

19

INTERNATIONAL UNDERGRADUATE MEDICAL RESEARCH CONFERENCE

CHARTING THE COSMOS OF KNOWLEDGE:
FROM RESEARCH TO REALITY

ABSTRACT

BOOK

15TH & 16TH APRIL, 2026

 Undergraduate Medical Research Department PMC

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

MESSAGE FROM THE DEAN

In the name of Allah, the Most Gracious, the Most Merciful.

It is a matter of profound satisfaction and pride to witness the arrival of the 19th Undergraduate Medical Research (UMR) Conference on April 15th and 16th, 2026. For nearly two decades, Peshawar Medical College has championed the idea that research is not merely an academic exercise, but a vital responsibility of the modern physician. This Abstract Book, a collection of rigorous inquiry and scientific discovery, stands as a testament to that enduring commitment.



This year's conference holds a special significance. We find ourselves navigating a world marked by complex global challenges, shifting socio-economic landscapes, and evolving health priorities. Being able to bring this event to fruition despite these demanding global conditions is a matter of great gratitude. It reinforces our belief that the pursuit of science and education must remain steadfast. Our resilience in hosting this forum ensures that our students remain competitive, relevant, and prepared to lead in an ever-changing global healthcare environment.

The breadth of research included in this volume is remarkable, and we are encouraging our students to look beyond the symptoms and explore the systemic and scientific foundations of health. It is through this diversity of thought that we can offer viable, evidence-based solutions to the health issues affecting our nation and the world.

I want to express my sincere appreciation to the 19th UMR Society. This group of young medical, dental, and nursing students has worked to their full potential, demonstrating the leadership and execution necessary to organize an event of such magnitude. Their tireless dedication, alongside the expert guidance of the Director of UMR and our faculty mentors, has been the backbone of this success.

To the participants from across the country: your curiosity is the engine of progress. I am confident that the exchange of ideas over these two days will provide an affable environment for growth and innovation. May your efforts here serve as the foundation for a lifetime of contribution to the field of medicine.

May Allah bless us all. Ameen

Prof. Dr. Hafeez Ur Rahman

Dean,

Peshawar Medical College

MESSAGE FROM DIRECTOR UMR

With the grace and blessings of Allah, it is a moment of immense pride and satisfaction to present the Abstract Book for the 19th Undergraduate Medical Research (UMR) Conference, held on April 15th and 16th, 2026. This compilation serves as a formal record of the intellectual curiosity and collaborative spirit that define our vibrant academic community at Peshawar Medical College.

As we approach nearly two decades of this tradition, the 19th UMR Conference continues to broaden its horizons. This year, we are proud to showcase a diverse array of research spanning across public health, medical education, mental health, and both clinical and basic sciences. This multidisciplinary approach is essential; it reflects the evolving landscape of modern medicine where holistic understanding and integrated solutions are essential to addressing the complex health challenges of our society.

The pages of this book represent the conclusion of months of inquiry and hard work by our young researchers. By engaging in the scientific process, these students are not merely fulfilling an academic requirement; they are developing the critical thinking and problem-solving skills necessary to become the healthcare leaders of tomorrow.

I must express my heartfelt appreciation to the 19th UMR Society. This group of dedicated students has worked with their full potential, demonstrating exceptional leadership and organizational brilliance. They have been the true engine behind this event, managing every detail with passion to ensure this conference is a resounding success.

I would also like to extend my sincere gratitude to the college administration and our esteemed faculty for their unwavering logistical support and mentorship. To our participants, reviewers, and delegates: your contributions are what give this conference its substance and prestige.

We hope that the findings shared within this book spark new ideas, promote lasting professional connections, and serve as a stepping stone for further exploration. May this platform continue to empower our students to reach new heights of excellence.

May Allah bless us all.

Dr. Hala Rajab

Director, Undergraduate Medical Research

MESSAGE FROM THE PRESIDENT 19th UMR SOCIETY 2026

Progress in medicine has never been the result of passive learning, but of curiosity, courage, and disciplined inquiry. It is through asking difficult questions, often in the face of uncertainty, that meaningful breakthroughs emerge. Much like charting the cosmos of knowledge under starry nights, research demands patience, precision, and the determination to move forward even when the path is unclear. From research to reality, every discovery begins with the courage to begin.

I, too, once began as a student unfamiliar with research, uncertain and hesitant. I understand the doubt, the questions, and the fear of stepping forward. But growth does not come from certainty; it comes from persistence, guidance, and the courage to keep moving forward, especially when it feels impossible. To every student reading this, you do not need to have everything figured out to begin; you only need the willingness to try, to question, and to persist. The 19th UMR Conference is not just a platform to present research but a space to discover your potential, challenge your limits, and realize that your ideas have value.



Alhamdulillah, Allah (SWT) has granted me the opportunity to serve and learn as the President of the 19th UMR Society and to lead the organization of this year's conference alongside a dream team whose discipline, commitment, and resilience made it a success. I extend my sincere appreciation to the Director of UMR and the faculty for their mentorship and guidance. To the members of the UMR Society, your dedication and professionalism set the standard for what we achieved together. And to my parents, your sacrifices and unwavering support continue to shape everything I strive to become. I remain deeply grateful.

May this conference ignite in you the same drive it sparked in me, to begin without hesitation, to persist despite doubt, and to recognize that your ideas are not something to hide or second-guess, but to stand tall and present with confidence. Here's to the young researchers who will change the world. In Sha Allah.

Areesh Malik
President, 19th UMR Society 2026

19th Undergraduate Medical Research Society 2026

INTERNATIONAL
19TH UNDERGRADUATE
UMR MEDICAL
RESEARCH
CONFERENCE



MEET THE CORE CABINET



CHARTING THE COSMOS OF KNOWLEDGE:
FROM RESEARCH TO REALITY

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**BASIC &
CLINICAL
SCIENCES**

EFFICACY AND SAFETY OF ATRA PLUS ARSENIC TRIOXIDE VERSUS ATRA PLUS CHEMOTHERAPY IN NEWLY DIAGNOSED ACUTE PROMYELOCYTIC LEUKEMIA: A GRADE-ASSESSED SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Acute promyelocytic leukaemia (APL) is an extremely aggressive malignancy. Although recent advancements in therapy have improved outcomes, differing toxicity profiles remain. The optimal choice between all-trans retinoic acid plus arsenic trioxide (ATRA+ATO) and ATRA plus chemotherapy, in newly diagnosed APL, remains uncertain.

OBJECTIVE(S):

1. To assess the ATRA plus ATO versus ATRA plus chemotherapy of complete remission, overall survival, event-free survival, disease-free survival, and gastrointestinal and hematologic toxicity in patients with newly diagnosed APL.

METHODOLOGY:

A systematic literature search was conducted across databases PubMed (n=812), Embase (n=975), Scopus (n=894), and the Cochrane Library (n=300) for studies comparing ATRA+ATO with ATRA + chemotherapy in newly diagnosed APL. Of 2,981 records found, 681 duplicates were removed, leaving 2,300 records for screening. After a full-text review of 100 reports, 12 studies met the inclusion criteria. Data were analyzed using random and fixed effects models, with subgroup and sensitivity analyses performed to assess heterogeneity.

RESULTS:

In RCTs, ATRA+ATO significantly improved complete remission rates (risk ratio [RR] 1.04, 95% CI 1.02-1.06), disease-free survival (RR 1.22, 95% CI 1.11-1.34), event-free survival (RR 1.25, 95% CI 1.20-1.29) and overall survival (RR 1.07, 95% CI 1.03-1.12) compared with ATRA + chemotherapy observational studies showed consistent findings supporting real world generalizability. There were no significant differences in hepatic toxicity, differentiation syndrome, or thrombocytopenia. ATRA+ATO was associated with an increased risk of QTc prolongation (RR 3.79, 95% CI 1.00–14.36, p = 0.05).

CONCLUSION:

Compared with ATRA plus chemotherapy, ATRA+ATO is associated with superior remission and survival outcomes in newly diagnosed APL, with lower gastrointestinal toxicity but a higher risk of QTc prolongation. These findings support the preferential clinical use of ATRA+ATO with close cardiac monitoring.

KEYWORDS:

Acute Promyelocytic Leukemia, All Trans Retinoic Acid, Arsenic Trioxide, Efficacy, Gastrointestinal Toxicity.

IDENTIFYING FACTORS ASSOCIATED WITH HIGH-RISK OBSTRUCTIVE SLEEP APNEA (OSA) AMONG HYPERTENSIVE PATIENTS: A CASE-CONTROL STUDY IN A TERTIARY CARE HOSPITAL IN PAKISTAN

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Rehman Medical College

INTRODUCTION:

Obstructive sleep apnea (OSA) is a common yet underdiagnosed sleep-related breathing disorder marked by recurrent upper airway collapse, intermittent hypoxia, and sleep fragmentation. Its association with hypertension significantly increases cardiovascular morbidity and mortality. In low- and middle-income countries, limited access to polysomnography leads to delayed diagnosis, highlighting the need for practical screening tools and identification of key risk factors.

