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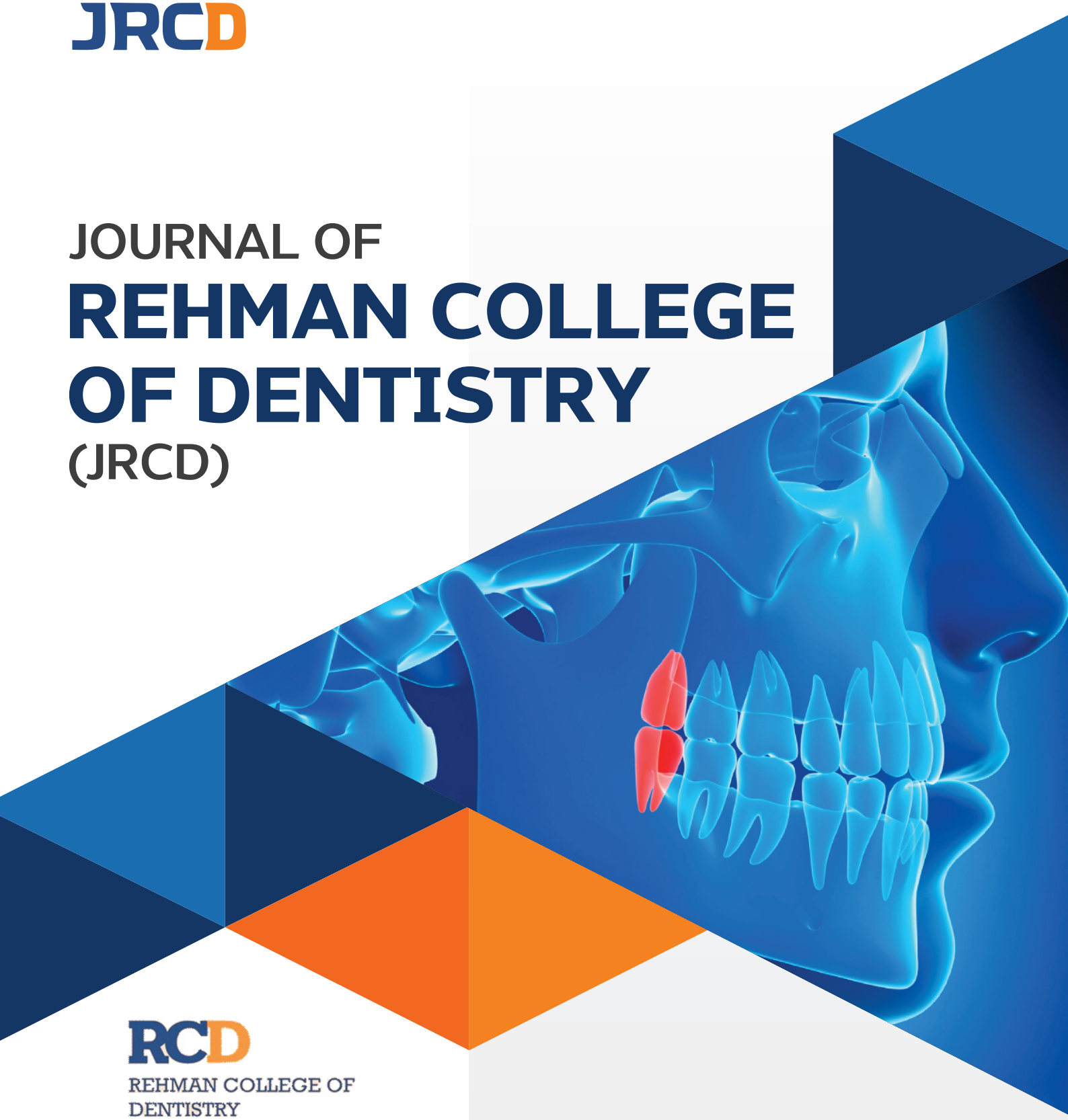

RCD
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Aims and Scope

Aims

JRCD is an international, open access journal for the dental community. JRCD supports scientific innovations, clinical and experimental research within the whole field of dentistry and its related fields.

Our aim is to provide rigorous peer review, enable rapid publication of cutting-edge research and to create a platform and forum for ideas, opinions, developments and key issues in dentistry for readers to spark debate and discussion.

Manuscript categories: Original scientific research articles, systematic reviews/meta-analyses, comprehensive reviews, communications, case reports, case series, letters, commentaries, editorials. Conference proceedings are also welcomed and other expressions of interest should be directly communicated to the Editors.

Scope

Topics of interest include, without being limited to the following areas:

- Oral Biology and pathology
  - Dental Anatomy
  - Oral Physiology
  - Oral Medicine
  - Oral Pathology
  - Inflammation
  - Tumors
  - Developmental disorders
  - Oral Histology
  - Tooth Morphology
- Forensic odontology
- Oral Microbiology
  - Biofilms and Plaque
  - Antimicrobial Agents
  - Antibiotics
  - Oral and maxillofacial infections\
  - Host-pathogen interaction
- Diagnosis
  - Oral Radiology
  - Diagnostic Sciences
- Prevention, Oral Epidemiology and Health
  - Dental Epidemiology
  - Dental Disease Psychology and Dental Care
  - Dental Diet
  - Nutrition and Oral Health
  - Dental Education
  - Ethical Care of Patients
  - Dentistry and the Law
  - Risk Management Caries Prevention
  - Oral Health and Aging
  - Professional Responsibility in Dentistry
- Periodontology
  - Plaque Reduction
  - Prevention of Periodontal Disease
  - Non-Surgical Therapy
  - Surgical Periodontal Therapy
  - Guided Tissue Regeneration
  - Maintenance
  - Oral Hygiene
- Endodontology and Traumatology
  - Disinfection
  - Obturation
  - Root Canal Anatomy
  - Prevention of Dental Trauma
  - Mouth Guards
- Operative Dentistry
  - Adhesive Materials in Dentistry
  - Filling Materials and Techniques
  - Polymerization
  - Digital Dentistry
  - Tooth Whitening/bleaching
- Prosthodontics
  - CAD/CAM
  - Veneers
  - Esthetic Dentistry
  - Dental Crown & Bridge
  - Removable & Fixed Dentures
- Dental Implantology
  - Guided Bone Regeneration
  - Sinus lift
  - Dental Orthopedics
- Dental Biomaterials Science
  - Biomaterials
  - Biocompatibility
  - Dental Materials
- Orthodontics
  - Orthodontic Appliances
  - Dental Orthopedics
  - Orthodontics
  - Dental, Oral and Facial Growth

- Pediatric Dentistry
  - Fissure Sealing
  - Early Dental Care
  - Primary Dentition and Caries
- Oral and Maxillofacial Surgery
  - Fractures
  - Bone Regeneration
  - Tumor Diagnostic and Treatment
  - TMJ Diseases
- Medical Emergencies in Dentistry
- Translational Research

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Editorial Board

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EDITORIAL

Covid-19, Challenges, Progress and A Path Forward With the Pivotal Role of Tele Dentistry.

Ghulam Rasool[1], Gulmeena Masood[2]

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On, 11th March an acute respiratory syndrome also termed as COVID-19 was declared as a pandemic by the world health organization WHO. This virus was not only highly contagious but also deadly and lead to almost 282727 deaths worldwide. The recent outbreak of the COVID-19 Delta variant has raised a serious alarm as the rapid spread has highlighted the severity of the virus. The present-day cases of this variant have originated in the cities of Shenzhen and Dongguan, where the emerging cases of this strain suggests that variant strains of COVID-19 would be an even bigger threat in the global pandemic.[1]

Some serious measures are to be taken by clinical practitioners to avoid the spread of this contagious virus. Since different type of dental procedures involves face to face communication of the clinician with the patient and there is quite a possibility to be exposed to the body fluids and particularly the use of dental tools that can generate aerosols and can lead to airborne spread of the virus therefore many studies have been conducted in this regard which shows the utmost significance of infection prevention and control measures that should be taken in dental practice.[2]

The prevention of infection shall be implemented in both the non-clinical area and clinical area which includes the dental practitioners and staff wearing the protective gear that is PPE (Personal Protective Equipment). Thorough cleaning, disinfection and sterilization of the dental unit and tools is the basic precautionary protocol that shall be followed. The clinicians should be careful in handling the occupational accidents which involves the exposure of blood and bodily fluids can lead to spread of the virus.

Many studies suggests that common biosafety crisis correlates with the behavior of professionals. Therefore, a well-aware and a vigilant clinician is more capable of performing his dental procedures without putting himself or his patient's life at risk of catching the deadly virus.[3] Since COVID-19, Delta variant is a virus that is highly contagious and many facts are still unveiling as to how it is spread, the experts have suggested minimal contact of clinicians and the patients and in this regard Tele dentistry, has emerged as an effective medium in dental practice. It is defined as "using the medium of information technology rather than direct clinician to patient contact, providing dental assistance, care, advice and treatment."

Tele dentistry is comparatively new evolving technology which includes electronic medical records and referral systems, video and digital images which assist in dental procedures for unapproachable or even patients in quarantine, if they require consultation from the clinicians and guidance therefore solely relying on the telediagnosis and teleconsultations.

It enables the prompt transfer of images, files and documents improving the access, early intervention, and health awareness to improve the successfulness and potency of dental health procedures keeping in mind the severity of highly contagious corona virus. Yet, it has still some short comings that we need to overcome such as reimbursement issues, budget and limitations in physical examination, the equipment requirement, license approval, particularly the images show a Two-dimensional view of Three-dimensional objects thus maintaining the quality is a challenge that we need to overcome. In future, research and studies shall be conducted regarding the financial aspect of Tele dentistry to make it more feasible for the public and the consultants.

It is a rapidly developing field that does have potential in these desperate times of Covid but grants and funds from the government can help us run the clinical trials that will enable us to make the best use of Tele dentistry in healthcare of patients eliminating the fear of contracting Covid.[4-6]

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Knowledge and Practice of BDS Graduates Regarding Antibiotic Prophylaxis in Infective Endocaraditis

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Abstract:

Objective: The objective of the study was to find out the BDS graduates' knowledge regarding antibiotic prophylaxis of infective endocarditis according to Amerian Dental Association guidelines.

Methodology: A questionnaire, containing 28 questions, was distributed among BDS graduates who were serving at Khyber College of Dentistry during the period between April 2018 to June 2018.

Results: In total 116 questionnaires were distributed among which 85 graduates responded back with response rate of 73.27%. Most graduates used multiple sources to gain knowledge. Most graduates (92.45%) knew that patients with previous history of endocarditis and patients suffering from rheumatic heart disease are the conditions which need antibiotic prophylaxis. In case of procedures which need antibiotic prophylaxis the highest percentage of correct answers was for periodontal surgery (98.11%) followed by extraction (92.45%). Regarding regime of antibiotics most graduate were of the option that penicillin is the first choice of drug and 1g of it should be given.

Conclusion: Most of the graduates had an inadequate knowledge regarding use of antibiotic prophylaxis against infective endocarditis and were unaware of the current guidelines, so there should be trainings and workshops to refresh their knowledge regarding current practices.

Keywords: Dental procedures, heart conditions, infective endocarditis, prophylaxis.

Introduction:

Infective Endocarditis (IE) was first described by William Osler in 1885.[1] It is a life-threatening infection of the linings of the heart and its valves. This disease most commonly occurs due to bacteria and fungi.[2,3] Other organisms which may seldom cause IE are chlamydia rickettsia, and mycoplasma.[4] There are more than 700 microbial species which may be present in the oral cavity.[5] These species have significant effect on the human health and development of diseases.[6] Several dental procedures in which gingival bleeding occurs are related to incidence of IE due to bacteremia.[7]

Until recently antibiotic prophylaxis was given routinely by clinicians to people at high risk before undergoing interventional procedures to prevent endocarditis.[8] However, the effectiveness of antibiotic prophylaxis advised to patients who are at risk of IE prior to any dental procedure is controversial. Moreover, there is difficulty regarding prediction of procedure and circumstances which may cause significant risk. Beside this, unjustified use of antibiotics may cause antibiotic resistance to microbes and anaphylactic reactions.[9] Many organizations such as American dental association (ADA),[10] National Institute for Health and Clinical Excellence (NICE), United Kingdom [11] and European Society of cardiology [12] have issued guidelines on the use of antibiotics for prevention or prophylaxis of endocarditis. These guidelines not only help clinicians to focus on those patients who already have a heart abnormality that predisposes them to infections but also focus on those medical procedures that may cause bacteraemia with organisms that commonly cause endocarditis.[13]

Studies showed low to moderate knowledge of general dentists and practitioners about the knowledge and prevention of infective endocarditis. This study was conducted at Khyber College of Dentistry, Peshawar as it is biggest and oldest dental institute of Khyber Pakhtunkhwa and no such study has been done previously in Khyber College of Dentistry, Peshawar. For this study a questionnaire used in a previous study was redesigned and distributed among the faculty staff, training medical officers (TMO's) and house officers (HO's).[14,15]

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The purpose of the study was to find out the BDS graduates' knowledge about infective endocarditis, their knowledge about procedures which can cause infective endocarditis and preventive measures that can be taken to avoid it according to American Dental Association (ADA) guidelines.

Methodology:

This cross-sectional study was conducted at Khyber College of Dentistry doing the period between april 2018 to june 2018. In this study convenience sampling techniques was used. After approval from the ethical committee a questionnaire, containing 28 questions, was distributed among 116 BDS graduates among which 20 were of faculty staff, 35 were TMO's and 61 were HO's. After distribution 85 participants responded back amongst which were 5 faculty members, 27 TMO's and 53 HO's. The questionnaire was prepared in a way to assess the information about heart conditions which need prophylaxis, dental procedures which can be cause of infective endocarditis and drug regimes, doses as well timings in which prophylaxis can be given.

Results:

The response rates from faculty staff, TMO's and HO's was 25%, 77.14% and 86.88% respectively with an overall response rate of 73.27%. When asked about their reference for information, 31 graduates (36.06%) selected books, 9 graduates (10.58%) picked internet, 2 graduates (2.53%) chose conferences while 43 graduates (50.59%) selected multiple options (Books, conferences, internet, and articles). The graduates who gave correct answer (Yes) that prophylaxis should be given before congenital heart disease were 61 (71.75%) which consisted of 36 HO's (67%), 21 TMO's (77.77%) and 4 faculty members (80%) while 24 (28.25%) gave incorrect answer (No) which consisted of 17 HO's (32.07%), 6 TMO's (22.22%) and 1 staff member (20%).

