential aged care facilities (RACFs) regarding access to dental care and as the population ages this is set to increase.

OBJECTIVE:
This study reviews the literature to identify current barriers preventing the elderly in RACFs from accessing dental care in Australia. Possible solutions to this dilemma are also explored.

METHODS:
Literature was accessed from MEDLINE/PubMed databases. Search terms focused upon the access of dental care and oral health of RACF residents. Results were limited to Australian publications from the last 10 years. Journal articles were included if they met the inclusion criteria and were relevant to the topic.

RESULTS:
Various barriers are identified from the perspective of RACF residents, RACF staff and dental professionals. The most obvious issues noted are poor access to dental infrastructure on-site at RACFs coupled with low mobility of residents. A lack of formal gerodontic training for dental professionals is also observed. Various interventions have been employed to circumvent the barriers in accessing dental care. Several approaches have provided RACF staff with oral health education and training however this is a challenging proposition due to high staff turnover and time constraints of daily care. Other methods that have utilised dental hygienists on-site to provide professional judgements and preventive treatment have produced promising results. Additional suggestions include increased gerodontic exposure for undergraduate students, appropriate planning of the ageing dentition and use of treatments amenable to mobile dentistry. Future innovations may look to apply e-technology to overcome logistical barriers.

CONCLUSIONS:
Dental hygienists provide the most logical solution to improving access to dental care however evaluation of long-term efficacy is required. Furthermore, increased emphasis should be placed upon gerodontic training for all dental professionals, including appropriate planning of the gerodontic dentition.

ACCESS TO DENTAL CARE FOR PEOPLE WITH MENTAL HEALTH DISORDERS: A LITERATURE REVIEW

RESEARCHER: JONATHAN SHIN
SUPERVISOR: DR ARCHANA PRADHAN

BACKGROUND:
There is a consensus within the literature indicating significant oral health disparities and difficulties associated with access to dental care for people with mental health issues compared to the general community. However, there is a paucity of studies regarding barriers to dental care access for this marginalised group, and intervention to address these concerns remain to be elucidated.

OBJECTIVE:
This literature review aimed to evaluate published studies to identify and analyse factors affecting access and utilisation of dental care for patients with mental health disorders.

METHODS:
An electronic search of literature published in English within the last 10 years pertaining to access and utilisation of dental care for people with mental health disorders was conducted using MEDLINE and Cochrane Database. Systematic reviews and meta-analyses were searched in priority, and relevant primary studies from the initially-retrieved reviews were also included.

RESULTS:
Financial burdens secondary to poor income and high cost of treatment as well as reluctance to seek care attributed to various behavioural factors such as avolition, lack of perceived need for health care, dental phobia or mistrust of dental professionals were among the most common cited barriers to dental care. Lack of oral hygiene education and knowledge of available dental health services were also highlighted by numerous authors. Dental professionals have also reported reluctance towards treating people with psychiatric disorders. Furthermore, nursing staff and carers often lacked the knowledge, ability or protocols to provide adequate oral health education. Inter-professional communication between dental and other health care providers required improvement as unmet dental needs were frequently overlooked and opportunities for referral were missed or poorly utilised.

CONCLUSIONS:
Various barriers to dental care access have been identified with accompanying suggestions aimed to improve dental care access and oral health outcome for this marginalised population. However, evaluation of long-term efficacy of these proposed interventions requires further investigation.

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