OBJECTIVE(S):

1. To identify determinants of high-risk OSA among hypertensive patients in a tertiary care setting in Peshawar, Pakistan.

METHODOLOGY:

This case–control study was conducted from June 1st to September 1st, 2025, at Rehman General Hospital and Rehman Specialist Hospital, Peshawar. A total of 156 hypertensive patients were enrolled through consecutive sampling (78 cases, 78 controls). High-risk OSA was defined using the STOP-BANG questionnaire (score ≥ 3 with additional criteria). Data on sociodemographic characteristics, body mass index, neck circumference, and comorbidities were collected. Statistical analysis included independent t-tests, Chi-square tests, and binary and multivariable logistic regression using SPSS.

RESULTS:

The mean age was 54.3 ± 13.1 years. Age, male gender, body mass index, neck circumference, and ischemic heart disease were significant on bivariate analysis. Multivariable regression identified older age, male gender, and increased neck circumference as independent predictors.

CONCLUSION:

Older age, male gender, and larger neck circumference independently predict high-risk OSA in hypertensive patients. STOP-BANG is a practical screening tool in resource-limited settings.

KEYWORDS:

Obstructive Sleep Apnea, Hypertension, STOP-BANG, HADS.

DIRECT ORAL ANTICOAGULANT DOSE VS DUAL ANTIPLATELET THERAPY AFTER LEFT ATRIAL APPENDAGE CLOSURE IN PATIENTS WITH NONVALVULAR ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Rakhee Lohana, Umama Alam, Adam Umar Ahmed, Javeria Javed, Amna Khan, Muhammad Ansab, Shahzaib Rafi, Zonaira Mushahid, Bushra Nawaz, Muhammad Asad Asif, Shaiza Naseer Khan, Abdul Moiz, Fazeela Bibi, Bilal Aslam, Kamil Ahmad Kamil
Supervisor: Dr. Umama Alam
Dow Medical College

INTRODUCTION:

Antithrombotic therapy following left atrial appendage closure (LAAC) remains controversial due to competing risks of thromboembolism and bleeding. Dual antiplatelet therapy (DAPT) is commonly used; however, device-related thrombosis (DRT) and bleeding complications remain concerns. Direct oral anticoagulants (DOACs) may provide improved efficacy and safety.

OBJECTIVE(S):

1. To compare the efficacy and safety of DOAC therapy versus DAPT following LAAC in patients with non-valvular atrial fibrillation.

METHODOLOGY:

A comprehensive search of PubMed, Embase, and Google Scholar (2020- 2025) identified randomized controlled trials and prospective cohort studies comparing DOACs with DAPT after LAAC. Pooled risk ratios (RR) with 95% confidence intervals (CI) were calculated using fixed- or random-effects models. Heterogeneity was assessed using the I^2 statistic.

RESULTS:

Seven studies comprising 2,103 patients (1,003 DOAC; 1,096 DAPT) were included. DOAC therapy significantly reduced all-cause mortality (RR = 0.55; 95% CI: 0.34–0.89; $p = 0.015$), major bleeding (RR = 0.55; 95% CI: 0.37–0.81; $p = 0.0029$), and DRT (RR = 0.46; 95% CI: 0.24–0.91; $p = 0.026$). No significant differences were observed in stroke (RR = 0.62; 95% CI: 0.26–1.48) or cardiac mortality (RR = 0.87; 95% CI: 0.33–2.33).

CONCLUSION:

DOAC therapy after LAAC is associated with lower all-cause mortality, device-related thrombosis, and major bleeding compared with DAPT, with comparable stroke prevention. Large randomized trials with longer follow-up are warranted to confirm these findings.

KEYWORDS:

Left Atrial Appendage Closure, Direct Oral Anticoagulants, Dual Antiplatelet Therapy, Atrial Fibrillation.

EFFICACY AND SAFETY OF KETAMINE AS AN INDUCTION AGENT FOR TRACHEAL INTUBATION IN CRITICALLY ILL ADULTS INCLUDING PATIENTS WITH SEPSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Tracheal intubation in critically ill adults often causes hemodynamic instability and increased mortality. Etomidate is widely used for its cardiovascular stability but may cause adrenal suppression. Ketamine is an alternative with potential hemodynamic benefits, though concerns about cardiovascular collapse remain. Evidence in septic patients is limited.

OBJECTIVE(S):

1. To compare the efficacy and safety of ketamine versus etomidate for induction during tracheal intubation in critically ill adults.

METHODOLOGY:

A systematic review and meta-analysis of randomized controlled trials were conducted in accordance with PRISMA guidelines. PubMed, Embase, and the Cochrane Library were searched up to January 2026. Random-effects models calculated pooled risk ratios (RRs) with 95% confidence intervals (CIs). Subgroup analyses were done by sepsis status. Evidence certainty was assessed with GRADE.

RESULTS:

Ten trials, including 5,102 patients, were studied. No significant difference in all-cause mortality was found (RR 0.95; 95% CI 0.87–1.04; $I^2 = 0\%$), consistent in septic and non-septic subgroups. Ketamine was associated with lower adrenal insufficiency risk (RR 0.58) but higher cardiovascular collapse risk (RR 1.32). Post-intubation hypotension, vasopressor use, and first-pass success did not differ.

CONCLUSION:

Ketamine and etomidate show similar mortality outcomes in critically ill adults. Ketamine reduces adrenal insufficiency but increases cardiovascular collapse risk. Induction agent selection should be individualized based on patient hemodynamics.

KEYWORDS:

Ketamine, Intubation, Mortality, Intensive Care Units, Bayes Theorem.

ADJUNCTIVE NONINVASIVE BRAIN STIMULATION IN INTENSIVE MOTOR LEARNING THERAPY FOR CHILDREN WITH HEMIPARESIS DUE TO PERINATAL STROKE: A SYSTEMATIC REVIEW AND META-ANALYSIS OF SHAM CONTROLLED TRIALS

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Pak International Medical College

INTRODUCTION:

Perinatal-stroke is a major cause of unilateral cerebral palsy. It leads to persistent hemiparesis, limiting daily activities. Affected children may also develop epilepsy and cognitive or behavioral impairments. Effective interventions remain limited, highlighting the need for interventions to reduce long-term disability and enhance recovery.

OBJECTIVE(S):

1. To determine whether adjunctive NIBS improves motor and functional outcomes in children with hemiparesis following perinatal stroke.

METHODOLOGY:

PubMed, Embase, Cochrane Library, Scopus, Web of Science, and ClinicalTrials.gov were searched up to August 2025, investigating NIBS as an adjunct to upper-limb therapy in children with hemiparesis due to perinatal stroke using PICOT criteria. The primary outcomes were AHA and COPM. The secondary outcomes included the Melbourne Assessment (MA), PedQoL, and safety endpoints like the Box and Block Test (BBT), unaffected hand, and mild itching. Risk of bias assessment was performed using Cochrane RoB. Data analysis was done by RevMan 5.4.1., were performed by independent reviewers, with heterogeneity (assessed by I^2 statistics).

RESULTS:

Four trials with 145 participants met the inclusion criteria. Most included RCTs showed low risk of bias with minor concerns, while one study had a high overall risk. Pooled analyses showed nonsignificant improvement in AHA scores at 6 months (MD = 0.41, 95% CI: -2.44 to 3.26, $p = 0.78$), but revealed a significant increase in COPM scores favoring NIBS (MD = 0.83, 95% CI: 0.140-1.53, $p = 0.02$). Improvements in MA and PedQoL were positive yet not statistically significant. Safety analyses showed no decline in the unaffected hand (MD = -0.26, 95%CI: -3.09 to 2.57, $p = 0.86$), and mild adverse effects were comparable between groups (RR = 1.00, 95% CI: 0.56-1.79, $p = -0.99$).

CONCLUSION:

Adjunctive NIBS appears safe and may modestly improve perceived function in children with hemiparesis secondary to perinatal-stroke, but evidence for objective motor gains remains inconclusive and requires further large-scale studies.

KEYWORDS:

Pediatric, Hemiparesis, Perinatal Stroke, Neuromodulation.

CARDIOVASCULAR OUTCOMES AND VASCULAR SURROGATE MARKERS IN RHEUMATOID ARTHRITIS PATIENTS TREATED WITH ANTI-TNF THERAPY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Rheumatoid arthritis is associated with a significantly increased risk of cardiovascular disease due to chronic systemic inflammation. This study aims to evaluate the impact of anti-TNF therapy on cardiovascular outcomes and surrogate vascular markers in patients with rheumatoid arthritis.

OBJECTIVE(S):

1. This meta-analysis aims to compare the clinical outcomes of the Anti-TNF therapy versus placebo in patients undergoing cardiovascular events during rheumatoid arthritis.

METHODOLOGY:

We searched PubMed, Embase, and Cochrane for randomized controlled trials (RCTs) and observational studies comparing Anti-TNF therapy and placebo in patients. Data were extracted on the basis of outcomes (change in CRP, DAS-28, ESR, SBP, DBP, apolipoproteins, LDL-C, HDL-C, HOM-IR ratio, NT-proBNP and all-cause mortality). Statistical analysis was performed using Review Manager 5.4.