Most of the graduates (90.58%) gave correct answer (Yes) that patients having prosthetic heart valve should be given prophylaxis which consisted of 50 HO's (94.33%), 22 TMO's (81.48%) and 5 faculty members (100%) which makes a total of 77 out of 85, while only 8 (9.42%) graduates gave incoorect answer (No) that there is no need of prophylaxis. Like for prosthetic heart valve, most of the graduates (91.76%) gave correct answer (Yes) that prophylaxis is necessary for patients having previous history of endocarditis. The details of which are given in table 1.

Table 1: Previous History of Endocarditis

Level of Graduates	Yes	No
HO's	92.45%	7.45%
TMO's	88.88%	11.12%
Staff	100%	0%
Overall	91.76%	8.24%

The percentage of graduates who gave correct answer (No) that patients suffering from rheumatic heart disease should be treated with antibiotic prophylaxis was low. Further detail is is given in Figure 1.

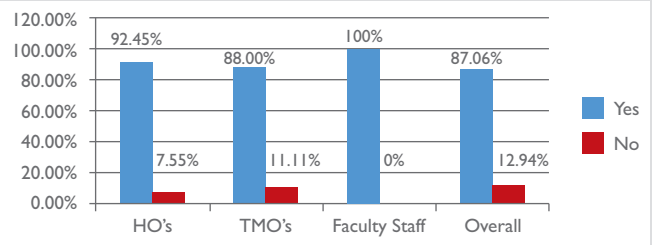

Figure 1: Patients suffering from Rheumatic Heart Disease

The percentage of graduates who gave correct answer (No) to questions such as patients having mitral valve prolapse, patients who had gone under cardiac bypass surgery and the patients having physiological murmur should not be given antibiotics was 31.8%%, 37.7% and 69% respectively where percentage according to designation is given in Table 2.

Table 2: Patients having Mitral Valve Prolapse, Physiological Murmur and history of Cardiac Bypass

	HO's		TMO's		Staff		Overall	
	Yes	No	Yes	No	Yes	No	Yes	No
Mitral Valve Prolapse	69.81 %	30.19 %	59.25 %	40.75 %	100 %	0 %	68.2 %	31.8 %
Cardiac Bypass	66.03 %	33.97 %	55.55 %	44.45 %	60 %	40 %	62.3 %	37.7 %
Physiological Murmur	26.41 %	73.89 %	33.33 %	66.67 %	60 %	40 %	31 %	69 %

The number of graduates who gave correct answer (Yes) according to guidelines that antibiotic prophylaxis should be given in patient's having rheumatoid fever was 65 (76.40%) while 20 graduates (23.60%) gave incorrect answer. The details according to designation are HO's (79.24%), TMO's (74.07%) and faculty staff (60%) while in case of patients having pacemaker the percentage of graduates gave correct answer (No) that regarding prophylaxis decreased as their designation increased which include 79.24% HO's, 55.55% TMO's and 20% faculty staff.

In 2nd part of questionnaire, the graduates were asked about dental procedures before which antibiotic prophylaxis should be given. The details are given in table 3:

Table 3: Dental Procedures before which Antibiotic prophylaxis is required

Procedure	Correct Answer	(HO's)	(TMO's)	(Staff)	(Overall)
Tooth Extraction	Yes	92.45%	85.18%	100%	92.47%
Periodontal Surgery	Yes	98.11%	85.18%	100%	95.29%
Scaling Root Planning	Yes	77.35%	85.18%	100%	82.35%
Endodontic Treatment	Yes	67.92%	48.15%	80%	68.24%
Rubber dam/ Wedge Application	No	86.47%	77.77%	40%	76.47%
Block Anaesthesia	No	73.59%	85.18%	40%	24.71%
Intra-ligamental Injection	No	73.59%	66.66%	40%	30.59%
Infiltration Anaesthesia	No	73.59%	81.49%	40%	57.65%
Prosthetic Moulding	No	84.91%	92.60%	100%	88.24%
Suture Extraction	No	52.84%	59.26%	40%	54.12%
Taking Dental Radiograph	No	96.23%	92.59%	100%	92.45%
Sub gingival cord placement	No	41.51%	59.26%	40%	47.06%

In the third part graduates were asked about drug regime, doses, and timings. Regarding first choice of drug, 77.35% HO's were of the opinion that penicillin should be first choice while 16.98% gave view that it should be cephalosporin while 1.87% and 3.77% thought that it should be macrolides and metronidazole respectively, while in case of TMO's and staff 100% of them were of the view that first choice of drug is penicillin.

When asked about dosage of drug 3 HO's (5.66%) were of the view that it should be 500 grams, 11 (20.75%) opted for 1 gram while 16 (30.19%) and 23 (43.40%) opted for 2 grams and dosage depends upon regime of drug used respectively. In case of TMO's 1 (3.70%) opted for 500 grams while 22 (81.48%), 1 (3.70%) and 3 (11.11%) opted for 1 gram, 2 grams and dose depend upon regime of drug respectively. In case of staff (40%) opted for 2 grams while 3 (60%) opted for depends upon regime of drug used respectively. The overall result in this case were 4.71% 500 grams, 38.82% 1 grams, 22.35% 2 grams and 34.12% depends upon regime of drug used.

According to 16.98% (9) HO's prophylaxis (orally) should be given night before treatment, 79.25% (42) were of the view that it should be given 1 hour before the surgical procedure while 1.89% (1) was the case each in just before treatment and HO having no idea, while in case of TMO's 3.70% (1) responded that it should be given 1 hour before the treatment while 1 (3.70%) and 3 (11.11%) responded with just before the treatment and no idea respectively. In case of staff 100% responded with 1 hour before treatment.

When asked about if prophylaxis forgotten can it be given after treatment, if patient sensitive to some drug can other regime be given and whether antibiotics should be given after treatment 61 graduates (78.82%), 83 graduates (97.64%) 72 graduates (84.76%) respectively responded with yes whose details are given in table 4 and Figure 2 and 3 respectively

Table 4: If prophylaxis forgotten can it be given after treatment

Level of Graduates	Yes	No	No Idea
HO's	77.36%	13.21%	7.54
TMO's	77.77%	14.82%	7.41%
Staff	100%	0%	0%
Overall	78.82%	12.94%	7.05%

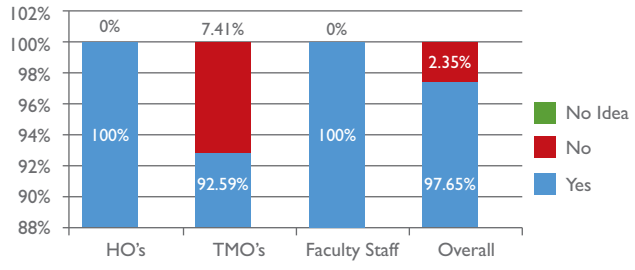

Figure 2: If patient sensitive to some drug can other regime be given

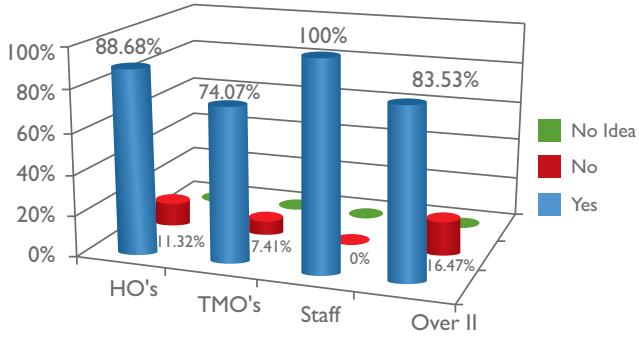

Figure 3: Whether antibiotics should be given after treatment

Discussion:

Infective Endocarditis is dangerous disease of heart and can be fatal. Early diagnosis and prompt treatment is very necessary for this disease as once it becomes severe then it is very difficult to treat it.

Dental procedures are thought to be a key factor in inducing infective endocarditis as result of bacteraemia induced during these procedures.[16, 17] Previously antibiotic was recommended for many dental procedures as well in many heart conditions but now only few procedures and conditions require antibiotic prophylaxis.

The results of the study show that the graduates have a moderate to poor knowledge of antibiotic prophylaxis and many conditions in which now prophylaxis is not needed they were of the view that they will administer antibiotics. These conditions include rheumatic heart disease, mitral valve prolapse, patients having pacemaker, patients having rheumatoid fever and patients undergone bypass surgery.

When compared with results of other studies, the findings of our study were similar to the studies conducted by Coutinho et. al.[18], Hashemipour et. al.[19] and Fatemeh Ahmadi[15]. The condition according to most of the graduates which didn't need any prophylaxis was physiological murmur.

When asked about dental procedures like tooth extraction, periodontal surgery and scaling root planning were the treatments which required prophylaxis while according to graduates taking dental radiograph, rubber dam application and prosthetic moulding were the procedures which didn't require prophylaxis. These results were like other studies conducted by Rayalat et.al.9 and Cummins et.Al.[20]

Penicillin was considered as first choice of drug by high percentage of graduates which matched the results when compared with another study[19] but high percentage of graduates were unaware of the dosage. While regarding the timing of prophylaxis most of them were aware of the time before which prophylaxis should be given.

Regarding drug sensitivity almost all the graduates were aware that other regimes can be given in case of sensitivity but many of them were unaware that there is no need of antibiotics after the procedure.

Conclusion:

Most of the graduates have inadequate knowledge regarding use of antibiotic prophylaxis and are unaware of the current guidelines issued by American Dental Council (ADA) although they are available widely. In some cases, designation had no influence on the result but in some cases the knowledge increased as the designation increased while in some questions knowledge decreased as designation increased.

CONFLICT OF INTEREST: None
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Author Contributions

1. Uzair Ahmad Saleem - Conceptualization and Study Design
2. Simran Jouth Choala - Data collection
3. Nafiah Bashir - Proof Reading and Content Reviewing
4. Usama Siddiqui - Paper Writing and Critical Analysis
5. Basheer Rehman - Critical analysis and Approval of questionnaire

ORIGINAL ARTICLE

Oral hygiene practices of school going children during Covid-19 pandemic in Kasur

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[2] Community Medicine, Allamah Iqbal Medical College Lahore, Pakistan

Abstract

Objectives: To assess the oral hygiene practices of the school going children during the Covid-19 pandemic in district Kasur.

Methods: It is a cross-sectional study conducted in 02 RHCs, Phool Nagar and Mustafa Abad of district Kasur. A total of three hundred eighty three school going children were asked about their oral hygiene practices, a pre-validated caries risk assessment checklist (Annexure 1) and Dental Caries detection form (Annexure 3), Results were collected and analyzed using appropriate descriptive statistics.

Results: Approximately 383 participants were part of the study. Majority of the respondents reported i.e. 60.3% didn't pay any visit to the dentist in the past 12 months. Majority of the respondents i.e. 79.6% said pain or trouble was the main reason for the visit to the dentist where as 10.4% said for a routine dental checkup and 300 (78.3%) were females with a median age range of 13 years (23.2%) and 12 years (17.5%).

Conclusion: Spreading awareness is a major aspect to control the transmission of the SARS-COV-2, as it's a highly contagious virus. The results of this study highlighted specific groups to be targeted for educational programs regarding oral hygiene practices during the pandemics like COVID-19 and this can provide initial basic data to the government to work on such programs.

Key Words: Oral hygiene practice, School going children, Covid-19 Pandemic, Awareness,

Introduction:

A complete dental care includes dietary modifications, oral health education, regular visits to a dentist and use of fluorides.[1,2] The attitude and practices of maintaining good oral health are directly related to the disease knowledge of patients with periodontitis and dental caries.[3,4] Oral cavity is a hub to several diseases and is directly or indirectly linked with many health problems which may contribute to poor quality of life.[5,6,7] Good oral health of a child plays a pivotal role in maintaining good quality of life which contributes to better curriculum and extra curriculum performance.[8,9] Dental decay at an early age has a negative impact in the child's life [10,11] and also impairs growth and development of the child.[12]

Prevention is one of the key components in maintaining good health.[13] Regular cleaning of all the five visible surface of the teeth and adding the medications and dentifrices which strengthen the tooth enamel maintains the oral health thus preventing the diseases.[14,15] Pakistan spends the 0.5% of the total GDP on health sector, with scare budget it is difficult to manage the financial constraints for the general population especially who live on the poverty line. So there is an immense need to develop a policy which is economical and beneficial for the population at all level.

Oral health education is one of the non-invasive and economical mean to deliver awareness regarding the importance of oral health and suggesting preventive measure at an early level. Hence establishing an oral health education intervention in Rural Health Centers in District Kasur by decreasing the risk factors for dental caries might help preventing the oral disease in the rural population, saving time and cost to the patients as well as to the government. Children have been selected because the oral hygiene is neglected in this age and unhealthy dietary habits including high sugar intake.

We need to pay more emphasis on the preventive dentistry as well as making dental services available for the general population at an affordable cost. In order to prevent dental caries, brushing our teeth twice daily is of great importance. 16 Frequency and duration of brushing and flossing, should also be put under consideration to comprehend deeply the concept of oral hygiene in different age groups and also in

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different parts of the world. [17] There are many factors that contribute to oral hygiene practices. Likewise, even for initial plaque formation on the teeth of children, factors such as poor diet, improper brushing, and no flossing contributed actively. [18]

Prevention programs by the department of dental public health and various other government authorities are difficult to implement, due to the scarcity of data in the region. Therefore, the objective is to conduct a study on the oral hygiene practices among the school going children during the covid-19 pandemic in district kasur.

Methods:

A cross- sectional study was done in the month of July 2021 to September 2021 in 02 RHCs, Phool Nagar and Mustafa Abad, they were chosen by lottery method. Inclusion criteria for the study was Children from 08-16 years visiting rural health centers for treatment of Dental and other diseases, males and females i.e. both genders were included in the study. Ethical approval was taken prior to the start of the study.

Children of the 02 RHCs with an age range of 8-16 years fulfilling the inclusion criteria were examined with the examination tools on the dental unit office in the RHC for caries risk using a pre-validated caries risk assessment checklist (Annexure 1) an informed consent from their guardians/ parent was taken. Results were collected and analyzed using appropriate descriptive statistics.