RESULTS:

Ten RCTs involving 19,979 patients were included. The pool data were statistically significant in outcomes like change in CRP (MD = 9.54, 95% CI: 16.12 to 2.96, $p=0.004$), All-cause mortality (MD = 0.50, 95% CI: 0.31 to 0.83, $p=0.007$), change in LDL-C (MD = 0.28, 95% CI: 0.04 to 0.59, $p=0.08$) and change in DAS-28 (MD = 0.73, 95% CI: 1.02 to -0.43, $p < 0.00001$) favoring the intervention group. No significant differences were observed between groups for change in ApoA, change in T. Cholesterol, change in ApoB, change in Triglyceride, change in HDL-C, change in TC-HDL-C, change in ApoB-ApoA1, change in NT-proBNP, change in HOMA-IR ratio, change in SBP, change in DBP, and change in ESR.

CONCLUSION:

Anti-TNF therapy is associated with reduced CRP, LDL-C, DAS-28 and All-cause mortality favoring the intervention group. Suggesting Anti-TNF as a preferable therapy for reducing CVS events in rheumatoid arthritis.

KEYWORDS:

Rheumatoid Arthritis, Anti-TNF Therapy, Cardiovascular Disease, Lipid Profile.

TARGETED SCFV (SINGLE-CHAIN VARIABLE FRAGMENT) DELIVERY THROUGH AN NF-KB-RESPONSIVE GENE CIRCUIT FOR PSORIASIS THERAPY

Fouzia Absar

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INTRODUCTION:

Psoriasis is a chronic inflammatory skin disease affecting approximately 2–3% of the global population and up to 4% of individuals in Pakistan. Current treatment options, including corticosteroids, systemic immunosuppressants, and biologic therapies, are costly and require repeated administration, often leading to relapse and systemic adverse effects. These limitations highlight the need for innovative and targeted therapeutic strategies.

OBJECTIVE(S):

1. To identify key inflammatory regulators involved in psoriasis pathogenesis and design an inflammation-responsive genetic circuit capable of delivering targeted therapy through a single-chain variable fragment (scFv) directed against the IL-17 signaling pathway.

METHODOLOGY:

Publicly available transcriptomic datasets were analyzed to identify differentially expressed genes associated with psoriasis. Based on these findings, a synthetic plasmid-based genetic circuit was designed using BioBrick assembly on a pET-28a (+) backbone. The construct incorporates an NF-κB-responsive promoter, a secretion signal peptide, and an scFv cassette targeting IL-17A and IL-17F. The plasmid design and restriction-digestion patterns were validated in silico using synthetic-biology design tools.

RESULTS:

Differential gene expression analysis demonstrated significant upregulation of inflammatory cytokines associated with psoriasis. Pathway enrichment analysis identified the IL-17 signaling pathway as a major driver of disease pathogenesis, while transcription factor analysis highlighted NF-κB as a key upstream regulator. Based on these findings, an NF-κB-responsive plasmid construct was successfully designed to enable inflammation-dependent expression of therapeutic scFv molecules.

CONCLUSION:

This study develops a novel inflammation-responsive therapeutic strategy for psoriasis. The proposed NF-κB-regulated genetic circuit enables targeted delivery of IL-17-neutralizing scFvs and represents a potential platform for localized and precision-based treatment of inflammatory skin diseases.

KEYWORDS:

Psoriasis, NF-κB, IL-17 Signaling Pathway, Synthetic Biology, Genetic Circuits, Targeted Therapy.

ASSOCIATION OF IRON DEFICIENCY ANEMIA AND FEBRILE CONVULSIONS IN CHILDREN VISITING TERTIARY CARE HOSPITALS OF PESHAWAR

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INTRODUCTION:

Febrile seizures occur among 2- 5% children in developing countries, causing a burden on the health system and neurological morbidity.

OBJECTIVE(S):

1. To determine the frequency of iron deficiency anemia and febrile convulsions among children.
2. To determine the association between iron deficiency anemia and febrile convulsions.
3. To assess the effect of iron deficiency anemia on the recurrence of febrile convulsions in children.

METHODOLOGY:

A descriptive study was conducted on 289 children in tertiary care hospitals in Peshawar. The children with febrile convulsions were included; however, children taking iron supplementation, with neurological disorders, central nervous system infections, metabolic abnormalities, and lacking laboratory reports were excluded. The data were collected using a structured questionnaire via a serial sampling technique. The descriptive and Inferential statistics were performed with a chi-square test, with a p-value ≤ 0.05 as statistically significant.

RESULTS:

Among the children, 58% were male and 42.2% were female. The febrile convulsion occurred at 13-24 months (13.8%), with a duration of 5-15 minutes (15.2%), a family history (17.3%), and 10 episodes per year. The serum ferritin levels were significantly associated with febrile convulsions and heredity ($p = 0.019$). Age at first seizure and a positive family history were strongly correlated ($p = .001$). The paired t-test showed significant clinical markers (low serum ferritin levels, red cell indices) with p-values < 0.001 . Significant correlations were also observed between convulsions and age, duration, and number of episodes.

CONCLUSION:

Febrile convulsions were associated with family history, hematological markers, heredity, age, duration, and recent episodes. Reducing risk factors can improve children's condition.

KEYWORDS:

Morbidity, Febrile Convulsions, Children, Iron Deficiency, Anemia.

A CASE OF B-THALASSEMIA WITH FRAMESHIFT MUTATION AND TYPE 3 VON WILLEBRAND DISEASE IN A PEDIATRIC PATIENT

Ammad Khan

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INTRODUCTION:

Beta-thalassemia major and Type 3 Von Willebrand Disease (VWD) are rare inherited hematologic disorders posing significant pediatric diagnostic challenges. Beta-thalassemia results from HBB mutations that impair hemoglobin synthesis, leading to chronic anemia and transfusion dependence. Type 3 VWD, the most severe form, involves near-complete Von Willebrand Factor (VWF) deficiency, resulting in severe bleeding. Their coexistence is exceedingly rare, complicating management.

OBJECTIVE(S):

1. To present a rare pediatric case of coexistent beta-thalassemia major and Type 3 VWD, highlighting clinical presentation, genetic findings, and multidisciplinary management.

METHODOLOGY:

A 3-year-old female presented with spontaneous epistaxis at 19 months. Evaluation included blood counts, ferritin, coagulation profiles, and genetic sequencing. Workup revealed microcytic anemia (Hb 6.9–8.6 g/dL), MCV 73 fL, and ferritin 1778 ng/mL. VWF antigen was 1.8%. Molecular analysis identified an HBB frameshift mutation across exons 8-9.

RESULTS:

Diagnosed with both disorders, the patient received five RBC transfusions and 24 FFP units. Current therapy includes Deferiprone, hydroxyurea, folic acid, vitamin K, multivitamins, Vitamin E 200 mg, Calcium + Vitamin D3 supplement, and a combination of Furosemide and Spironolactone. This dual pathology creates complex dilemmas regarding iron overload, alloimmunization, and potential splenectomy.

CONCLUSION:

This case underscores the necessity of integrated genetic and coagulation screening for overlapping hematologic symptoms. Early, tailored multidisciplinary care is essential for mitigating hemorrhagic and thrombotic risks in complex dual pathologies.

KEYWORDS:

Beta-Thalassemia Major, Type 3 Von Willebrand Disease, Pediatric Hematology, Frameshift Mutation, Iron Overload.

ADVANCEMENTS IN ARTIFICIAL INTELLIGENCE-BASED DIAGNOSTIC TOOLS USED TO DETECT FUNGAL INFECTIONS: A SYSTEMATIC REVIEW

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INTRODUCTION:

Fungal infections are considered a global health concern, resulting in high morbidity and mortality rates, especially in immunocompromised individuals. Traditional diagnostic techniques suffer from lots of challenges, especially in resource-limited settings. Artificial intelligence (AI) and machine learning (ML) tools have demonstrated potential to enhance diagnostic accuracy and efficiency. This study assesses the progress, precision, and efficacy of AI-driven diagnostic tools for fungal infections within various clinical contexts in comparison to traditional procedures.

OBJECTIVE(S):

1. To assess the progress, precision, and efficacy of AI-driven diagnostic tools for fungal infections within various clinical contexts in comparison to traditional procedures.

METHODOLOGY:

A systematic review was conducted according to PRISMA principles. Literature searches were conducted in multiple databases, focusing on research employing AI models to diagnose fungal infections. The inclusion criteria were research that compared AI-based tools with conventional diagnostic methods in terms of sensitivity, specificity, and accuracy. Data extraction and quality evaluation were performed utilizing validated instruments, such as the Methodological Index for Non-Randomized Studies (MINORS).

RESULTS:

Eleven research studies met the inclusion criteria: six retrospective and five prospective investigations. AI models have improved diagnostic accuracy, sensitivity, and specificity compared to traditional methods. However, differences in dataset quality, model validation, and real-world applicability remain as limitations.

CONCLUSION:

AI-driven diagnostic technologies provide significant benefits in identifying fungal infections, improving the speed and accuracy of diagnoses. However, additional extensive investigations and clinical validation are required to improve model generalizability and facilitate smooth incorporation into healthcare systems.