Results:

Total number of participants in this study were three hundred and eighty three amongst them 83 (21.7%) were male and 300 (78.3%) were females with a median age range of 13 years (23.2%) and 12 years (17.5%). The included 38.9% of primary/mixed dentition where as 61.1% of the respondents had permanent dentition. The respondents of age 7 and over with active and smooth surface caries 383 (100%). The respondents having new caries lesion in last 12 months were 383 (100%). The respondents having hypo-mineralized molars were 383 (100%).

The DMFT status for respondents with age 7-10 (dmft>3 or DMFT>0) is 26.4%, age 11-13 (dmft>2 is 53.5%, age 14-15 with dmft>4 is 18.8%. The respondents with deep pits and fissure in permanent teeth were 70.8% whereas 29.2% didn't have deep pits and fissure sealants.

The respondents consuming sweet or drink between meals were 55.9% where as 44.1 % didn't consume between meals. Among the participants 383 (100%) didn't experience fissure sealants. The respondents brushing twice daily were 48% whereas not brushing twice daily were 52%. The respondents using tooth paste with fluoride were 34.2% where as 65.8% didn't use tooth paste with fluoride.

Majority of respondents (383) 100% didn't have access to fluoridated water supply. All of the respondents reported high risk of caries. Only 23.5% of the respondents have literate parent's majority of them (76.5%) have illiterate parents. In relation to frequency of sugary food or drink, 55.9% of the respondents were high risk to caries where as 44% were low risk. In term of caries exposure of the mother, sibling 55.9% were high risk to caries where as 44% were at low risk. In comparison, of the risk associated with cavitated or non-cavitated carious lesion, the respondents at high risk were 55.6% whereas at moderate risk were 44% and at low risk were 0.3%.

In comparison of risk associated with teeth missing due to caries in past 36 months, the respondents at low risk were 63.2%, High risk were 25.3% and moderate risk were 11 5%. Patients with moderate risk of caries showed 56.9% of visible plaque when examined. Whereas 43% of them showed visible plaque in low risk patients. Majority of the respondents i.e. 92% showed no unusual tooth morphology whereas 7.8% showed unusual tooth morphology.

Majority of the respondents showed no interproximal restoration i.e. 73.9% where as 26.1% showed interproximal restoration non examination. All the participants did not express exposed root surfaces. Majority of the respondents i.e. 71.3% showed no restoration with overhangs whereas 28.7% showed overhangs on examination.

Majority of the respondents reported i.e. 60.3% didn't pay any visit to the dentist in the past 12 months where as 29.8% said they had one visit to the dentist in the past 12 months. Majority of the respondents i.e. 79.6% said pain or trouble was the main reason for the visit to the dentist where as 10.4% said for a routine dental checkup.

Table: 1 Frequency of oral hygiene practices among the school going children of district Kasur, before the intervention.

Oral Hygiene Practices among the children Pre-intervention		Frequency	Percent
Children having Sweet or drink between meals	Yes ☐	169	44.1
	No ☐	214	55.9
Brushing twice a day	Yes ☐	199	52.0
	No ☐	184	48.0

Table 2: Frequency of Oral Hygiene practices amongst the children of district Kasur after the intervention.

Oral Hygiene practices amongst the children of district Kasur		Frequency	Percent
Brushing twice a day	Yes ☐	169	44.1
	No ☐		
Frequency of sugary food or drink	Low risk ☐		
	High risk ☐		
In the past 12 months, how often did you go the dentist?	No visit ☐	169	44.1
	Once ☐		
	Don't know ☐		
What was the reason for your last visit?	Pain or Trouble ☐		
	Routine dental checkup ☐		
	Don't Remember ☐		

Oral Hygiene practices amongst the children of district Kasur		Frequency	Percent
How often do you clean your teeth?	Never ☐	169	44.1
	Once a week ☐		
	2-3 times a day ☐		
To clean your teeth, do you use toothpaste?	Yes ☐		
	No ☐		
How frequently you eat or drink sweet foods in small quantities like biscuits and cakes?	Several times a day ☐	169	44.1
	Everyday ☐		
Frequency of Cola drinks	Everyday ☐		
	Once a week ☐		
Frequency of Candy/sweet	Several times a day ☐	169	44.1
	Everyday ☐		
	Once a week ☐		

Discussion:

Oral disease, as estimated by the Global Burden of Disease affected half of the world's population (3.58 billion people) in which dental caries (tooth decay) was found to be the most prevalent.[19] Oral health is considered pivotal for general health as it prevents many problems leading to certain diseases. It is the basis of genera good health and quality of life.[20]

Children are more likely to have problems and diseases. They have high risks of getting caries. The participants have shown significant results as about 48% and 44% children became risk free from caries using tooth brush with paste and oral hygiene instruction respectively. This was similar in study conducted in Libya where it was reported to be 87%.[20]

In the present study, the 100% of examined population shows active caries. Whereas a caries rate calculation The DMFT status for respondents was highest in the age group of 11-13 years i.e. (dmft>2 is 53.5%. The respondents brushing twice daily were 48% which was similar to the study done in Egypt which showed the brushing rate of 47.5%. 21 Almost around 32.4% of the population used tooth paste with fluoride which differs significantly from the study done in Libya i.e. 65.7%.[20]

Almost about half of the examined population i.e. 55.9%, dietary regimen included consumption of sweets between meals which was similar to the reported literature in Libya. 20 Majority of the population under study i.e. 55.9% didn't use toothpaste while brushing.

Cleaning is the hallmark of our daily practices. Prevention and care are far better than medication where observation, instruction and reflection play critical role in dealing routine matters. It is a saying, prevention is better than cure, with an extension, an ounce of prevention is better than a pound of cure. The participants were asked about their routine of cleaning teeth.

The responses have exhibited practice of never, once a week and 2-3 times a day by 2%, 5% and 8% who never cleaned their teeth earlier, about 3 and 41 per cent in once a week and about 40% in 2-3 times a day which different significantly in the study conducted on dental graduates they reported 87%.[22]

Further analysis showed the population understudy was consuming high amounts of fermentable carbohydrates, i.e. cola drinks 87.5% consumed it daily, whereas 55.9% of the population consumed high amount of sweets in daily diet. Studies that were conducted in Libya and Jordan had somewhat similar results.[20,23]

The risk of enamel caries particularly at the root surface is increased with the frequent consumption of fermentable carbohydrates that have low oral clearance rate.

The study was conducted with limited resources and was self-funded. In future, the study should be conducted with a bigger sample size to improve the reliability of conclusions drawn and the study topic under discussion.

Conclusion:

On 12th March 2020, COVID-19 was declared as the worldwide pandemic. Since it's a highly contagious virus, it important that general public is awarded with the guidelines and this the transmission can be prevented.

Only a specific groups of educational programs were identified and approached for this study for oral hygiene practices during the pandemics like COVID-19. This survey could provide baseline data to the government for preventive measures in case of future outbreaks.

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Author Contributions

1. Faisal Izhar- Conceptualization and Study Design
2. Maha Tanvir- Paper Writing and Critical Analysis
3. Azizullah- Data collection
4. Shafia Hassan- Data Analysis

ORIGINAL ARTICLE

Evaluation of Knowledge, Attitude and Practice of Postgraduate Dental Students and General Dental Practitioners Regarding Temporomandibular Joint Disorder

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Abstract

Background: TemporoMandibular joint Disorders (TMDs) considered neuromuscular and musculoskeletal disorders are among the main causes of chronic oro-facial pain that affects 28-86% of population. The symptoms are triggered by stress and abnormal masticatory habits and trauma. Many practitioners find it challenging to diagnose TMDs, that is the reason that their Knowledge, experience and attitude is of utmost importance in this field.

Aim: The aim of present study is to evaluate knowledge, attitude and practice about TMDs amongst postgraduate dental students (PGDS) and general dental practitioners (GDPs) of KPK.

Materials and Methods: A total of 100 Postgraduate dental students and General dental practitioners were included in the study evaluated on one questionnaire of 21 issues regarding TMD. The questionnaire was formulated from appropriate regular textbooks. The questionnaire was pre-evaluated and circulated in person. The scores of knowledge and attitude among PGDS and GDPs were evaluated and compared.

Results: Knowledge and attitude scores showed a significant difference among PGDS and GDPs. A significant correlation was also found among scores for attitude in both the groups.
75% among the GDPs revealed little confidence as compared to an insufficient number of PGDS.

Conclusion: Updated knowledge sharing programs in terms of knowledge, skills and attitude for continuing dental education and curriculum based improvements are prerequisites for all the stake holders. There is a need for constant curriculum revision, update of knowledge, panel discussion, and in BDS curriculum

Key words: TMDs, PGDS, GDPs, questionnaire, knowledge, attitude, practice

Introduction:

Temporomandibular disorders(TMDs) are a combination of disorders that involves temporomandibular joint, masticatory muscle, soft tissue and bony components and their combinations.[1] Signs and symptoms of TMDs comprise of masticatory muscle pain, decreased range of motion of mandible, pain in temporomandibular joint(TMJ), myofascial pain, joint noise, deviation while opening jaw and limitation of function.[1] Its etiology is multi-faceted: Biophysical, neuromuscular, biomechanical and biological elements might contribute to TMDs. 2 TMDs has a prevelance more than 5% in population. 3 Lipton et al 4 observed that around 6% to 12% population presented signs and symptoms of TMDs. Peak occurrence was found to be in the age of 20-40 years.[5]

Multiple factors like traumatic injuries, muscle parafunction or hyperfunction, articular changes in joint, hormonal influences commonly occurs prior to onset of TMDs. A relationship between myofascial pain or dysfunction and occlusal interference was found by Mohlin and Kopp[6] and also found connections between muscular discomfort and posterior cross-bite.

Patients having anterior open bite, class 2 malocclusion, deep bites are most susceptible to developing myofascial pain.[7]

Clinical examination, history of patient, laboratory tests, radiography of TMJ, and other imaging techniques provide sufficient information to differentially diagnose TMDs.[8]

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Besides, various psychometric tests can be performed in order to evaluate the psychosocial status of every patient having TMD.[8]

The therapeutic modalities that are used for the treatment of patients with TMDs should be evidence-based, conservative and reversible. TMDs tends to get better or resolve with time as proposed by many studies that observed the natural history of patients with TMDs.

While no particular therapies have yet been proven consistently effective, many conservative treatments and many types of invasive treatments has proved to be effective in giving symptomatic relief. These treatments are not capable of causing changes that are irreversible, as they present much less possibility of causing harm.[8]

Researchers have periodically shown interest in TMDs. Present data specify that TMDs are responsible for common orofacial pains that are of musculoskeletal origin, which affects 28-86% population.[9] TMDs can frequently be difficult to diagnose and thus it is challenging for many practitioners.

So the diagnosis and treatment of TMDs by dental practitioners is highly influenced by their knowledge, experience and attitude. Furthermore, referral of patients can also be decreased by adequate knowledge and attitude.[10]

Insufficient research has been done across the globe to evaluate the knowledge, attitude and practice (KAP) of dental practitioners regarding TMDs.

In United States, there have been several attempts to improve education in this field. Since 1990, the first Educational Conference to Develop the Curriculum of Temporomandibular Disorder and Orofacial pain proposed several curriculum models specifically for predoctoral, postdoctoral, and continuing education.[10]

In the recent years, many progresses have been made in the attempt to design reference principles for the diagnosis and treatment. This led to the diffusion of internationally recognized academic guidelines for the assessment and management of patients with TMD in the clinical setting.[11]

Materials and Methods:

A total of 100 Postgraduate dental students (PGDs) of all specialties and General dental practitioners (GDPs) practicing currently were included in this survey by their own free will. Ethical approval was taken from institute review board.

A questionnaire comprising of 21 issues regarding TMDs was formulated from appropriate regular text books 1,7,10 which was the basis of assessing both groups. The questionnaire comprised of 4 components i.e. demography, knowledge, attitude and practice.

Demographic component consisted further 5 questions. A discrete question was incorporated in questionnaire to understand the view of dental practitioners in regard to the sufficiency of knowledge delivered on TMDs in the course of under graduation.

The component of questionnaire on knowledge comprised of seven questions concerning four domains, namely, etiology, epidemiology, symptoms, and diagnosis of TMDs. The component of questionnaire on attitude comprised of five questions. The component of questionnaire examining practices of dental practitioners regarding TMDs comprised of four questions.

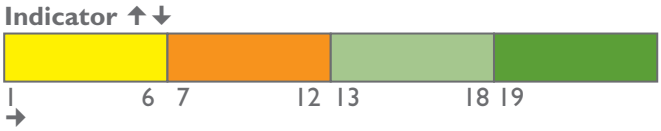
This questionnaire was pre-assessed on selected individuals already included in the study in order to check its validity. Difficulties encountered by the individuals were noted, and the final questionnaire was updated.

The updated questionnaires were circulated in person or through electronic media via emails. After receiving responses, scoring was done as follows.

In knowledge component, correct answer was assigned a +1 score, incorrect answer was assigned a -1 score and unanswered question was assigned a 0 score. On basis of their net score, the knowledge level of individuals in this study was classified as having low, fair, good or high, as shown figure 1.

SCORE	KNOWLEDGE LEVEL
1 - 6	Low
7 - 12	Fair
13 - 18	Good
19 and above	High

Figure.1 Classification of knowledge level



Chi-square test was used to assess difference in knowledge level of PGDS and GDPs.

In attitude component, 1 score was assigned to correct answer (answer in aggreement with regular text books) and 0 score was assigned to incorrect answer or unanswered question. On basis of their net score, attitude level of the individuals in this study was classified as positive (0-2), negative (3-4) and questionable (5-↑).

The difference in the attitude of PGDS and GDPs were noted. Pearson's correlation coefficient test was used to assess the correlation of attitude scores between both groups.

In practice component, descriptive analysis was carried out for the answers in proforma.

Results:

There was a total of 50 PGDS and 50 GDPs as shown in fugure 3

The assessment of knowledge level reported that half 50% of the PGDS revealed a high knowledge level and 10% revealed a fair knowledge level. While 30% of GDPs revealed a high knowledge level and 20% revealed a little or low knowledge level.A statistical difference was observed in knowledge scores of the PGDS and GDPs. (P=0.0003), as shown in figure 3.

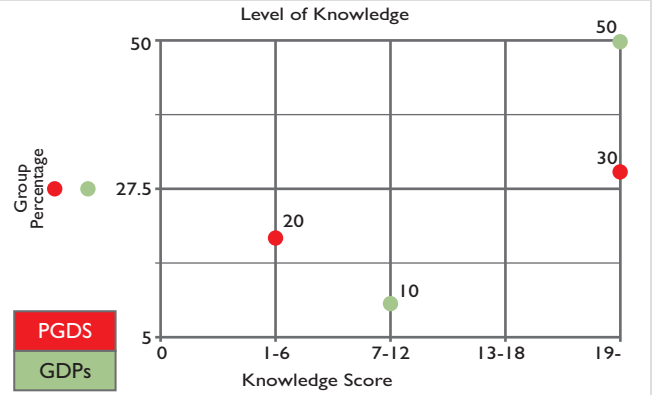


Figure 3. Knowledge level evaluation in survey subjects (PGDs and GDPs)

23% PGDS revealed positive attitude level in diagnosing and treating TMDs, whereas 25% PGDS revealed a questionable attitude and 2% PGDS revealed a negative attitude. (Figure4)

15% GDPs revealed a negative attitude level towards TMDs, while 25% GDPs had questionable attitude level and 10% GDPs revealed a positive attitude. A statistically significant difference was found among attitude level of both groups (P=0.0404). (Figure 4)

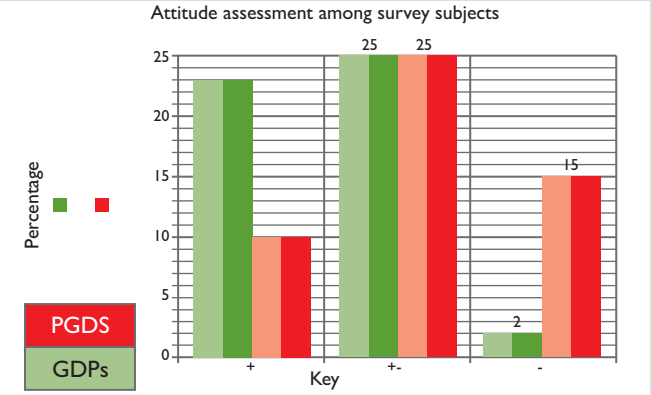


Figure 4. Evaluation of attitude among survey subjects (GDPs, PGDS)

The scrutiny of the questions in practice component reported that 13% PGDS revealed full confidence in treating TMDs patients and many, i.e 87%, revealed little confidence. Among the GDPs, 34% revealed little confidence and 66% revealed no confidence as shown in figure 5. The most commonly used therapeutic modality was pharmacotherapy which was used by 36% PGDS while heat therapy was used by 14% PGDS as shown in figure 6. The most commonly used therapeutic modality was occlusal interference correction which was used by 40% GDPs while pharmacotherapy was used by 32% GDPs. The least practiced was physical therapy by both groups, as shown in figure 7.

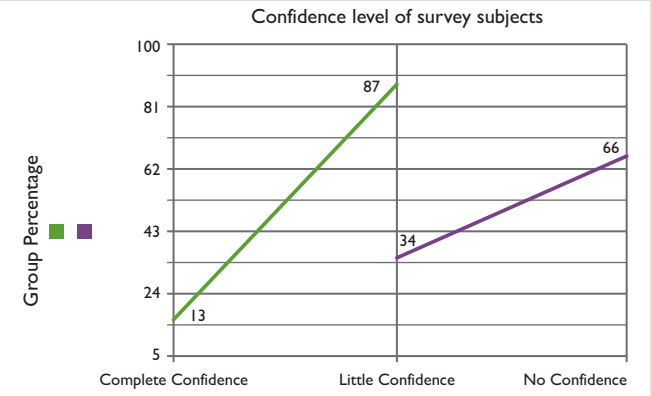


Figure 5. Evolution of practice among survey subjects (GDPs, PGDS)

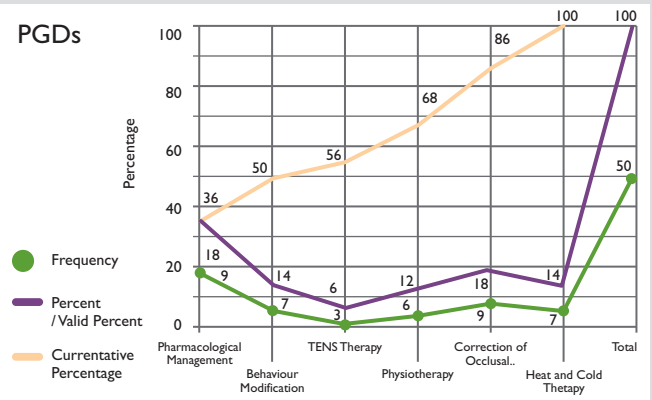


Figure 6. Therapeutic modalities used by PGDs.

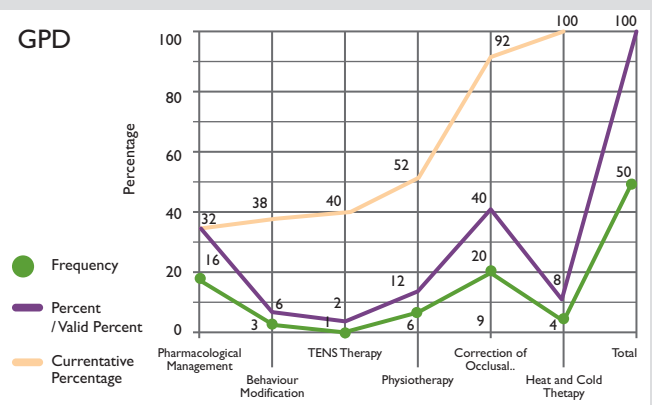


Figure 7. Therapeutic modalities used by GDPs

Discussion:

In present study, it was apparent that regarding TMDs, the knowledge level was good in greater number of PGDS as compared to GDPs who had low/fair knowledge level. Thus, it was observed that there was a significant difference in knowledge level between both groups, specifically when it comes to diagnosing TMDs for instance osteoarthritis, myofacial pain dysfunction syndrome, and articular disc disorders.

The findings of this study are in agreement with a study done by Rasche et al.[14], which concluded that knowledge level of GDPs was lower regarding the diagnosis, pathophysiology, and treatment of TMDs when compared to PGDS.[12] Another study

by Just et al. revealed that regarding the domain of etiology, knowledge levels of the GDPs group was deficient.[13] The fact that TMDs has been given insufficient importance in undergraduate course in india is the main reason that GDPs had a lower knowledge level. Many participants in the study also expressed this concern.

This was in agreement with a study by Baharvand et al., performed in Iran, which concluded that there was inadequate knowledge delivered in undergraduate dental programs regarding TMDs. This put emphasis on need to extend the undergraduate course in this field.[4] In this study, an encouraging attitude was observed regarding TMDs in many PGDS and GDPs. Attitude in study sample was not affected by education level but was affected by an increased level of practice.

In the present study, PGDS expressed different opinions regarding some established facts available in the literature. Many PGDS and GDPs believed that patients having TMDs should not initiate orthodontic treatment. Although contradictory reports have appeared in literature, a positive correlation has been found between an orthodontic treatment and decreased intensity of TMDs. In a study conducted on 210 subjects that were treated orthodontically in order to assess the relationship between orthodontic treatment and TMDs.

It was concluded that 17% subjects presented TMDs symptoms before orthodontic therapy, while after orthodontic treatment, only 7% subjects presented with TMDs symptoms.[14] Egermark and Thilander also observed a decrease in symptoms of TMDs 1in their study that was conducted in a time period of 10years on 293 children who were treated orthodontically.[15] Varga 18 in its study on TMDs and orthodontic treatment reported that TMJ dysfunction and pain should be treated before starting an orthodontic treatment. This was true for subjects who presented with symptoms like deviation and clicking without pain.

Most of the PGDS did not agree to literature that states, "relaxation training is an effective therapeutic modality in the management of myofacial pain." Sympathetic activity and muscle tone was found to be decreased by progressive muscle relaxation, self-controlled relaxation, autogenic training, meditation, deep breathing and paced breathing.[16]

Many GDPs and PGDS were of the opinion that treatment is needed for joint sounds of different types that is not in accordance with the literature which states that extent of dysfunction and pain indicates the need for treatment. Treatment is not needed in cases where joint noise persists for a long time and is asymptomatic with anterior disc displacement.[17]

According to literature, majority cases of TMDs could be diagnosed correctly only from clinical findings and past history. Radiography was of need only in some cases and should not be taken. Literature states that in most instances, a correct diagnosis of TMDs could be reached with the help of history and clinical findings. Imaging is of value only in selected cases and need not to be considered as a part of the routine assessment. Furthermore, diagnostic radiography is not important for conducting treatment, anticipating outcome of treatment and ascertain prognosis.[19] However, the present study concluded that many PGDS and GDPs considered a need for evaluation by radiography before planning of a treatment. Practice means the way in which the practitioners make use of knowledge and attitude regarding suitable diagnosis and treatment of patients.[20]

Astonishingly, a considerable number of both PGDS and GDPs showed a little confidence level in treating TMDs patients. This might be due to the inadequate knowledge delivered to GDPs in undergraduate programs. Moreover, this little confidence level by PGDS and GDPs, might be due to the lack of involvement in continuing education programs and disinclination towards studying reference textbooks. Many GDPs put emphasis on the need for an adequate number of PGDS. This creates a need for sufficient clinics of TMDs in private set-ups and universities.

Conclusion:

In present study, PGDs group expressed a good knowledge level and attitude regarding TMDs, whereas GDPs group expressed a low/fair knowledge level and a negative attitude. Many PGDs and GDPs had little confidence in TMDs treatment. PGDS were not in agreement with some conventional facts mentioned in literature. This recommends a need for continued knowledge update by PGDS and increase in communication among them by arranging panel discussions.

The present scenario can be made better by modifying the current curriculum in under graduate programs and to give more importance to TMDs in many post-graduate programs. The knowledge level regarding TMDs can be strengthened by these specific ways. Organizing and participating in continuing dental education programs would improve the level of confidence and attitude dentists.

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ORIGINAL ARTICLE

Dentist's Perception on Patients Seeking Informal Advice Related to Their Dental Problems

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Abstract

Objective: There is a growing trend of patients seeking informal dental advice from dentists outside the clinical setting. This study is based on the evaluation of the perception of the dentists regarding situations where patients sought free dental advice.

Methodology: This is a cross-sectional study that was conducted during the time period of three months from May 2019- July 2019. The target populations for this study were the practicing dentists in various dental hospitals, clinics and dental schools in the city of Lahore. A sample size of 350 was collected using a pre-validated questionnaire and analysis was done using SPSS software version 23.

Results: According to the obtained results, majority of the dentists (76%) agreed that they give informal dental advice to the patients and the main venue where they experienced this mode of advice seeking were the social gatherings (49%). There is a prevalence of hesitation amongst the dentists regarding informal dental advice as they believe it to be an ethical dilemma (36%) which might lead to further medico-legal implications.

Conclusion: Majority of the dentists are of the opinion that informal dental advice to the patients is an ethical dilemma and getting involved in such practices without proper consultation and documentation may account for them to commit a medico legal error.

Keywords: Dentists' perception, informal dental advice, dental problems

Introduction:

Dentists may meet people from various walks of life daily or at social gatherings. When people know about our profession they usually tend to seek advice about their dental problems.[1] People also try to seek advice on behalf of their relatives or close friends.[2] Dentists may face situations where they are expected to give informal advice to patients like family members and general public. It's one of the dilemmas that exists in the society.[3]

There is also a free tele-health service provided by a foundation in Pakistan.[4] Although giving such advice seems trivial but it might have a far reaching implication, not only for the patient but for the dentist as well.[1,5] The history rendered is just random exchange of information as there is no formal structured questioning and documentation. The information provided by the patient may be vague and can be inaccurate. It is not possible to check those patients as it might be embarrassing and usually difficult to carry out examination without proper light and positioning.

The dentist may not be able to give adequate time and examine carefully which is must for proper diagnosis and well thought treatment plan. This creates a challenging situation for the dentist who has to bring about an abrupt diagnosis without proper checkup and documentation and doctor may have to advise as per perceived diagnosis.[6]

The patient may comment on any on-going treatment or even change the treatment plan of the previous dentist that they might be following. The advice about cost and possible referrals may lead to potential conflict of interest and is prone to liabilities.[7]

A casual advice can have several possible consequences and may lead to ethical issues. People seek advice to increase their

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understanding, this may lead to them searching the internet and connecting to dentists via social media.[8]

The real dilemma arises when patients tend to quote your opinion and try to gain advantage from the treating dentist. It also brings about certain risk factors which may be related to the patient's medical health and accuracy of diagnosis.

It may jeopardize the dentist's reputation and complicate medico-legal considerations. The rationale of this study is to determine the frequency of dentists giving informal advice to patients and evaluate the perception of dentists when they give informal advice to patients and possible ethical issue that they may face.

Although the relationship between dentist and patient is considered sacred in terms of trust and confidentiality but the dentist may unknowingly cross the ethical boundary by giving such advice to patients without ascertaining that patient-dentist relationship has been established.[9]

Dentists may not even remember this encounter but that person may strike them again and complain if anything goes wrong. PMC code of ethics has defined duties of general physician towards sick patients and cautioned the healthcare community against potential conflict of interest and unprofessional behavior.[10]

Due to the ongoing pandemic there has been a boost in the department of tele-dentistry which is a subunit of telehealth.[11,12] Although, this growing trend has provided a temporary solution to the dental issues faced by the public, especially in a time when direct patient exposure was limited.[13]

The ethical and medico-legal implications still remain the same .The rationale to conduct this study is that it is relatively a new ethical aspect and has been not studied in detail. The evidence obtained would determine that how often the dentists give informal advice to patients, how people think of casual advice as a second opinion.

It would also evaluate the perception of dentists regarding patients seeking dental advice and how it may affect their career as well as personal relationships. The results of this study may help dentists to modify their approach to free advice which pose problems both for them and the patient. This may also help to create more awareness.

Methodology:

A cross sectional study was conducted in public and private dental clinics, dental hospitals and dental colleges located in Lahore, from May 2019 to July 2019. The inclusion criteria had practicing dentists (General Practitioners, Consultants, House Officers, Post Graduate trainees).

Ethical approval was taken from the institution's review board. A pre-validated questionnaire was used for a sample size of 350. Before filling out this questionnaire the participant was made to sign a consent form.

The questionnaire consists of three blocks: First block includes enquiry about demographics of the patient, the second block describes about characteristics of the patients and the third block is about dentist perception about patient and the problems he/she faces while dealing with them.

Data was summarized and analyzed on statistical package for social sciences (SPSS) version 23. Categorical variables were presented in the form of frequency and percentages.