KEYWORDS:

Artificial Intelligence, Diagnostics, Fungal Infection, Systematic Review.

EFFECTS OF AN HERBAL GEL FOR THE PREVENTION OF RADIATION-DERMATITIS RELATED SYMPTOMS: AN OPEN-LABEL RANDOMIZED CLINICAL TRIAL

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INTRODUCTION:

Radiation Dermatitis is one of the most recurrent and troublesome side effects of radiotherapy, affecting patients treated for various cancers. Herbal gels, due to their anti-inflammatory and skin repair are being considered a therapeutic option; their overall effectiveness remains uncertain.

OBJECTIVE(S):

1. To assess the effectiveness of herbal gels on radiation-induced dermatitis (RID) in patients receiving radiotherapy.

METHODOLOGY:

A comprehensive literature search of different databases was conducted in accordance with PRISMA 2020 guidelines. Only randomized controlled trials (RCTs) were included. In this meta-analysis, the topical herbal gel (Intervention) was compared to usual skin care products (Comparison) to assess their impact on the incidence or severity of RID(Outcome). The Cochrane Handbook's recommended tool was used for assessing potential bias. Risk ratios (RR) with 95% confidence intervals (CI) were pooled using a random-effects model, and heterogeneity was evaluated using the I^2 statistic.

RESULTS:

Pooled analysis showed no statistical significance in preventing grades >1, >2, and >3 dermatitis. However, benefits were observed for secondary outcomes. Herbal gels reduced the risk of moderate erythema (RR = 0.62, 95% CI 0.39–0.98) and severe erythema (RR = 0.49, 95% CI 0.33–0.74), with minimal heterogeneity across studies.

CONCLUSION:

While herbal gels do not significantly prevent the onset of RID, they may reduce the symptoms. These findings highlight that herbal gels represent a viable enhancement, making them a low-cost adjunct to routine skincare during radiotherapy. Further large-scale, well-designed investigations are required to formalize these benefits into standard clinical practice.

KEYWORDS:

Radiation Dermatitis, Herbal Gels, Erythema.

TRANSCATHETER AORTIC VALVE REPLACEMENT VS SURGICAL AORTIC VALVE REPLACEMENT IN PATIENTS WITH REDUCED EJECTION FRACTION: A SYSTEMATIC REVIEW AND METAANALYSIS

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INTRODUCTION:

Patients with severe aortic stenosis and reduced left ventricular ejection fraction (LVEF) are high-risk, and the choice between trans-catheter aortic valve replacement (TAVR) and surgical aortic valve replacement (SAVR) remains unclear.

OBJECTIVE(S):

1. Compare the efficacy, safety, functional outcomes, and complications of TAVR versus SAVR in patients with severe aortic stenosis and reduced LVEF.

METHODOLOGY:

A systematic review and meta-analysis were conducted according to PRISMA and Cochrane guidelines. PubMed, Google Scholar, and Cochrane Library were searched for RCTs and cohort studies comparing TAVR and SAVR with reduced LVEF. Effect estimates were pooled using random-effects models and reported as RR or MD with 95% CI. Primary outcomes were (1 year survival, 4 and 30-day mortality).

RESULTS:

Seven studies were included. Non-significant differences were observed for 1-year survival (RR 0.98; 95% CI 0.93 – 1.04), 4-year survival (RR 0.64; 95% CI 0.40 – 1.05), or 30-day mortality (RR 0.93; 95% CI 0.43 – 2.01). TAVR reduced acute kidney injury (RR 0.51), stroke (RR 0.67), new-onset atrial fibrillation (RR 0.56), shortened hospitalization (MD – 4.65 days), and improved 1-year aortic valve area (MD 0.24). TAVR was associated with higher major bleeding (RR 2.09), permanent pacemaker implantation (RR 2.29), and mild paravalvular leak (RR 5.09).

CONCLUSION:

(TAVR), (SAVR) provides comparable short and mid-term survival outcomes. Trans-catheter replacement was associated with lower risk of complications.

KEYWORDS:

Pacemaker, Trans-catheter, Aortic stenosis, Stroke.

RISK FACTORS ASSOCIATED WITH NEONATAL RESPIRATORY DISTRESS SYNDROME

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INTRODUCTION:

Neonatal Respiratory Distress Syndrome (NRDS) is a leading cause of neonatal morbidity and mortality, particularly among late preterm infants. Despite advancements in maternal and neonatal care, NRDS remains a burden in healthcare settings across Peshawar.

OBJECTIVE(S):

1. This study aimed to identify maternal and neonatal factors associated with NRDS among neonates in tertiary care hospitals of Peshawar.

METHODOLOGY:

An unmatched case-control study was conducted from September 2024 to February 2025, involving 300 neonates (150 cases and 150 controls). Data were collected through structured questionnaires and medical records, focusing on maternal and neonatal factors. Neonates with major congenital anomalies were excluded. Statistical analyses, including logistic regression and chi-square tests, were applied. Variables with p-value < 0.05 in multivariable analysis were considered significant.

RESULTS:

Maternal antenatal care visits were associated with NRDS [AOR = 1.139; 95% CI (1.065 – 1.217)]. Substance exposure during pregnancy showed a strong association [AOR = 4.795], while administration of steroids before 30 weeks appeared protective [AOR = 19.872]. Congenital anomalies reduced the likelihood of NRDS [AOR = 0.293]. Neonates requiring immediate respiratory support had higher odds of NRDS, with the strongest association seen in those with respiratory issues [AOR = 213.2].

CONCLUSION:

Substance exposure during pregnancy and lack of antenatal care were identified as maternal risk factors for NRDS. Absence of congenital anomalies, administration of maternal steroids before 30 weeks, and consistent ANC visits were found to reduce the risk. Strengthening prenatal care services and minimizing harmful exposures during pregnancy are essential for reducing the burden of NRDS.

KEYWORDS:

Neonates, Respiratory Distress Syndrome, Maternal Risk Factors, Antenatal Care.

CLINICAL SELF-EFFICACY FOR BASIC AND INVASIVE NURSING SKILLS AND ASSOCIATED FACTORS AMONG FINAL YEAR BSN INTERNEES: A MULTI-CENTER STUDY

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Supervisor: Mr. Zohaib

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INTRODUCTION:

Clinical self-efficacy is a critical determinant of clinical competence and patient safety for nursing internees transitioning into professional practice. Despite its significance, the disparity between perceived confidence in foundational versus invasive skills and the underlying factors influencing this gap remains insufficiently explored within the local nursing education framework.

OBJECTIVE(S):

1. To evaluate CSE levels regarding basic and invasive nursing interventions
2. To identify key predictors of self-efficacy among final-year Bachelor of Science in Nursing (BSN) internees.

METHODOLOGY:

A quantitative cross-sectional design was employed, recruiting 169 final-year BSN internees from three private nursing colleges in Peshawar. Data were collected via a demographic survey and a validated five-point Likert Clinical Self-Efficacy Scale. Statistical significance was set at $p < 0.05$.

RESULTS:

Participants exhibited robust self-efficacy in basic procedures, notably insulin administration ($M = 4.03 \pm 1.14$) and sterile dressing ($M = 3.99 \pm 1.23$). Conversely, significant deficits were observed in invasive competencies, specifically intravenous-piggyback administration ($M = 2.85 \pm 1.30$) and PEG tube feeding ($M = 2.41 \pm 1.40$). Clinical supervision quality and frequency of independent practice were significant positive predictors of overall CSE. Notably, male gender was significantly associated with higher confidence levels in invasive skill sets.

CONCLUSION:

Internees demonstrate proficiency in basic tasks; targeted interventions are required to bridge the gap in invasive competencies. Implementing structured simulation-based training and enhanced supervisory models is essential to bolster professional readiness.

KEYWORDS:

Clinical Self-Efficacy, Nursing Internees, Clinical Competence, Invasive Nursing Skills, Peshawar.

EFFECT OF HIGHER VS LOWER INTRAOPERATIVE PEEP ON POSTOPERATIVE PULMONARY COMPLICATIONS IN PATIENTS UNDERGOING THORACIC SURGERY WITH ONE-LUNG VENTILATION, SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

One-lung ventilation during thoracic surgery increases the risk of hypoxemia, ventilation–perfusion mismatch, and postoperative pulmonary complications. Although positive end-expiratory pressure (PEEP) is routinely applied to improve oxygenation, the optimal intraoperative PEEP level remains controversial due to potential hemodynamic compromise and uncertain impact on clinical outcomes.

OBJECTIVE(S):

1. To evaluate the effect of high intraoperative positive end-expiratory pressure (PEEP) compared with low PEEP or zero end-expiratory pressure (ZEEP) on oxygenation during one-lung ventilation in thoracic surgery.

METHODOLOGY:

Databases including PubMed, Embase, and Cochrane were searched from inception to January 25, 2026, for RCTs comparing high intraoperative PEEP to low PEEP or zero end-expiratory pressure (ZEEP) using PICOT criteria. Data extraction, risk of bias assessment using Cochrane ROB 2.0, and analysis using random-effects models in R-software were performed by independent reviewers; heterogeneity was assessed by I^2 statistics.