Results:

The total number of participants in this study were three hundred and fifty amongst them 121(34.6%) were male and 229(65.4%) were female with a median age range of 25(5) and 24(3).

Majority of the respondents (76.3%) gave informal dental advice to any patient that seeked them for advice related to their dental problems. The majority of dentists i.e 49.4% were approached for informal dental advice mostly at social gatherings.

The percentage of dentists willing to give informal dental advice in person only was 45.7%. About 41.4% of the respondents stated that sometimes their patients did contact them after taking dental advice. 40% of the dentists reported that very often their patients acknowledged that their dental advice was helpful to them. Majority of the dentists (34.6%) stated that they rarely give dental advice to patients without clinical examination.

About 34% of the dentists reported that they never decline informal dental advice to the patients who seek them for advice outside the clinical setting. 32.6% of the dentists reported that they believe it is sometimes ethically unacceptable to give informal dental to patients and 30.9% reported that sometimes giving informal dental advice can get them in a medico-legal problem.

Dentists that reported any misdiagnosis can sometimes lead to a possible risk to the subject's medical or dental health were 30.6%. The number of dentists that agreed that giving informal dental advice to patients without proper examination was never a justified approach was 43.4%.

Majority of the dentists i.e 73.2% said they always believe that it is better to encourage the patient to meetup and discuss the problem in clinical setup with proper documentation rather than casual consultation.

Table 1 Demographics

Table 1 Demographics			
Gender	**N(%)**	**Age**	**Experience**
Male	121(34.6%)	25(5)	
Female	229(65.4)	24(3)	
Total	350(100.0)		1(2)

Table 2: Patient Characteristics and dentists perception regarding patients seeking informal dental advice

Patients' Characteristics	Frequency	Percentage
Who do you usually give dental advice to?		
Family or friends only	66	18.9
Anyone other than family or friends	7	2.0
All the above options	267	76.3
Nobody	10	2.9
What is the most likely situation when you are approached for informal dental advice?		
At social gatherings	173	49.4
At public places	31	8.9
At workplace	108	30.9
At home	38	10.9
How are you willing to give informal dental advice?		
In person only	160	45.7
Phone call or messages	22	6.3
Through social media	11	3.1
All of the above	157	44.9
Do the patients contact you after taking dental advice?		
Always	34	9.7
Very often	83	23.7
Sometimes	145	41.4
Rarely	69	19.7
Never	19	5.4

Dentists Perception:

Do the patients acknowledge that their dental advice was helpful to you?		
Always	69	19.7
Very often	140	40.0
Sometimes	105	30.0
Rarely	33	9.4
Never	3	9
Do you give dental advice to patients without clinical examination?		
Always	4	1.1
Very often	31	8.9
Sometimes	116	33.1
Rarely	121	34.6
Never	78	22.3
Have you ever declined informal dental advice to patients?		
Always	16	4.6
Very often	31	8.9
Sometimes	74	21.1
Rarely	110	31.4
Never	119	34.0
In dentistry profession is it ethically unacceptable to give informal advice to patients?		
Always	44	12.6
Very often	50	14.3
Sometimes	114	32.6
Rarely	59	16.9
Never	83	23.7
Never	48	13.7
Giving advice to patients without proper check-up can get you in a medico-legal problem?		
Always	66	18.9
Very often	82	23.4
Sometimes	108	30.9
Rarely	56	16.0
Never	38	10.9
Any misdiagnosis in giving advice can lead to a possible risk to the subject's medical or dental health?		
Always	94	26.9
Very often	94	26.9
Sometimes	107	30.6
Rarely	38	10.9
Never	17	4.9
Is giving an informal advice to patient without clinical examination a justified approach?		
Always	17	4.9
Very often	39	11.1
Sometimes	76	21.7
Rarely	66	18.9
Never	152	43.4
Is giving an informal advice to patient without clinical examination a justified approach?		
Always	17	4.9
Very often	39	11.1
Sometimes	76	21.7
Rarely	66	18.9
Never	152	43.4
Is it better to encourage the concerned patient to meet up and discuss the problem in clinical setup with proper documentation rather than casual consultation?		
Always	256	73.1
Very often	39	11.1
Sometimes	38	10.9
Rarely	11	3.1
Never	6	1.7

Discussion:

In the present study, the majority of dentists (i.e.76%) usually give dental advice in their surroundings outside the dental office as presented in Table 2. Social gatherings (i.e.49%) were the most common venue for seeking dental advice which was similar to the results proposed in a survey conducted[1].

Whereas majority of the dentists (i.e. 45.7%) preferred informal advice in person when coming into office was not an option, they further added that their patients acknowledged their advice very often (i.e. 40%) which is different from the study conducted by Bhadauria, et al.[7] which stated that it might lead to a political conflict rather acknowledging (Table 2).[7] On further asking their perspective, majority of the dentists (i.e. 37%) were hesitant in giving informed dental advice which was similar to the study conducted (Table 2).[3]

Whereas (36%) of them believed that giving informal advice is an ethical dilemma. Some of them (i.e.30%) had a perception that it can turn into a medico-legal error as they cannot properly examine the patients outside the dental clinic. On asking, majority of the dentists (i.e. 31%) had a perspective that informal advice might turn in to a misdiagnosis, further leading into a medico-legal issue, which is similar to a research conducted in India.[7] 43% of the dentists agreed on the fact that informal dental advice to the patient is not a justified approach. The dentists (i.e. 76%) paid more emphasis on encouraging the patients to seek formal dental advice rather than an informal one (Table 2).

This study conducted has a relatively new ethical aspect and has not been studied in detail. The evidence obtained would determine how often the dentists give informal advice to patients and how people think of casual advice as a second opinion. Patients usually ask for free advice because of the level of trust and the relationship that is built with them over the course of time. This also has to do with the way other colleagues support and vouch for each other.[14]

It would also evaluate the perception of dentists regarding patients seeking dental advice and how it may affect their career as well as personal relationships. As in the ongoing pandemic, dental office visits are significantly reduced, informal advice was a better idea in the current situation.

PMC code of ethics has defined duties of general physician towards sick patients and cautioned the healthcare community against potential conflict of interest and unprofessional behavior.[10] There was a devastating effect on the health care and dental industry in the times of pandemic.[15,16,17]

Spread of disease through aerosol production was one of the leading factors that lead to an increase in the risks of practicing dentistry in such times.[18,19,20] There may be times when it might get difficult for the respective dentist to deny informal advice to patients under certain conditions; however, it is important to keep in mind the ethical and medico-legal considerations while dealing with such patients. Limitation of this study was that it was a self-funded study and had limited resources. Future study may be conducted on a large scale to strengthen its reliability of conclusions drawn about study topics under discussion.

Conclusion:

Perception of the dentists regarding patients seeking informal dental advice from them revolves around the ideology that giving any casual advice without proper checkup and documentation is highly unethical. They also agree with the belief that informal dental advice can have jeopardizing effects on the health of the patients and any misdiagnosis might lead to medico-legal implications. This is indeed an ethical dilemma that needs to be addressed and brought under consideration.

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ORIGINAL ARTICLE

Association of Dental Treatment Related Anxiety with Sterilization Concerns Among Patients

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Abstract

Objective: To assess the anxiety related to dental treatment and its association with sterilization concerns in dental patients

Methodology: A descriptive cross-sectional study was conducted on 400 patients visiting the dental OPD of Sharif Medical and Dental College, Lahore from June 2019 to June 2020. A questionnaire regarding level of dental anxiety was given to the patients. Data was collected using a pre-validated scale with a Cronbach alpha value of 0.89; Modified Dental Anxiety Scale (MDAS). Levels of anxiety was categorized as high level of anxiety (score ≥19) and moderate to low anxiety (score≤18).

Results: There was no statistically significant association between the level of dental anxiety due to sterilization concerns (p=0.250). Gender had a non-significant association while age (p=0.001) and marital status (p=0.002) and level of education (p=0.020) had a significant association with dental anxiety due to sterilization concerns.

Conclusion: Most of the patients reported to feel anxious moderately before dental treatment because of sterilization concerns. A higher percentage of females, the age group 18 to 29 years and patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment.

Keywords: Dental anxiety, dental patients, sterilization concerns, sociodemographic factors.

Introduction:

Cross infection control is defined as the prevention of the spreading of infectious diseases from staff to patient, patient to staff, and from one patient to another.[1-3] Transmission may occur through direct or indirect routes i.e., through person-to-person contact or via contaminated surfaces and objects, respectively.[4,5] Bleeding exposure to infected saliva droplets, and tissue debris are frequently caused during dental treatment and may serve as a means of transmission of infectious agents.[6]

Dental treatment poses a threat to many diseases, both symptomatic and asymptomatic if cross-infection control protocol is breached.[7] A recent study revealed the diseases most likely to be transmitted during dental treatment as follows: hepatitis B, hepatitis C, AIDS, tuberculosis, and Hepatitis A.[8,9] Dental personnel are expected to wear personal protective equipment (PPE) which includes gloves, face masks, and eyewear, ensure disinfection of surfaces after attending a patient and sterilization of instruments after each patient.[10]

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With the emergence of dangerous diseases like AIDS and Covid-19, a heightened awareness regarding cross-infection control is seen among the public and dental patients and many have started to voice their concerns regarding the safety measures adopted by the dentists.[11] Factors that affect the attitude and understanding of patients regarding this matter include gender, education level, and socioeconomic status. Females' patients show greater anxiety associated with risk of infection as compared to men. Similarly, the education level also affects the willingness of a patient to be involved in their well-being.[8]

Patients want to be involved in their health care; they want the dentist to use barrier techniques like gloves, face masks, and eyewear and growing awareness is seen regarding sterilization concerns amongst them.[12] It was observed in that the risk of infection was greater in dental practice than in medical practice as evidenced by a recent study.[11] Most patients acknowledge the fact that barrier techniques and sterilization procedures effectively decrease the risk of infection transmission.[12] The changing perception of patients regarding cross-infection risks has had a major part to play in compelling the dentists to abide by the infection control protocols.[1] Failure to do so will lead to a loss of trust of the patient towards the dental team.

Nowadays, patients appreciate a brief follow-up of the safety protocols from the doctor. Effective communication between the two leads to better cooperation and hence quality dental

care. This study aims to assess the anxiety related to dental treatment and its association with sterilization concerns in dental patients.

Methodology:

A descriptive cross-sectional study was conducted on 400 patients visiting the dental OPD of Sharif Medical and Dental College, Lahore from June 2019 to June 2020 after ethical approval from Sharif Medical Research Centre (SMRC). Demographics like name, age, gender, marital status, and educational status were noted. Keeping the confidence level 95 %, anticipated population proportion 50%, margin of error 0.05, the sample size was calculated to be 385 but a sample of 400 was used to avoid data wastage.[13]

Patients of both the genders were included in the study irrespective of their age, marital status, and level of education. Patients who had not undergone past dental treatment or were not willing to participate in the study were excluded. Informed written consent was taken from the participants before the study. A questionnaire regarding level of dental anxiety was given to the patients.

Data was collected using a pre-validated scale with a Cronbach alpha value of 0.89; Modified Dental Anxiety Scale (MDAS)14 to assess levels of dental anxiety.The questionnaire comprised of 5 questions. Questions 1 to 5 had five options. Non anxious response was given a score 1 and corresponded to option "a" and the extremely anxious response corresponded to option "e" and was given a score of 5i.e. a = 1, b = 2, c = 3, d = 4, e = 5 (Total possible = 25).14 Levels of anxiety was categorized as high level of anxiety (score>19) and moderate to low anxiety (score <18).14

Recorded data was coded and entered using SPSS statistical package version 23.0. Quantitative variables like age and MDAS score was presented as mean and standard deviation. Frequency and percentages were calculated for qualitative variables. Chi square test was applied to see the association of level of dental anxiety and sterilization concerns of patients. Chi square test was used to find the association between dental anxiety due to sterilization concerns and gender and marital status. Fisher's exact test was used to find the association between age and level of education with the dental anxiety due to sterilization concerns. P value <0.05 was taken as significant.

Results:

This study included a total of 400 patients visiting the dental OPD of College of Dentistry, Sharif Medical and Dental College, Lahore to assess the dental anxiety due to sterilization concerns in patients. There were 143 males (35.7%) and 257 females (64.3%). Mean age of the patients was 27.61±11.87 years. There was no statistically significant association between the level of dental anxiety due to sterilization concerns (p=0.250) found and was observed that most of the patients reported to feel anxious moderately before dental treatment because they were concerned about the inadequacy of sterilization in the dental setting as shown in table 1.

Table 1: Association of Level of Dental Anxiety with Sterlization Concerns in Patients

Level Of Dental Anxiety	Sterilization Concerns		
	Yes n (%)	No n (%)	P Value
Moderate Dental Anxiety	108 (27%)	237 (59.3%)	0.250
High Dental Anxiety	13 (3.3%)	42(10.5%)	

Furthermore, it was seen that among the sociodemographic factors, gender had non-significant association while age (p=0.001) and marital status (p=0.002) had a significant association with dental anxiety due to sterilization concerns as shown in table 2.

Table 2: Association of Age, Gender and Marital Status with the Dental Anxiety Related to Sterilization Concerns

Parameter		Dental Anxiety Due To Sterilization Concerns		
		Yes n (%)	No n (%)	P Value
Gender	Male	100 (25%)	43 (10.8%)	0.953
	Female	179 (44.8%)	78(19.5%)	
Age	Below 18 Years	11 (2.8%)	2(0.5%)	0.001
	18-29 Years	216 (54%)	73(18.3%)	
	30-39 Years	24(6%)	16(4%)	
	40-49 Years	7(1.8%)	10(2.5%)	
	50-59 Years	13(3.3%)	12(3%)	
	60-69 Years	7(1.8%)	8(2%)	
	70 Years And Above	1(0.3%)	0(0%)	
Marital Status	Un-married	222(55.5%)	79(19.8%)	0.002
	Married	57(14.3%)	42(10.5%)	

It was also seen that level of education was significantly associated with the dental anxiety due to sterilization concerns of patients (p=0.020) with majority of the patients with tertiary level of education reporting it as a cause of dental anxiety as shown in table 3.

Table 3: Association between level of education and dental anxiety related to sterilization concerns.

Parameter		Dental Anxiety Due To Sterilization Concerns		
		Yes n (%)	No n (%)	P Value
Level Of Education	ILLITERATE	0(0%)	4(1%)	0.020
	PRIMARY	5(1.3%)	4(1%)	
	SECONDARY	48(12%)	19(4.8%)	
	TERTIARY	194(48.5%)	75(18.8%)	
	QUATERNARY	32(8%)	19(4.8%)	

Discussion:

Concerns regarding the sterilization of dental instruments have been reported by patients in the past as their biggest reservation for seeking dental treatment. The use of unsterilized dental instruments for treatment have been reported by patients as means of transmission of infection among patients.[15] Barlean et al reported that the dental instruments that have the greatest probability of transmitting infections during dental treatment are endodontic needles (68,1%), the syringe needles (63,6%) and the dental burs

(61,8%).[8] The same study also reported that 80% of the patients attributed the spread of infection among patients in dental clinic to the lack of sterilization while 54% said that it occurred due to inadequate disinfection of equipment and surfaces.[8]

Our study reported that 27% patients had moderate anxiety due to sterilization concerns during dental treatment while 3.3% reported feeling highly anxious. According to another study 35% patients reported feeling highly anxious while 38% said they did not feel anxious due to uncertainty of the cleanliness of the dental instruments.[16]

The same study reported that 40% patients reported feeling highly anxious before asking the dentist if the instruments were sterilized properly while 38% reported not being anxious in that situation.[16] Regarding getting infected due to lack of sterilization in the dental clinic, it was reported that 31% patients felt highly anxious while 25% did not feel anxious regarding this matter.[16]

According to our study, 59.3% patients with moderate anxiety and 10.5% patients reported reasons other than sterilization concerns for their anxiety. Literature supports that the patient concerns regarding lack of sterilization and infection control are a matter of concern. Patients today are not only aware of the protocols for cross infection control but have been reported to ask the dentist to wear a face mask (13.3%) and gloves (16.4%) and also enquire about the sterilization of dental instruments (9.3%) before being treated.[2]

There does not exist a vast body of literature association of sociodemographic factors and sterilization concerns in patients undergoing dental treatment which makes our study unique. Our study reported that there is an influence of sociodemographic factors on the dental anxiety related to sterilization concerns in patients opting dental treatment. In our study it was seen that a higher percentage of females (19.5%) reported to feel anxious due to lack of sterilization in the dental clinic in comparison to 10.8% males. The age group that reported the greatest percentage of anxiety due this problem was 18 to 29 years.

Level of education of the patient was also found to have an impact on the patient in this regard and it was seen that patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment. According to another study, patients with a low level of education were found to be highly afraid (65.1%) of catching infections in the dental clinic while 64.2% had were highly concerned about the standards of sterilization17 while some other studies reported contradictory results.[18]

With an increasing level of patient education and awareness, the concerns regarding their safety and protection during dental treatment are also on the rise. This is bringing about a change in their attitude regarding infection control protocols. The patient concerns in this regard should be addressed to help eliminate the anxiety experienced by them due the fear of cross infection in the clinic. A multicenter study would have helped us unravel more findings on this topic.

Conclusion:

Most of the patients reported to feel anxious moderately before dental treatment because they were concerned about the inadequacy of sterilization in the dental setting. A higher percentage of females reported to feel anxious due to lack of sterilization in the dental clinic in comparison to males. The age group that reported the greatest percentage of anxiety due this problem was 18 to 29 years. Level of education of the patient was also found to have an impact on the patient in this regard and it was seen that patients with tertiary level of education reported the highest percentage of anxiety due to sterilization concerns during dental treatment.

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1. Hira Butt- Concept, data collection, data analysis, manuscript writing and final approval.
2. Zainab Waheed- Concept and Data analysis
3. Nauman Rauf Khan- Concept and final approval
4. Dur E Shumyle- Data Collection
5. Hira Shekh- Data Collection
6. Tajawar Jafar- Critical review

CASE REPORT

Immediate Tooth Replacement Using Fiber-Reinforced Composite Bridge: A Case Report

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Abstract

When anterior teeth in maxilla are lost, it is very challenging procedure to replace them. If the patient has time limitation, and the patient refuse the implant surgery, minimum preparation prosthesis is advised for the replacement of the tooth. Fibre-reinforced composite bridge is one the most conservative alternative option to conventional fixed partial denture prosthesis. This article describes a clinical technique for the immediate replacement of the extracted tooth to preserve the aesthetics of the patients and the soft tissue contours by giving ovate pontics.

The patient presented with grade III mobile maxillary central incisor due to Localized periodontitis. The abutment teeth were clinically stable. Tissue part of the pontic was made indirectly on the silicon cast and the rest of the pontic was made freehand intraorally. This technique offers a conservative, aesthetic, and immediate solution for the problem. FRC bridges cannot be used only as a temporary option but also a permanent prosthesis if applied as recommended in literature.

Keywords: Fibre reinforced composite bridge, immediate prosthesis, Papilla preservation, minimal preparation bridge

Introduction:

The loss of anterior teeth can create social and psychological problems in patients and they need to be replaced immediately. There are multiple options for the replacement of these teeth, both removable and fixed prosthesis. Fixed prosthesis is preferred mostly.[1]

Any trauma, or damage of the anterior teeth is considered to be dental emergency for the most of the patients, and every clinician deals this kind of emergency. This restoration is not an easy job and mostly the options that are used for the restoration are time consuming and involve lab procedures. This time consumption further increases the psychological trauma of the patient who come with the hope of immediate restoration.[1]

Sometime the patient is unable to cope up with the economic issues for the restoration of the damaged or lost teeth, which is another compounding factor in the treatment plan.[1]

Fibre reinforced composite bridge is the ultimate solution for all of the above mentioned problems as this procedure is minimal invasive, reversible, cost effective and importantly, an immediate solution for the problems.[1]

Fibre reinforced composite consist of fibres of different materials like glass, carbon or polyethylene which are incorporated in base resin. These fibres increase the flexural, fatigue and tensile strength of the prosthesis. The strength also depends upon the type, number, design and wetting of the fibres incorporated.[1]

Goldberg and Burnstone2 recommended 43-45% fibre incorporation in the resin for better strength. Initially the fibres that were used were mostly carbon or Kevlar but these were then replaced by polyethylene and glass fibres which are aesthetically more acceptable and the glass fibres have more strength as compared to the other fibres.[3]

The technique for the replacement with FRC bridge was suggested as acid etch technique which is described by many authors in the literature. The main problem that was faced by all the authors was fracture of composite in the proximal areas.[4,5]

To overcome the problem of fracture composite at proximal area, many techniques were advised for example, utilizing of undercuts on the abutment teeth[6], use of orthodontic wire[7] or the self-threaded pins commonly used in restorative dentistry[8]. Unfortunately, none of the techniques were successful to overcome the problem.

Many clinical studies were done on the prognosis of the FRC bridges with direct techniques, and unfortunately none of the studies reported long time survival of the prosthesis [9,10,11,12].

Because of the all the failures of the prosthesis through direct technique, indirect technique for the fabrication of prosthesis was advised in 1982, which was also known as Maryland bridge[9].

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These Maryland bridges also showed very variable results in its survival and the patients mostly complained about the show of metal and its effect on the overall translucency of the bonded tooth [13,14,15]. To overcome the problems of bonding, metal free, aesthetically preferred, less time consuming, economical and conservation of tooth structure, fibre reinforcement in the composite was suggested by ladizeski in his publication.[16] it preventing the crack propagation because of the chemical adherence of the composite with the fibre [17].

The re enforcement of fibre in the composite increases its flexural strength by 400-500% as compared to the composite resin used alone [18,19] Fortunately, this increase in the flexural strength is comparable to the conventional porcelain fused to metal fixed partial denture.[20,21]

In clinical practice many failures were reported those were mostly delamination, or fracture of composite[3]. The problem was mainly because of the use of non-impregnated fibres, which led to the incomplete wetting of the fibres[3].to overcome these problems, pre impregnated fibres were suggested as developed by stick tech ltd. It increased the survival rate up to 93%. 1,[21]

The design of pontic also plays major role in provision of aesthetically pleasing and functional tooth replacement. Factors that need to be incorporated in the pontics are its size, shape, emergence profile and support of the adjacent soft tissues [23]. ovate pontic in anterior region mimics the natural appearance as it gives the look of tooth emerging from the gingiva.[22] It also gives effective air seal, preservation of the papilla, elimination of the black triangle which gives more natural life like appearance of the tooth.This will also give extra advantage of soft tissue support for implants later on [24].

Case report:

A 55-year-old patient came to Prosthodontics department with the chief complaint of mobile maxillary right central incisor. Thorough history and examination was done. The tooth was grade III mobile and was indicated for extraction.

The patient wanted some immediate replacement of the tooth as he had aesthetic concern because of his profession and wanted to go out of city after 4 days. Patient didn't want any removable prosthesis which according to him can lead to embarrassment in front of others. Patient mentioned that he will go for implant later on but right now want some immediate solution.

Fibre reinforced composite prosthesis was planned for the patient. Atraumatic Extraction was done and the patient was advised to wait for half an hour for the bleeding to be stopped. The papilla preservation and socket preservation technique was intended by giving ovate pontic in the prosthesis.

Impression of the area was recorded in irreversible hydrocolloid impression material with special consideration for recording the impression of the socket. The impression was poured in silicon light body and reinforced with putty impression material.After the material was set, the silicon cast was obtained from the impression.

Light cure flowable Composite restoration material was placed in the socket of silicon cast with intention of the fabrication of tissue surface of the ovate pontic and was cured. The set composite material was removed from the socket and additional polymerisation with light was done. The tissue surface was finished, polished and placed aside.

Intraoral Isolation with rubber dam was obtained and the adjacent teeth 12 and 21 were prepared for the fibre reinforced composite bridge by making small boxes in the cingula area of the teeth with diamond burs. The boxes were then etched, and bonding agent applied and cured for 40 seconds.

Flowable composite material (Filtek® Flow Composite (3M-ESPE) was placed in the box made in the central incisor and the one end of the fibre (Ever Stick® Crown and Bridge (Stick Tech Ltd) that was measured to be of appropriate length of the area was placed in it and light cured. The fibre was oriented according to the curvature of the arch and the other end was placed and cured with flowable composite material in the box prepared of the lateral incisor.

Additional fibre of 4mm was taken and placed vertically on the pontic area of the fibre already placed with flowable composite and was light cured. The part of the ovate pontic that was already prepared on the silicon cast before was taken and placed inside the socket at this time. Nano hybrid composite (Filtek® z350) material was placed over this part of the pontic and the fibre to attach the pontic part and fibre and was light cured.

The rest of the pontic was then made and shaped free hand with the composite material with layering technique.After the fabrication of the pontic, it was finished and polished and checked for any occlusal interference. Necessary modifications were done and the process was completed.

Discussion:

The anterior teeth can be either congenitally missing or lost because of many reasons.The replacement of the teeth can be done with different prosthodontic options.[25] initially for long time the Pfm prosthesis were the preferred options but the patient mainly complained of the metal show and this option was very aggressive for the tooth as a lot of tooth structured has to be removed. this lead to either the sensitivity, pain or pulp exposure of the tooth.[26]

Implant support prosthesis lead to more conservative approach for the single tooth replacement as it preserves the adjacent teeth. Unfortunately, most of the patients rejects this option either because of the systemic condition or the cost of the treatment.[27]

To overcome the problems, another conservative approach was recommended in the form of resin bonded prosthesis the most common problem associated with it was debonding of the framework from the tooth surface.[28]

To overcome the problems, another conservative approach was recommended in the form of resin bonded prosthesis the

most common problem associated with it was debonding of the framework from the tooth surface.[28] This debonding was more common in teeth with slight mobility as caused compressive and tensile stresses at the interface of cement and framework.[21]

Repeated stress can predispose fatigue failures of the adhesive joint. By selecting a material that has a lower modulus of elasticity than that of cast metal alloy, stress at the interface can be diminished.[29] Fibre reinforced composite provides modulus of elasticity which is desired in these situations. They have additionally advantages of repair, bonding, elimination of metal and survival. It is conservative option, saving the tooth structure and avoids the laboratory procedures.[25]

There are different methods of its fabrication. Direct, indirect or direct indirect. The procedure in this article is direct indirect technique, in which portion of the pontic is fabricated indirectly on flexible cast made of silicon and the remaining structure fabricated directly intraorally. The direct indirect technique for the fabrication of an FRC bridge by using a flexible cast of silicon has many advantages as compared to the stone cast. As the silicon is fast set as compared to dental stone, it saves a lot of time. The chairside fabrication avoids the laboratory involvement and saves time and money. The prosthesis can be provided in single appointment[30]

Glass fibres in unidirectional reinforce the composite in the final structure. The composite material is more easy to bond with the tooth as compared to metals and also aesthetically more good because of the avoidance of metal in the prosthesis[30]. The layering technique through different shades of the composite gives very lifelike appearance giving the translucency, opalescence and opacity.[31]

The ovate part of the pontic inside the socket will preserve the papilla and socket which gives pleasant aesthetic effect which can also be later on replaced easily with implants with compromising the adjacent teeth along with the superb aesthetics because of the tissue preservation.

Conclusions:

FRC bridge fabrication technique presented in this article suggests a new treatment option for the replacement of a missing anterior tooth. This technique is simple, economical and very rewarding. The ovate pontic given supports the soft tissues and gives natural emergence profile. As it a conservative technique, the option can be used either temporarily or permanent.

CONFLICT OF INTEREST: None
FUNDING SOURCES: None

Figure A: Intraoral picture of the patient with extracted 11

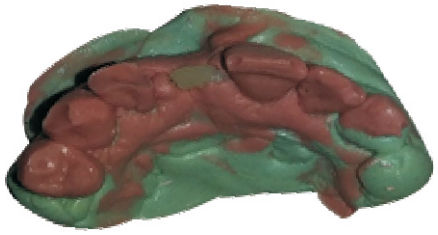

Figure B: Immediate cast of the patient made in silicon

Figure C: Comparing the cast with intraoral picture of the patient

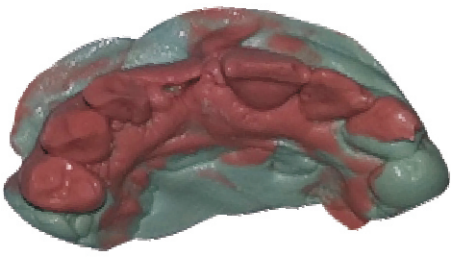

Figure D: Ovate pontic part fabricated in the extracted socket on silicon cast

Figure E: The ovate pontic part placed in the socket intraorally

Figure F: Application of the glass fibre on adjacent teeth

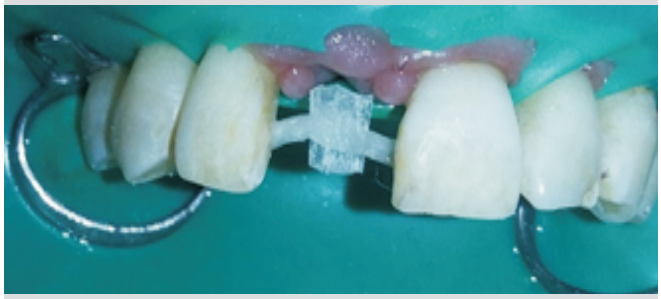

Figure G: Vertical fibre placed for fabrication of the pontic

Figure H: Free hand building up of the pontic over the fibre

Figure I: Fibre reinforced bridge fabricated intraorally

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5. Uzma Khalil- Data Collection
6. Muhammad Irfan- approval of questionnaire

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Short Communication: description of a technical aspect of a field or issue, report on a procedure or method, or work on validation of techniques or methods. Case Reports Case reports are acceptable only if the contribution to the better understanding in forensic pathology, forensic toxicology, or medical law is clearly described.