RESULTS:

Nine RCTs involving 12,059 patients (5,985 intervention and 6,074 control) were included after screening 436 records per PRISMA guidelines. High PEEP significantly improved PaO₂ (MD 66.56, 95% CI 17.02-116.11), reduced shunt (MD -5.91, 95% CI: -9.39 to -2.44), but decreased cardiac index (MD -0.43, 95% CI: -0.67 to -0.20) compared to ZEEP/low PEEP; no postoperative pulmonary complications were found (RR 1.22, 95% CI: 0.35-4.26).

CONCLUSION:

High intraoperative PEEP during thoracic surgery with one-lung ventilation increases oxygenation, reduces shunt without improving postoperative pulmonary complications, though it impacts hemodynamics like cardiac index, vascular resistance. Subgroup analyses of PEEP levels' influence on certain outcomes favoring individualize titration methods.

KEYWORDS:

Post-Operative Pulmonary Complications, Oxygenation, and Hypoxemia.

RELATIONSHIP BETWEEN PERCEIVED STRESS AND GPA AMONG BSN STUDENTS: AN ER-BASED STUDY

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INTRODUCTION:

Nursing students face substantial stress during clinical rotations, especially in the ER, which can impair concentration, learning, and academic performance, making it essential to understand its impact.

OBJECTIVE(S):

1. This study aimed to compare stress and academic performance among students in public and private nursing colleges in Peshawar.
2. To examine the relationship between perceived stress (PSS-10) and GPA.

METHODOLOGY:

An analytical cross-sectional study was conducted among 334 BSN students from five public and private nursing colleges between September 2025 to February 2026. Participants completed a structured questionnaire capturing demographics, GPA, and perceived stress using PSS-10. Data analysis took 3 months, followed by 1 month for the report. Descriptive statistics summarized participant characteristics, and Pearson correlation assessed the association between stress and GPA.

RESULTS:

The majority of participants were female (88.3%), aged 18–22 years (71%). The majority reported moderate stress (88.7%). Students in public colleges demonstrated significantly higher stress scores ($M = 20.78$, $SD = 3.99$) than those in private colleges ($M = 19.71$, $SD = 4.00$; $p = 0.015$). Most participants maintained a GPA above 3.0 (69.5%). Over half (52.1%) believed that ER-related stress negatively affected their GPA. Pearson's correlation analysis revealed a statistically significant moderate negative relationship between perceived stress and GPA ($r = -0.40$, $p < 0.001$).

CONCLUSION:

ER clinical rotations impose moderate to high stress on nursing students, adversely affecting academic outcomes. Targeted interventions, mentorship, counseling, and stress management programs are recommended to support students' well-being and academic success.

KEYWORDS:

Nursing Students, Emergency Room, Perceived Stress, Academic Performance.

SURGICAL MANAGEMENT OF A 20-KG GIANT DESMOID TUMOR OF THE ANTEROLATERAL ABDOMINAL WALL: A CASE REPORT

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INTRODUCTION:

Abdominal wall desmoid-type fibromatosis is a distinctive fibroblastic soft tissue tumor characterized by a high risk of recurrence despite lacking metastatic potential. Extraordinary tumor size and post-surgical favorable outcome highlight its importance.

CASE PRESENTATION:

A 33-year-old male from Afghanistan developed a progressively enlarged right anterolateral abdominal wall mass following trauma in a road traffic accident, which extended from the 12th rib to the diaphragm, compressing the liver inferiorly and the gut laterally. Computed tomography (CT) revealed a massive, encapsulated lesion inseparable from the perihepatic surface, producing significant mass effect. Histopathological examination demonstrated a spindle cell proliferation consistent with desmoid-type fibromatosis, with tumor margins less than 1 mm and diffuse β -catenin positivity, whereas negativity for Desmin, S100, and SMA supported the definitive diagnosis. An exploratory laparotomy performed via a midline incision revealed approximately 20 kg of tumor, excised in piecemeal fashion. Additional procedures included right chest intubation and cholecystectomy. The abdomen was closed in reverse order, with postoperative instructions of nil by mouth (NBM) and vitals monitoring. At discharge, the patient was stable, with no evidence of recurrence at 6 months' follow-up post-operatively.

RESULTS:

Desmoid-type fibromatosis is an uncommon neoplasm characterized by a high risk of recurrence. Histology confirmed the diagnosis, and surgical excision remains the definitive treatment approach. In this patient, delayed consultation ultimately required complex excision of the giant tumor. Successful removal highlights the importance of timely recognition, individualized surgery, and vigilant follow-up.

CONCLUSION:

Highlighting the importance of early detection of desmoid tumors is essential to limit progression and reduce surgical complexity, enabling smaller resections with lower morbidity and risk of recurrence.

KEYWORDS:

Desmoid-Type Fibromatosis, Fibroblastic Soft Tissue Tumor, Surgical, Morbidity.

EFFICACY OF SINGLE-PILL, TRIPLE ANTIHYPERTENSIVE THERAPY IN PATIENTS WITH UNCONTROLLED HYPERTENSION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Hypertension is defined as persistently elevated systemic arterial blood pressure, diagnosed when systolic blood pressure (SBP) is ≥ 140 mmHg and/or diastolic blood pressure (DBP) ≥ 90 mmHg. It is a major preventable cause of cardiovascular disease and premature mortality worldwide. The single-pill triple combination of perindopril (ACE inhibitor), amlodipine (calcium channel blocker), and indapamide (thiazide-like diuretic) has gained clinical relevance due to additive mechanisms targeting vascular resistance, endothelial function, and fluid balance.

OBJECTIVE(S):

1. To evaluate the efficacy and safety of single-pill triple therapy for blood pressure control.

METHODOLOGY:

PubMed, Embase, Cochrane Library, and Web of Science were searched. Randomized controlled trials and observational studies in adult hypertensive patients were included. Primary outcomes were SBP, DBP, and heart rate. Secondary outcomes included ambulatory SBP and DBP measured in the morning, daytime, and nighttime.

RESULTS:

Six studies ($n = 1,489$) showed a significant reduction in office SBP (MD -1.39 mmHg, 95% CI -2.59 to -0.19 ; $I^2 = 51\%$). Office DBP showed borderline reduction (MD -1.62 mmHg; $I^2 = 86\%$), becoming non-significant after sensitivity analysis. Nighttime SBP (MD -2.15 mmHg; $I^2 = 0\%$), daytime SBP (MD -1.49 mmHg; $I^2 = 0\%$), ambulatory SBP (MD -1.85 mmHg; $I^2 = 0\%$), and daytime DBP (MD -2.26 mmHg; $I^2 = 29\%$) were significantly reduced. Ambulatory DBP were non-significant. Heart rate decreased modestly (MD -1.25 bpm; $I^2 = 0\%$).

CONCLUSION:

The single-pill triple combination is effective and well-tolerated compared with mono- and dual therapy for blood pressure control in hypertensive patients.

KEYWORDS:

Perindopril, Hypertension, Indapamide, Amlodipine, Triple Therapy, Blood Pressure.

FAHR'S SYNDROME IN A YOUNG ADULT MALE: A CASE OF SEIZURE AND COGNITIVE DECLINE SECONDARY TO HYPOPARATHYROIDISM

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INTRODUCTION:

Fahr's syndrome is a rare neurological condition characterized by bilateral intracranial calcifications secondary to metabolic or endocrine abnormalities, most commonly hypoparathyroidism. This condition is distinct from Fahr's disease (primary familial brain calcification), which is genetically inherited.

CASE PRESENTATION:

A 30-year-old South Asian Pakistani man presented with sudden-onset generalized tonic-clonic seizures and progressive cognitive decline. Neuroimaging revealed bilateral, symmetrical calcifications in the basal ganglia, thalami, cerebellar dentate nuclei, periventricular regions, and centrum semiovale. Laboratory evaluation revealed severe hypocalcemia, hypomagnesemia, and markedly reduced parathyroid hormone levels, consistent with hypoparathyroidism. The patient was treated with calcium supplementation, calcitriol, vitamin D, magnesium replacement, and antiepileptic therapy, resulting in clinical stabilization of the patient.

RESULTS:

Subsequent laboratory monitoring demonstrated gradual normalization of magnesium levels, which facilitated improvement in serum calcium concentrations when combined with calcium carbonate and calcitriol therapy. He remained seizure-free on follow-up with stabilization of cognitive symptoms.

CONCLUSION:

Fahr's syndrome should be considered in young patients presenting with seizures and cognitive impairment when characteristic intracranial calcifications are identified. Early recognition and correction of metabolic abnormalities can improve outcomes.

KEYWORDS:

Fahr's Syndrome, Intracranial Calcification, Hypoparathyroidism, Seizures, Ct Imaging.

COMPARATIVE EFFICACY OF BIOLOGIC THERAPIES FOR PLAQUE PSORIASIS: A NETWORK META-ANALYSIS

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INTRODUCTION:

Biologics have significantly improved outcomes for psoriatic patients. However, with multiple agents targeting different immunological pathways, comparative efficacy data are essential for optimal treatment selection.

OBJECTIVE(S):

1. To compare the efficacy of eight biologic therapies in achieving a Psoriasis Area Severity Index 75 response in patients with plaque psoriasis.

METHODOLOGY:

A systematic review and network meta-analysis were conducted. Open-access RCTs involving adults with plaque psoriasis treated with adalimumab, ustekinumab, secukinumab, ixekizumab, bimekizumab, guselkumab, risankizumab, or tildrakizumab were included. PASI 75 at approximately 12 weeks was the outcome. A frequentist random-effects model was used.

RESULTS:

The study included 29 Randomised Controlled Trials (13,923 participants), and 8 biologics were analyzed. All agents outperformed placebo, with 11 of the combinations out of 325 having significant inconsistency. Ixekizumab 80 mg was the best treatment compared to placebo and all other biologics, while increasing the dose of all drugs was not always associated with increasing efficacy, except in the cases of Ustekinumab.

CONCLUSION:

Ixekizumab 80 mg demonstrated the highest efficacy in achieving PASI-75. Although all biologics outperformed placebo, further research accounting for transitivity assumptions and risk-of-bias assessment is needed to generate higher-confidence comparative estimates.

KEYWORDS:

Psoriasis, Psoriasis Area Severity Index 75, Biologics, Biologic Therapies.

TICAGRELOR-BASED ANTIPLATELET THERAPY VERSUS ASPIRIN ALONE AFTER CORONARY ARTERY BYPASS GRAFTING: A SYSTEMATIC REVIEW AND META-ANALYSIS WITH TRIAL SEQUENTIAL ANALYSIS

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INTRODUCTION:

Coronary artery bypass grafting (CABG) is a common surgical treatment for coronary artery disease, but long-term success is limited by saphenous vein graft (SVG) occlusion. Aspirin remains the standard lifelong antiplatelet therapy; however, graft failure and adverse events persist. More potent agents such as ticagrelor have been proposed, though evidence has been inconsistent, and concerns about bleeding risk remain.

OBJECTIVE(S):

1. To compare ticagrelor-based therapy with aspirin alone after CABG.

METHODOLOGY:

We conducted a systematic review and meta-analysis of randomized controlled trials (RCTs) comparing ticagrelor-based therapy with aspirin monotherapy in patients undergoing CABG. A comprehensive literature search of major databases was performed through August 2025. The primary endpoint was SVG failure. Secondary outcomes included stroke, myocardial infarction, repeat revascularization, major bleeding, composite cardiovascular events, and all-cause mortality. Pooled risk ratios (RR) with 95% confidence intervals (CI) were calculated using a random-effects model.

RESULTS:

Five RCTs, including more than 4,000 patients, were identified. Ticagrelor-based therapy significantly reduced SVG failure compared with aspirin alone (RR 0.62, 95% CI: 0.50–0.78, $p < 0.0001$, $I^2 = 0\%$). No significant differences were observed for stroke, myocardial infarction, repeat revascularization, major bleeding, composite cardiovascular events, or all-cause mortality. Subgroup analyses demonstrated no meaningful difference between ticagrelor monotherapy and ticagrelor plus aspirin, with results consistent across studies.

CONCLUSION:

Ticagrelor-based therapy improved graft patency after CABG but did not translate into better major clinical outcomes. While ticagrelor may be considered in high-risk patients, routine use cannot be recommended until further robust trials confirm clinical benefit.

KEYWORDS:

CABG, Ticagrelor-Based Therapy, Aspirin, SVG Failure.

EFFICACY OF NASAL HIGH-FLOW THERAPY VERSUS STANDARD OXYGEN THERAPY IN HYPOXEMIC RESPIRATORY FAILURE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Respiratory failure is a serious clinical condition characterized by impaired gas exchange, leading to hypoxemia or hypercapnia. Standard oxygen therapy (SOT) has traditionally been used for management; however, nasal high-flow therapy (NHFT) has emerged as a promising alternative due to its ability to deliver heated and humidified oxygen at high flow rates.

OBJECTIVE(S):

1. To assess whether NHFT improves clinical outcomes compared with SOT in patients with acute respiratory failure.

METHODOLOGY:

This systematic review and meta-analysis were conducted according to PRISMA and Cochrane guidelines. Randomized controlled trials comparing NHFT with SOT in patients with acute respiratory failure were included. Data were pooled using a random-effects model in RevMan 5.4. The certainty of evidence was evaluated using the GRADE approach. A predefined subgroup analysis was performed based on the severity of hypoxemia (moderate vs severe).

RESULTS:

Sixteen randomized controlled trials involving 5,805 patients were included. NHFT showed no significant difference compared with SOT in 28-day mortality (RR = 1.00; 95% CI: 0.85–1.17) or 90-day mortality (RR = 0.87; 95% CI: 0.58–1.29). Similarly, no significant differences were observed in length of hospital stay, length of ICU stay, or the need for intubation. However, oxygen saturation showed improvement with NHFT after sensitivity analysis. The certainty of evidence ranged from low to moderate across outcomes.

CONCLUSION:

NHFT demonstrated comparable clinical outcomes to SOT in patients with acute respiratory failure, with potential improvement in oxygenation.

KEYWORDS:

Nasal High-Flow Therapy, Standard Oxygen Therapy, Conventional Oxygen Therapy, Hypoxemic Respiratory Failure.

MOLECULAR CHARACTERIZATION OF ENTEROBACTER AEROGENES AND EVALUATION OF PHAGE-BASED THERAPEUTIC STRATEGY

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INTRODUCTION:

Enterobacter aerogenes is an opportunistic Gram-negative bacterium responsible for severe hospital-acquired infections, particularly in immunocompromised patients. As part of the ESKAPE group, it exhibits high antibiotic resistance, necessitating alternative therapeutic strategies.

OBJECTIVE(S):

1. To explore the molecular profiling of multidrug-resistant (MDR) E. aerogenes and evaluate bacteriophage therapy as a potential treatment.

METHODOLOGY:

A total of 385 clinical specimens were collected from infected patients at a tertiary care hospital in Peshawar. E. aerogenes was identified using standard microbiological techniques, including culturing, biochemical testing, and 16S rRNA sequencing. Antibiotic susceptibility was assessed via disk diffusion following CLSI guidelines. Mutational analysis of bla_{SHV} and bla_{TEM} genes was conducted through PCR amplification and Sanger sequencing, with bioinformatics tools used to detect novel resistance mutations. Bacteriophages were isolated from hospital wastewater and screened via spot and plaque assays. Phage morphology was characterized using transmission electron microscopy (TEM), and host range analysis was performed.

RESULTS:

Among 385 isolates, 180 were confirmed as E. aerogenes. The antibiogram revealed resistance to 15 out of 24 tested antibiotics, confirming its MDR status. Novel mutations were identified in bla_{SHV} and bla_{TEM} genes. A lytic bacteriophage, phiEap-2, was isolated and exhibited activity against MDR E. aerogenes.

CONCLUSION:

The study underscores the alarming antibiotic resistance in E. aerogenes and highlights the potential of bacteriophage therapy. Further in vivo studies and phage-antibiotic synergy research are recommended.

KEYWORDS:

Enterobacter Aerogenes, MDR, Genomic Analysis, Phage Therapy, Antimicrobial Innovation.

DOSE-DEPENDENT EFFICACY AND SAFETY OF OLEZARSEN (TRYNGOLZA) IN HYPERTRIGLYCERIDEMIA: A SYSTEMATIC REVIEW AND META-ANALYSIS WITH EXTENSIVE SUBGROUP ANALYSES

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INTRODUCTION:

Hypertriglyceridemia increases the risk of atherosclerotic cardiovascular disease and acute pancreatitis. Current triglyceride-lowering therapies show variable efficacy and tolerability. Olezarsen (Tryngolza), an antisense oligonucleotide targeting apolipoprotein C-III (ApoC-III), represents a novel therapeutic strategy.

OBJECTIVE(S):

1. To evaluate the dose-dependent efficacy and safety of Olezarsen versus placebo in adults with hypertriglyceridemia.

METHODOLOGY:

A systematic review and meta-analysis of randomized controlled trials was conducted. PubMed, Embase, Cochrane Library, and ClinicalTrials.gov were searched through November 25, 2025. The primary outcome was the percent change in triglycerides (TG). Secondary outcomes included lipid parameters, TG <150 mg/dL achievement, and safety. Risk of bias was assessed using RoB 2.0. Random-effects models were applied.

RESULTS:

Five RCTs (six comparisons) involving 2,744 participants were included. Olezarsen significantly reduced TG levels (mean difference -55.42%; 95% CI: -60.37 to -50.46; $p < 0.00001$), with consistent efficacy at 50 mg and 80 mg doses. The likelihood of achieving TG <150 mg/dL was markedly increased (RR: 6.98). Significant reductions were observed in ApoC-III, ApoB, VLDL-C, non-HDL-C, and remnant cholesterol, with increases in ApoA1 and HDL-C. Overall, adverse events were comparable to placebo, although injection-site reactions increased dose-dependently, while acute pancreatitis was reduced.