Review Article: full-length paper reviewing the state of the art or the published literature in a particular area of general interest to the readership.

- **Articles:** Original research manuscripts. The journal considers all original research manuscripts provided that the work reports scientifically sound experiments and provides a substantial amount of new information. Authors should not unnecessarily divide their work into several related manuscripts, although Short Communications of preliminary, but significant, results will be considered. Quality and impact of the study will be considered during peer review.

- **Reviews:** These provide concise and precise updates on the latest progress made in a given area of research. Systematic reviews should follow the PRISMA guidelines.

- **Case reports:** Case reports present detailed information on the symptoms, signs, diagnosis, treatment (including all types of interventions), and outcomes of an individual patient. Case reports usually describe new or uncommon conditions that serve to enhance medical care or highlight diagnostic approaches.

Submission Process

Manuscripts for JRCD should be submitted online at the journal's website jrcd.pk. The submitting author, who is generally the corresponding author, is responsible for the manuscript during the submission and peer-review process. The submitting author must ensure that all eligible co-authors have been included in the author list (read the criteria to qualify for authorship) and that they have all read and approved the submitted version of the manuscript. To submit your manuscript, register and log in to the jrcd.pk. All co-authors can see the manuscript details in the submission system, if they register and log in using the e-mail address provided during manuscript submission.

Accepted File Formats

Authors must use the **Microsoft Word template** to prepare their manuscript. Using the template file will substantially shorten the time to complete copy-editing and publication of accepted manuscripts. The total amount of data for all files must not exceed 100 MB. If this is a problem, please contact the editorial office @ email the editor. Accepted file formats are:

- Microsoft Word: Manuscripts prepared in Microsoft Word must be converted into a single file before submission. When preparing manuscripts in Microsoft Word, the **JRCD Microsoft Word template file** must be used. Please insert your graphics (schemes, figures, etc.) in the main text after the paragraph of its first citation.

- Supplementary files: May be any format, but it is recommended that you use common, non-proprietary formats where possible.

Cover Letter

A cover letter must be included with each manuscript submission. It should be concise and explain why the content of the paper is significant, placing the findings in the context of existing work and why it fits the scope of the journal. Confirm that neither the manuscript nor any parts of its content are currently under consideration or published in another journal. Any prior submissions of the manuscript to JRCD must be acknowledged.

Manuscript Preparation

General Considerations

- **Research manuscripts** should comprise:

  1. **Title page file: Title,** Author list, Affiliations, funding source, Acknowledgments, Author Contributions, Conflicts of Interest statement.

  2. **Main manuscript file:**

     - **Abstract:** abstract should be unstructured and maximum word limit is 250 words.

     - **Keywords:** Minimum 3 keywords must be provided.

     - **Research manuscript sections:** Introduction, Materials and Methods, Results, Discussion, Conclusions, Supplementary Materials, References.

- **Review manuscripts** should comprise the title page and main manuscript files. The template file can also be used to prepare the title page and main manuscript files for the review manuscript. It is not necessary to follow the remaining structure. Structured reviews and meta-analyses should use the same structure as research articles and ensure they conform to the **PRISMA** guidelines.

- **Case reports** should include a concise introduction about the general medical/dental condition or relevant symptoms that will be discussed in the case report; the case presentation including all of the relevant de-identified demographic and descriptive information about the patient(s), and a description of the symptoms, diagnosis, treatment, and outcome; a discussion providing context and any necessary explanation of specific treatment decisions; a conclusion briefly outlining the take-home message and the lessons learned.

- **Graphical abstract:** Authors are encouraged to provide a graphical abstract as a self-explanatory image to appear alongside with the text abstract in the Table of Contents. Figures should be a high quality image in any common image format. Note that images displayed online will be up to 11 by 9 cm on screen and the figure should be clear at this size.

- **Abbreviations** should be defined in parentheses the first time they appear in the abstract, main text, and in figure or table captions and used consistently thereafter.

- **SI Units** (International System of Units) should be used. Imperial, US customary and other units should be converted to SI units whenever possible

- **Accession numbers** of RNA, DNA and protein sequences used in the manuscript should be provided in the Materials and Methods section.

- **Equations:** If you are using Word, please use either the Microsoft Equation Editor or the MathType add-on. Equations should be editable by the editorial office and not appear in a picture format.

- **Research Data and supplementary materials:** Note that publication of your manuscript implies that all materials, data, and protocols associated with the publication available to readers should be provided on request. Disclose at the submission stage any restrictions on the availability of materials or information.

The following sections should appear in all manuscript types

- **Title:** The title of your manuscript should be concise, specific and relevant. It should identify if the study reports (human or animal) trial data, or is a systematic review, meta-analysis or replication study. When gene or protein names are included, the abbreviated name rather than full name should be used.

  Author List and Affiliations: Authors' full first and last names must be provided. The initials of any middle names can be added. Complete address information including city, zip code, state/province, and country. At least one author should be designated as corresponding author, and his or her email address and other details should be included at the end of the affiliation section.

  Abstract: The abstract should be a total of about 250 words maximum. The abstract should be a single paragraph and should follow the style of structured abstracts, but without headings: 1) Background: Place the question addressed in a broad context and highlight the purpose of the study; 2) Methods: Describe briefly the main methods or treatments applied. Include any relevant preregistration numbers, and species and strains of any animals used. 3) Results: Summarize the article's main findings; and 4) Conclusion: Indicate the main conclusions or interpretations. The abstract should be an objective representation of the article: it must not contain results which are not presented and substantiated in the main text and should not exaggerate the main conclusions.

  Keywords: Three to ten pertinent keywords need to be added after the abstract. We recommend that the keywords are specific to the article, yet reasonably common within the subject discipline.

Research Manuscript Sections

- **Introduction:** The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance, including specific hypotheses being tested. The current state of the research field should be reviewed carefully and key publications cited. Please highlight controversial and diverging hypotheses when necessary. Finally, briefly mention the main aim of the research and highlight the main conclusions. Keep the introduction comprehensible to scientists working outside the topic of the paper.

- **Results:** Provide a concise and precise description of the experimental results, their interpretation as well as the experimental conclusions that can be drawn.

- **Discussion:** Authors should discuss the results and how they can be interpreted in perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible and limitations of the work highlighted. Future research directions may also be mentioned. This section may be combined with Results.

- **Materials and Methods:** They should be described with sufficient detail to allow others to replicate and build on published results. New methods and protocols should be described in detail while well-established methods can be briefly described and appropriately cited. Give the name and version of any software used and make clear whether computer code used is available. Include any pre-registration codes.

- **Conclusions:** This section should be brief and substantiated by the findings of the study.

  Patents: This section is not mandatory, but may be added if there are patents resulting from the work reported in this manuscript.

- **Supplementary Materials:** Describe any supplementary material published online alongside the manuscript (figure, tables, video, spreadsheets, etc.). Please indicate the name and title of each element as follows Figure S1: title, Table S1: title, etc.

- **Acknowledgments:** All sources of funding of the study should be disclosed in the title page. Clearly indicate grants that you have received in support of your research work and if you received funds to cover publication costs.

- **Author Contributions:** Each author is expected to have made substantial contributions to the conception or

design of the work; or the acquisition, analysis, or interpretation of data; or the creation of new software used in the work; or have drafted the work or substantively revised it; AND has approved the submitted version (and version substantially edited by journal staff that involves the author's contribution to the study); AND agrees to be personally accountable for the author's own contributions and for ensuring that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and documented in the literature.

- **Conflicts of Interest:** Authors must identify and declare any personal circumstances or interest that may be perceived as inappropriately influencing the representation or interpretation of reported research results. If there is no conflict of interest, please state "The authors declare no conflict of interest." Any role of the funding sponsors in the choice of research project; design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript; or in the decision to publish the results must be declared in this section.

  JRCD does not publish studies funded by the tobacco industry. Any projects funded by pharmaceutical or food industries must pay special attention to the full declaration of funder involvement. If there is no role, please state "The sponsors had no role in the design, execution, interpretation, or writing of the study".

- **References:** References must be numbered in order of appearance in the text (including table captions and figure legends) and listed individually at the end of the manuscript.

  We recommend preparing the references with a bibliography software package, such as EndNote, **ReferenceManager** or **Zotero** to avoid typing mistakes and duplicated references. We encourage citations to data, computer code and other citable research material. If available online, you may use reference style 9 below.

  Citations and References in Supplementary files are permitted provided that they also appear in the main text and in the reference list.

The following sections should appear in all manuscript types

In the text, reference numbers should be placed in square brackets [ ], and placed before the punctuation; for example [1], [1–3] or [1,3]. For embedded citations in the text with pagination, use both parentheses and brackets to indicate the reference number and page numbers; for example [5] (p. 10). or [6] (pp. 101–105).

The reference list should include the full title, as recommended by the Vancour style guide. Style files for **Endnote** and **Zotero** are available.

References should be described as follows, depending on the type of work:

- **Journal Articles:**

Author(s) – Family name and initials. Title of article. Abbreviated journal title. Publication year, month, day (month & day only if available);volume(issue):pages.
Note: list all 6 authors or alternatively list the first 3 and add "et al"

Skalsky K, Yahav D, Bishara J, Pitlik S, Leibovici L, Paul M. Treatment of human brucellosis: systematic review and meta analysis of randomised controlled trials. Br Med J (Clin Res Ed). 2008 Mar 29;336(7646):701 4

- **Journal Article- in press:**

Authors separated by commas – Family name and initials. Title of article. Abbreviated journal title. Publication year, month, day (month & day only if available);volume(issue). Forthcoming - year of expected publication.

Rourke E, Hussain R, Buscombe JR, Hilson AJ. Overlying urostomy bag simulating urinary leak in a postrenal transplant MAG3 study. Clin Nucl Med. Forthcoming 2006

Can include date, volume and issue number if provided

- **Books and Book Chapters:**

Author(s) – Family name and initials (no more than 2 initials with no spaces between initials). Title of book. Edition of book if later than 1st ed. Place of publication: Publisher name;Year of publication.

Cheers B, Darracott R, Lonne B. Social care practice in rural communities. Sydney: The Federation Press; 2007.

- **Conference Proceedings:**

Author(s) of paper – family name and initials. Title of paper. In: Editor(s) Family name and initials, editor(s). Title of conference; Date of conference; Place of conference. Place of publication: Publisher's name; Publication year. p. Page numbers.

Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Reinhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics. 1992 Sep 6 10; Geneva, Switzerland. Amsterdam:

- **Thesis:**

Author - family name followed by initials. Thesis title [type of thesis]. Place of publication: Publisher;Year.

Note:
- insert "dissertation" for a PhD and
- insert "master's thesis" for a master's degree

Kay JG. Intracellular cytokine trafficking and phagocytosis in macrophages [dissertation]. St Lucia, Qld: University of Queensland; 2007

- **Websites:**

Author/organization's name. Title of the page [Internet]. Place of publication: Publisher's name; Publication date or year [updated date - year month day; cited date - year month day]. Available from: URL

- If the place, publisher or date is unknown use [place unknown], [publisher unknown] or [date unknown]

- If neither the date of publication nor a date of copyright can be found - use the date of update/revision or date cited.

Diabetes Australia. Gestational diabetes [Internet]. Canberra (ACT): Diabetes Australia; 2015 [updated 2015; cited 2017 Nov 23]. Available from: https://www.diabetesaustralia.com.au/gestational-diabetes

Preparing Figures, Schemes and Tables

- File for Figures and Schemes must be provided during submission in a single zip archive and at a sufficiently high resolution (minimum 1000 pixels width/height, or a resolution of 300 dpi or higher). The accepted image formats include TIFF, JPEG, EPS and PDF.

- JRCD can publish multimedia files in articles or as supplementary materials. Please contact the editorial office for further information.

- All Figures, Schemes and Tables should be inserted into the main text close to their first citation and must be numbered following their number of appearance (Figure 1, Scheme I, Figure 2, Scheme II, Table 1, etc.).

- All Figures, Schemes and Tables should have a short explanatory title and caption.

- All table columns should have an explanatory heading. The allowed font size ranges from 08 to 12 pt.

- Authors are encouraged to prepare figures and schemes in color (RGB at 8-bit per channel).

Supplementary Materials, Data Deposit and Software Source Code

Data Availability

Authors must keep the research data readily available which should be provided if/when requested by the editors.

Computer Code and Software

For work where novel computer code was developed, authors should release the code either by depositing in a recognized, public repository or uploading as supplementary information to the publication. The name and version of all software used should be clearly indicated.

Supplementary Material

Additional data and files can be uploaded as "Supplementary Files" during the manuscript submission process. The supplementary files will also be available to the referees as part of the peer-review process. Any file format is acceptable, however we recommend that common, non-proprietary formats are used where possible.

Unpublished Data

Restrictions on data availability should be noted during submission and in the manuscript. "Data not shown" should be avoided: authors are encouraged to publish all observations related to the submitted manuscript as Supplementary Material. "Unpublished data" intended for publication in a manuscript that is either planned, "in preparation" or "submitted" but not yet accepted, should be cited in the text and a reference should be added in the References section. "Personal Communication" should also be cited in the text and reference added in the References section.

Deposition of Sequences and of Expression Data

New sequence information must be deposited to the appropriate database prior to submission of the manuscript. Accession numbers provided by the database should be included in the submitted manuscript. Manuscripts will not be published until the accession number is provided.