CONCLUSION:

Olezarsen provides substantial triglyceride reduction with favorable lipid modulation and acceptable safety. The 50 mg dose provides the optimal balance of efficacy and tolerability. Longer-term studies are needed to confirm the durability of the benefit and cardiovascular outcomes.

KEYWORDS:

Hypertriglyceridemia, Olezarsen, Apolipoprotein C-III, Triglycerides, Meta-Analysis, Systematic Review, Cardiovascular Risk.

RISK OF MENINGITIS FOLLOWING POSTERIOR FOSSA DECOMPRESSION WITH DURAPLASTY IN CASES OF CHIARI MALFORMATION TYPE 1 AND SYRINGOMYELIA

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INTRODUCTION:

Chiari malformation type I with syringomyelia results from impaired CSF flow at the craniovertebral junction. Posterior fossa decompression with duraplasty is the standard treatment but carries risks of postoperative complications, including meningitis and CSF leak.

OBJECTIVE(S):

1. To determine the risk of postoperative meningitis after posterior fossa decompression with duraplasty in CM-1 patients with syringomyelia.
2. To assess the incidence of postoperative complications, including pseudo-meningocele, CSF leak, and reoperation.
3. To evaluate associations between patient and surgical factors, including graft type and postoperative complications.

METHODOLOGY:

A prospective cohort study was conducted at the Department of Neurosurgery, HMC, Peshawar, from January 2024 to January 2025. Sixty patients with Chiari malformation type I and syringomyelia underwent posterior fossa decompression with duraplasty and were followed for 12 months to assess postoperative meningitis, CSF leak, pseudo-meningocele, and reoperation. Data were analyzed using SPSS, with $p < 0.05$ considered significant.

RESULTS:

The mean age was 39 ± 16.4 years, with female predominance (75%). Non-autologous grafts were used in 76.7% of cases. The incidence of postoperative meningitis was 5%. Pseudo-meningocele occurred in 8.3% of patients, while CSF leak and reoperation were observed in 5% each. Patients receiving non-autologous grafts demonstrated higher risks of meningitis (RR = 3.29), pseudo-meningocele (RR = 2.20), CSF leak, and reoperation (RR = 1.64 each). However, no statistically significant associations were identified between complications and demographic or clinical variables ($p > 0.05$).

CONCLUSION:

Posterior fossa decompression with duraplasty is an effective procedure for CM-1 with syringomyelia but carries a risk of postoperative complications, particularly meningitis, emphasizing the need for careful surgical planning and post-operative monitoring.

KEYWORDS:

Chiari malformation Type-I, Syringomyelia, Posterior Fossa Decompression.

MICROVASCULAR DECOMPRESSION FOR TRIGEMINAL NEURALGIA: EFFICACY AND SAFETY

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Supervisor: Dr. Muhammad Ali Noman

Peshawar Medical College

INTRODUCTION:

Trigeminal neuralgia is a chronic neuropathic pain disorder characterized by recurrent electric shock-like facial pain, mostly caused by vascular compression of the trigeminal nerve. While medical therapy is first-line management, microvascular decompression remains the most effective surgical treatment for long-term pain relief.

OBJECTIVE(S):

1. To assess the efficacy and safety of microvascular decompression for trigeminal neuralgia.

METHODOLOGY:

Forty patients were enrolled in this study, having an age of 18 years or older, presenting with trigeminal neuralgia. Trigeminal neuralgia was diagnosed based on International Headache Society criteria, and those who failed to respond to conservative treatment. Each patient underwent a standardized Microvascular decompression procedure. Post-operatively, all the patients were assessed for pain relief using the Visual Analogue Scale. Patients were monitored for post-op complications such as facial palsy, CSF leak, diplopia, and nausea. Data were gathered and evaluated using SPSS 26.

RESULTS:

The mean age of the patients in our study was 43.45 ± 14.82 years. Male patients had a higher frequency (62.5%). The maxillary division (V2) was involved in 57.5% of the cases. The procedure resulted in excellent pain relief in 35 patients (87.5%) who reported a complete absence of pain post-operatively. Mild and moderate pain was reported by 7.5% and 5.0% of patients, respectively. Regarding the complications, nausea occurred in 10 (25.0%) cases, diplopia in 3 cases (7.5%), cerebrospinal fluid leakage occurred in 2 cases (5.0%), and facial palsy in 1 case (2.5%).

CONCLUSION:

Microvascular decompression for trigeminal neuralgia is an effective and safe surgical technique.

KEYWORDS:

Microvascular Decompression, Trigeminal Neuralgia, Retro-Mastoid Craniectomy.

THE IMPACT OF ACUTE NORMOVOLEMIC HEMODILUTION ON BLOOD TRANSFUSIONS IN CARDIAC SURGERY: A GRADE-ASSESSED SYSTEMATIC REVIEW AND META-ANALYSIS OF 30 RANDOMIZED CONTROLLED TRIALS

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INTRODUCTION:

Acute normovolemic hemodilution (ANH) is an intraoperative blood conservation technique in which a portion of the patient's blood is withdrawn after anesthesia induction and replaced with crystalloid or colloid solutions to maintain normovolemia.

OBJECTIVE(S):

1. To assess ANH's efficacy and safety in reducing allogeneic transfusion requirements and improving hemorrhagic outcomes among adult patients undergoing cardiac surgery.

METHODOLOGY:

Following PRISMA guidelines, we searched PubMed, Embase, and Cochrane databases from inception to May 2025 for RCTs comparing ANH versus usual care in adult cardiac surgery patients. Thirty trials (n=4,473) were included after Rayyan dual screening. Cochrane RoB evaluated quality; RevMan random-effects models pooled RR (dichotomous) and MD (continuous) outcomes, using I^2 for heterogeneity and subgroups for ANH volume and surgery type.

RESULTS:

ANH significantly lowered allogeneic blood transfusion incidence by 27% (RR = 0.73, 95% CI 0.60-0.88; $p=0.0008$; $I^2 = 72\%$), red blood cell units transfused (MD = -0.75 units, 95% CI -1.41 to -0.08; $p = 0.020$), fresh frozen plasma (MD = -0.21 units, 95% CI -0.39 to -0.03; $p = 0.0248$), and total blood loss (MD = -64.35 mL, 95% CI -114.57 to -14.13; $p = 0.012$). Chest tube drainage, surgical revision rates, and stroke incidence showed no significant differences.

CONCLUSION:

ANH substantially reduces perioperative transfusion needs and blood loss in cardiac surgery, supporting its role in patient blood management. However, moderate-to-high heterogeneity and variable ANH protocols underscore the need for standardized, high-quality trials to refine optimal application and address long-term safety.

KEYWORDS:

Acute Normovolemic Hemodilution, Cardiac Surgery, Allogeneic Blood Transfusion.

COMPARATIVE EFFECTIVENESS OF STEROID-SPARING AGENTS AND GLUCOCORTICOID TAPERING REGIMENS IN GIANT CELL ARTERITIS: A SYSTEMATIC REVIEW AND A ROBUST BAYESIAN NETWORK META-ANALYSIS

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INTRODUCTION:

Giant cell arteritis (GCA) is the most common systemic vasculitis in adults over 50 and is associated with substantial morbidity and glucocorticoid-related toxicity. While several biologic therapies have emerged, comparative effectiveness data are limited by heterogeneous trial designs and the absence of head-to-head studies.

OBJECTIVE(S):

1. To rigorously evaluate the comparative efficacy and safety of glucocorticoid-sparing therapies in GCA, providing definitive hierarchical rankings to update existing clinical guidelines and practice.

METHODOLOGY:

We conducted a systematic review and Bayesian network meta-analysis of RCTs (PubMed, Embase, Scopus, ClinicalTrials.gov; 2002 - Oct 2025) evaluating glucocorticoid-free remission, relapse-free survival, and safety. To address heterogeneity, placebo arms were stratified by tapering duration (26-week vs 52-week), resulting in two disconnected network components. Random-effects Bayesian models generated odds ratios (ORs) with 95% credible intervals (CrIs), and treatments were ranked using SUCRA values.

RESULTS:

Fourteen trials (1,686 patients) evaluating 12 interventions demonstrated consistently low heterogeneity ($I^2 = 10\text{--}29\%$). Weekly subcutaneous tocilizumab alone achieved statistical significance, reducing relapse risk by 81% versus placebo alongside a 26-week glucocorticoid taper (OR 0.19, 95% CrI 0.06–0.77). Secukinumab and intravenous tocilizumab led to glucocorticoid-free remission, despite wide credible intervals. TNF- α inhibitors lacked efficacy. Safety profiles were comparable, with low serious infection rates (6–7%) across all treatments.

CONCLUSION:

IL-6 pathway inhibition (tocilizumab) remains the most robustly supported biologic for GCA. IL-17 inhibition shows promise, while TNF- α inhibition is ineffective. Wide credible intervals emphasize persistent uncertainty across the biologic landscape. Head-to-head trials comparing tocilizumab against upadacitinib using standardized outcomes are urgently needed.