- New nucleic acid sequences must be deposited in one of the following databases: GenBank, EMBL, or DDBJ. Sequences should be submitted to only one database.

- New high throughput sequencing (HTS) datasets (RNA-seq, ChIP-Seq, degradome analysis, …) must be deposited either in the GEO database or in the NCBI's Sequence Read Archive.

- New microarray data must be deposited either in the GEO or the ArrayExpress databases. The "Minimal Information About a Microarray Experiment" (MIAME) guidelines published by the Microarray Gene Expression Data Society must be followed.

- New protein sequences obtained by protein sequencing must be submitted to UniProt (submission tool SPIN).

All sequence names and the accession numbers provided by the databases should be provided in the Materials and Methods section of the article.

References in Supplementary Files

Citations and References in Supplementary files are permitted provided that they also appear in the reference list of the main text.

Research and Publication Ethics

Research Ethics

Research Involving Human Subjects

When reporting on research that involves human subjects, human material, human tissues, or human data, authors must declare that the investigations were carried out following the rules of the Declaration of Helsinki of 1975 (**https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/**), revised in 2013. According to point 23 of this declaration, an approval from an ethics committee should have been obtained before

undertaking the research. At a minimum, a statement including the project identification code, date of approval, and name of the ethics committee or institutional review board should be cited in the Methods Section of the article. Data relating to individual participants must be described in detail, but private information identifying participants need not be included unless the identifiable materials are of relevance to the research (for example, photographs of participants' faces that show a particular symptom). Editors reserve the right to reject any submission that does not meet these requirements.

Example of an ethical statement: "All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of XXX (Project identification code)."

A written informed consent for publication must be obtained from participating patients who can be identified (including by the patients themselves). Patients' initials or other personal identifiers must not appear in any images.

For manuscripts that include any case details, personal information, and/or images of patients, authors must obtain signed informed consent from patients (or their relatives/guardians) before submitting to JRCD.

Patient details must be anonymized as far as possible, e.g., do not mention specific age, ethnicity, or occupation where they are not relevant to the conclusions.

Alternatively, you may provide a detailed justification of why informed consent is not necessary.

Ethical Guidelines for the Use of Animals in Research

The editors will require that the benefits potentially derived from any research causing harm to animals are significant in relation to any cost endured by animals, and that procedures followed are unlikely to cause offense to the majority of readers. Authors should particularly ensure that their research complies with the commonly-accepted '3Rs':

- Replacement of animals by alternatives wherever possible,
- Reduction in number of animals used, and
- Refinement of experimental conditions and procedures to minimize the harm to animals.

Any experimental work must also have been conducted in accordance with relevant national legislation on the use of animals for research. For further guidance authors should refer to the Code of Practice for the Housing and Care of Animals Used in Scientific Procedures [1].

Manuscripts containing original descriptions of research conducted in experimental animals must contain details of approval by a properly constituted research ethics committee. As a minimum, the project identification code, date of approval and name of the ethics committee or institutional review board should be cited in the Methods section.

JRCD endorses the ARRIVE guidelines **(www.nc3rs.org.uk/ARRIVE)** for reporting experiments using live animals. Authors and reviewers can use the ARRIVE guidelines as a checklist, which can be found at **www.nc3rs.org.uk/ARRIVEchecklist.**

1. Home Office. Animals (Scientific Procedures) Act 1986. Code of Practice for the Housing and Care of Animals Used in Scientific Procedures. Available online: **http://www.official-documents.gov.uk/document/hc8889/hc01/0107/0107.pdf.**

Research Involving Cell Lines

Methods sections for submissions reporting on research with cell lines should state the origin of any cell lines. For established cell lines the origin should be stated and references must also be given to either a published paper or to a commercial source. If previously unpublished de novo cell lines were used, including those gifted from another laboratory, details of institutional review board or ethics committee approval must be given, and confirmation of written informed consent must be provided if the line is of human origin.

An example of Ethical Statements:

The HCT116 cell line was obtained from XXXX. The MLH1+ cell line was provided by XXXXX, Ltd. The DLD-1 cell line was obtained from Dr. XXXX. The DR-GFP and SA-GFP reporter plasmids were obtained from Dr. XXX and the Rad51K133A expression vector was obtained from Dr. XXXX.

Publication Ethics Statement

JRCD fully adhere to **Code of Conduct** and **Best Practice Guidelines** of the Committee on Publication Ethics **(COPE)**.

The editors of this journal enforce a rigorous peer-review process together with strict ethical policies and standards to ensure to add high quality scientific works to the field of scholarly publication. Unfortunately, cases of plagiarism, data falsification, image manipulation, inappropriate authorship credit, and the like, do arise. The editors of JRCD take such publishing ethics issues very seriously and are trained to proceed in such cases with a zero tolerance policy.

Authors wishing to publish their papers in JRCD must abide to the following:

- Any facts that might be perceived as a possible conflict of interest of the author(s) must be disclosed in the paper prior to submission.
- Authors should accurately present their research findings and include an objective discussion of the significance of their findings.
- Data and methods used in the research need to be presented in sufficient detail in the paper, so that other researchers can replicate the work.

- Raw data should preferably be publicly deposited by the authors before submission of their manuscript. Authors need to at least have the raw data readily available for presentation to the referees and the editors of the journal, if requested. Authors need to ensure appropriate measures are taken so that raw data is retained in full for a reasonable time after publication.

- Simultaneous submission of manuscripts to more than one journal is not tolerated.

- Republishing content that is not novel is not tolerated (for example, an English translation of a paper that is already published in another language will not be accepted).

- If errors and inaccuracies are found by the authors after publication of their paper, they need to be promptly communicated to the editors of this journal so that appropriate actions can be taken.

- Your manuscript should not contain any information that has already been published. If you include already published figures or images, please obtain the necessary permission from the copyright holder to publish under the CC-BY license.

  Plagiarism, data fabrication and image manipulation are not tolerated.

  - **Plagiarism is not acceptable** in JRCD submissions.

    Plagiarism includes copying text, ideas, images, or data from another source, even from your own publications, without giving any credit to the original source.

    Reuse of text that is copied from another source must be between quotes and the original source must be cited. If a study's design or the manuscript's structure or language has been inspired by previous works, these works must be explicitly cited.

    If plagiarism is detected during the peer review process, the manuscript may be rejected. If plagiarism is detected after publication, we may publish a correction or retract the paper. The allowed maximum limit of Turnitn similarity index is 19%.

  - **Image files must not be manipulated or adjusted in any way** that could lead to misinterpretation of the information provided by the original image.

    Irregular manipulation includes: 1) introduction, enhancement, moving, or removing features from the original image; 2) grouping of images that should obviously be presented separately (e.g., from different parts of the same gel, or from different gels); or 3) modifying the contrast, brightness or color balance to obscure, eliminate or enhance some information.

    If irregular image manipulation is identified and confirmed during the peer review process, we may reject the manuscript. If irregular image manipulation is identified and confirmed after publication, we may correct or retract the paper.

  Our in-house editors will investigate any allegations of publication misconduct and may contact the authors' institutions or funders if necessary. If evidence of misconduct is found, appropriate action will be taken to correct or retract the publication. Authors are expected to comply with the best ethical publication practices when publishing with JRCD.

Reviewer Suggestions

During the submission process, please suggest three potential reviewers with the appropriate expertise to review the manuscript. The editors will not necessarily approach these referees. Please provide detailed contact information (address, homepage, phone, e-mail address). The proposed referees should neither be current collaborators of the co-authors nor have published with any of the co-authors of the manuscript within the last five years. Proposed reviewers should be from different institutions to the authors.

English Corrections

To facilitate proper peer-reviewing of your manuscript, it is essential that it is submitted in grammatically correct English. Please take professional help for English editing and corrections if needed.

Preprints and Conference Papers

JRCD accepts articles that have previously been made available as preprints provided that they have not undergone peer review. A preprint is a draft version of a paper made available online before submission to a journal.

Expanded and high quality conference papers can be considered as articles if they fulfil the following requirements: (1) the paper should be expanded to the size of a research article; (2) the conference paper should be cited and noted on the first page of the paper; (3) if the authors do not hold the copyright of the published conference paper, authors should seek the appropriate permission from the copyright holder; (4) authors are asked to disclose that it is conference paper in their cover letter and include a statement on what has been changed compared to the original conference paper.

Authorship

JRCD follows the International Committee of Medical Journal Editors (ICMJE) guidelines which state that, in order to qualify for authorship of a manuscript, the following criteria should be observed:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work;AND

- Drafting the work or revising it critically for important intellectual content;AND

- Final approval of the version to be published;AND

- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Those who contributed to the work but do not qualify for authorship should be listed in the acknowledgements.

Any change to the author list should be approved by all authors including any who have been removed from the list. The corresponding author should act as a point of contact between the editor and the other authors and should keep co-authors informed and involve them in major decisions about the publication. We reserve the right to request confirmation that all authors meet the authorship conditions.

Reviewers Recommendation

Authors can recommend potential reviewers. Journal editors will check to make sure there are no conflict of interests before contacting those reviewers, and will not consider those with competing interests. Reviewers are asked to declare any conflicts of interest. Authors can also enter the names of potential peer reviewers they wish to exclude from consideration in the peer review of their manuscript, during the initial submission progress. The editorial team will respect these requests so long as this does not interfere with the objective and thorough assessment of the submission.

Editors and Journal Staff as Authors

Editorial independence is extremely important and JRCD does not interfere with editorial decisions.

Editorial staff or editors shall not be involved in the processing their own academic work. Submissions authored by editorial staff/editors will be assigned to at least two independent outside reviewers. Decisions will be made by other editorial board members who do not have conflict of interests with the author. Journal staff are not involved in the processing of their own work submitted to JRCD.

Conflict of Interests

According to The International Committee of Medical Journal Editors, "Authors should avoid entering into agreements with study sponsors, both for-profit and non-profit, that interfere with authors' access to all of the study's data or that interfere with their ability to analyze and interpret the data and to prepare and publish manuscripts independently when and where they choose."

Authors must identify and declare any personal circumstances or interest that may be perceived as inappropriately influencing the representation or interpretation of reported research results. If there is no conflict of interest, please state "The authors declare no conflict of interest." Any role of the funding sponsors in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript; or in the decision to publish the results must be declared in this section. If there is no role, please state "The funding sponsors had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, and in the decision to publish the results".

Editorial Procedures and Peer-Review

Initial Checks

All submitted manuscripts received by the Editorial Office will be checked by a professional in-house Managing Editor to determine whether they are properly prepared and whether they follow the ethical policies of the journal, including those for human and animal experimentation. Manuscripts that do not fit the journal's ethics policy or do not meet the standards of the journal will be rejected before peer-review. Manuscripts that are not properly prepared will be returned to the authors for revision and resubmission. After these checks, the Managing Editor will consult the journals' Editor-in-Chief or Associate Editors to determine whether the manuscript fits the scope of the journal and whether it is scientifically sound. No judgment on the potential impact of the work will be made at this stage. Reject decisions at this stage will be verified by the *Editor-in-Chief*.

Peer-Review

Once a manuscript passes the initial checks, it will be assigned to at least two independent experts for peer-review. A double-blind review is applied, where authors' identities are not known to reviewers. Peer review comments are confidential and will only be disclosed with the express agreement of the reviewer.

In the case of regular submissions, in-house assistant editors will invite experts, including recommendations by an academic editor. These experts may also include Editorial Board members and Guest Editors of the journal. Potential reviewers suggested by the authors may also be considered. Reviewers should not have published with any of the co-authors during the past five years and should not currently work or collaborate with any of the institutions of the co-authors of the submitted manuscript.

Editorial Decision and Revision

All the articles, reviews and communications published in JRCD go through the peer-review process and receive at least two reviews. The in-house editor will communicate the decision of the academic editor, which will be one of the following:

- ***Accept after Minor Revisions:***
  The paper is in principle accepted after revision based on the reviewer's comments. Authors are given 14 days for minor revisions.

- ***Reconsider after Major Revisions:***
  The acceptance of the manuscript would depend on the revisions. The author needs to provide a point by point response or provide a rebuttal if some of the reviewer's comments cannot be revised. Authors will be asked to resubmit the revised paper within a suitable time frame, and the revised version will be returned to the reviewer for further comments.

- ***Reject and Encourage Resubmission:***
  If additional experiments are needed to support the conclusions, the manuscript will be rejected and the authors will be encouraged to re-submit the paper once further experiments have been conducted.

- ***Reject:***
  The article has serious flaws, and/or makes no original significant contribution. No offer of resubmission to the journal is provided.

All reviewer comments should be responded to in a point-by-point fashion. Where the authors disagree with a reviewer, they must provide a clear response.

Author Appeals

Authors may appeal a rejection by sending an e-mail to the Editorial Office of the journal. The appeal must provide a detailed justification, including point-by-point responses to the reviewers' and/or Editor's comments. The Managing Editor of the journal will forward the manuscript and related information (including the identities of the referees) to the Editor-in-Chief, Associate Editor, or Editorial Board member. The academic Editor being consulted will be asked to give an advisory recommendation on the manuscript and may recommend acceptance, further peer-review, or uphold the original rejection decision. A reject decision at this stage is final and cannot be reversed.

In the case of a special issue, the Managing Editor of the journal will forward the manuscript and related information (including the identities of the referees) to the Editor-in-Chief who will be asked to give an advisory recommendation on the manuscript and may recommend acceptance, further peer-review, or uphold the original rejection decision. A reject decision at this stage will be final and cannot be reversed.

Production and Publication

Once accepted, the manuscript will undergo professional copy-editing, English editing, proofreading by the authors, final corrections and publication on the journal website www.jrcd.pk

Clinical Trials Registration

Registration

Authors are strongly encouraged to pre-register clinical trials with an international clinical trials register or and to cite a reference to the registration in the Methods section. Suitable databases include **clinicaltrials.gov, the EU Clinical Trials Register** and those listed by the World Health Organisation International **Clinical Trials Registry Platform.**

CONSORT Statement

JRCD requires a completed CONSORT 2010 **checklist** and **flow diagram** as a condition of submission when reporting the results of a randomized trial. Templates for these can be found here or on the CONSORT website **(http://www.consort-statement.org)** which also describes several CONSORT checklist extensions for different designs and types of data beyond two group parallel trials. At minimum, your article should report the content addressed by each item of the checklist. Meeting these basic reporting requirements will greatly improve the value of your trial report and may enhance its chances for eventual publication.

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