KEYWORDS:

Biological Therapies, TNF-A Inhibition, Giant Cell Arteritis.

IVABRADINE FOR ANTHRACYCLINE-INDUCED CARDIOTOXICITY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Peshawar Medical College

INTRODUCTION:

Anthracyclines are widely used in chemotherapy but are limited by cardiotoxicity, including ventricular dysfunction and heart failure. Ivabradine reduces heart rate without negative inotropic effects, but its role in preventing anthracycline-induced cardiotoxicity remains unclear.

OBJECTIVE(S):

1. To evaluate the efficacy and safety of Ivabradine in preventing or treating anthracycline-induced cardiotoxicity in cancer patients receiving anthracycline-based chemotherapy.

METHODOLOGY:

This systematic review and meta-analysis was conducted according to the Cochrane Handbook and PRISMA guidelines. PubMed, Cochrane Central, and ClinicalTrials.gov were searched from inception to August 2025, with additional manual screening. Eligible randomized controlled trials included cancer patients receiving anthracycline-based chemotherapy. Primary outcomes were change in left ventricular ejection fraction (LVEF) and incidence of cardiac dysfunction or heart failure. Secondary outcomes included systolic and diastolic blood pressure, global longitudinal strain (GLS), diastolic dysfunction, heart rate, and NT-proBNP. Data were analyzed using Review Manager 5.4.1.

RESULTS:

Three RCTs involving 210 patients (95 Ivabradine, 115 placebo) were included. Ivabradine showed no statistically significant effect on LVEF (MD = 0.32, $p = 0.61$), heart rate (MD = -4.11 , $p = 0.08$), systolic blood pressure ($p = 0.57$), NT-proBNP ($p = 0.40$), GLS, or diastolic dysfunction. A borderline significant reduction in diastolic blood pressure was observed (MD = -3.27 , $p = 0.05$). Adverse events were infrequent and generally mild.

CONCLUSION:

Ivabradine was well tolerated but did not show significant efficacy in preventing anthracycline-induced cardiotoxicity. Larger trials are needed to clarify its role.

KEYWORDS:

Ivabradine, Anthracycline-Induced Cardiotoxicity, Meta-Analysis.

CATHETER ABLATION VERSUS MEDICAL THERAPY FOR ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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INTRODUCTION:

Atrial fibrillation (AF) is a highly prevalent cardiac arrhythmia associated with increased mortality and morbidity. In this systematic review and meta-analysis, we performed a comprehensive synthesis of published literature to compare the efficacy and safety of catheter ablation (CA) and medical therapy (MT) for AF.

OBJECTIVE(S):

1. To compare the efficacy and safety of CA versus MT in patients with AF, focusing on atrial arrhythmia recurrence, mortality, cardiovascular hospitalization, stroke, major bleeding, and improvement in left ventricular ejection fraction (LVEF).

METHODOLOGY:

We searched PubMed, Embase, and Cochrane Central for RCTs comparing CA with MT in AF. A random-effects model was used to calculate risk ratios and hazard ratios with 95% confidence intervals. The primary outcome was recurrence of atrial arrhythmia. Secondary outcomes included all-cause mortality, cardiovascular hospitalization, major bleeding, stroke, improvement in left ventricular ejection fraction (LVEF), and major adverse cardiac events.

RESULTS:

Thirty-three studies with 7,852 patients (CA = 3999; MT = 3853) were included. CA significantly reduced recurrence of atrial arrhythmia (RR, 0.47; 95% CI, 0.40–0.55; $p < 0.00001$), all-cause mortality (RR, 0.67; 95% CI, 0.55–0.81; $p < 0.00001$), and cardiovascular hospitalization (RR, 0.52; 95% CI, 0.39–0.70; $p < 0.00001$). CA also improved LVEF% (MD, 6.47; 95% CI, 3.44–9.50; $p < 0.00001$) compared with MT. No statistically significant differences were observed for stroke or major bleeding. Subgroup analysis suggested greater benefit of CA in younger patients, men, and non-diabetics.

CONCLUSION:

CA is superior to MT for maintaining sinus rhythm and reducing hospitalization and mortality in AF, supporting earlier use, especially in younger patients and men. Further studies are needed to assess long-term outcomes.

KEYWORDS:

Atrial Fibrillation (AF), Catheter Ablation (CA), Atrial Arrhythmia Recurrence, Left Ventricular Ejection Fraction (LVEF).

EFFICACY AND SAFETY OF OLEZARSEN IN HIGH-RISK HYPERTRIGLYCERIDEMIC PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS WITH DOSE-RESPONSE AND OBESITY SUB-GROUPS ANALYSIS:

Aizaz Anwar Khalid, Ahmad Khan, Ahmad Ali, David Song, Nara Miriam Machealson
Supervisor: Nara Miriam Machealson
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INTRODUCTION:

Severe hypertriglyceridemia (HTG) increases the risk of atherosclerotic cardiovascular disease and pancreatitis, with residual risk persisting despite conventional therapies. Olezarsen, an antisense oligonucleotide targeting apolipoprotein C-III (ApoC-III), has emerged as a novel treatment, though optimal dosing and the impact of obesity remain unclear.

OBJECTIVE(S):

1. To evaluate the efficacy and safety of Olezarsen in high-risk hypertriglyceridemic patients, with subgroup analyses by dose and obesity status.

METHODOLOGY:

A PRISMA-compliant meta-analysis of RCTs searched five databases (to October 2025) for adults with hypertriglyceridemia receiving Olezarsen versus placebo. Primary outcomes were triglyceride and ApoC-III changes; secondary outcomes included other lipids and safety. Random-effects models calculated mean differences and risk ratios, analyzing dose and obesity subgroups.

RESULTS:

Six RCTs were included. Olezarsen significantly reduced triglycerides ($\approx -30\%$ to -65%) and ApoC-III (~ -60 units), with consistent reductions in VLDL-C and non-HDL-C. Benefits were similar in obese and non-obese patients, with no significant interaction for most outcomes. HDL-C increased, more prominently in obese individuals, while LDL-C effects were inconsistent. Moderate and high doses showed comparable efficacy without a clear dose-response relationship.

Safety was comparable to placebo, with no increase in overall or serious adverse events. Injection-site reactions were more frequent. ALT/AST elevations ($>3\times$ ULN) showed a possible increase, particularly in obese patients, though events were rare. Renal events, thrombocytopenia, and mortality were inconclusive.

CONCLUSION:

Olezarsen significantly improves triglyceride-rich lipoproteins with a favorable safety profile. Efficacy is consistent across BMI groups, and moderate doses appear sufficient. Larger, long-term trials are needed.

KEYWORDS:

Olezarsen, Apolipoprotein C-III (ApoC-III), Severe Hypertriglyceridemia (HTG)

SAFETY AND EFFICACY OF SHUNT SURGERY IN IDIOPATHIC NORMAL PRESSURE HYDROCEPHALUS: A GRADE-ASSESSED SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Supervisor: Utraksh Kohli
Peshawar Medical College

INTRODUCTION:

Idiopathic normal pressure hydrocephalus (iNPH) is a potentially reversible neurological disorder characterized by gait disturbance, cognitive impairment, and urinary dysfunction. Cerebrospinal fluid (CSF) shunting is the primary treatment, but strong evidence regarding its effectiveness and safety remains limited.

OBJECTIVE(S):

1. To assess the efficacy and safety of CSF shunt surgery compared with conservative or placebo management in adults with idiopathic normal pressure hydrocephalus.

METHODOLOGY:

A systematic database search identified five RCTs involving 266 participants comparing ventriculoperitoneal or lumboperitoneal shunting with conservative or placebo management. Outcomes were pooled using random-effects models. Primary endpoints included gait performance, cognitive outcomes, and functional status, while secondary outcomes assessed shunt-related complications. Evidence certainty was evaluated using the GRADE framework.

RESULTS:

Shunt surgery significantly improved gait velocity (mean difference [MD] = 0.21 m/s; 95% CI: 0.12–0.29; $p < 0.001$), corresponding to a moderate standardized effect (SMD ≈ 0.65). Cognitive outcomes showed no significant improvement (MD = 0.70; 95% CI: –0.24 to 1.65). Functional disability measured by the modified Rankin Scale showed no meaningful change (MD = –0.57; 95% CI: –1.85 to 0.72). Shunting increased the risk of subdural hematoma or hemorrhage (risk ratio [RR] = 5.59; 95% CI: 1.01–30.81).

CONCLUSION:

Shunt surgery improves gait in iNPH, while cognitive and functional benefits remain uncertain. The increased risk of subdural hemorrhage highlights the need for careful patient selection and monitoring. Larger RCTs are needed to clarify long-term outcomes.

KEYWORDS:

Idiopathic Normal Pressure Hydrocephalus, Shunt, Surgery, Ventriculoperitoneal Shunt, Subdural Hematoma.

POST-OPERATIVE OUTCOMES IN OPIOID-FREE VS OPIOID-BASED ANESTHETIC IN PATIENTS UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

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Nowshera Medical College

INTRODUCTION:

Laparoscopic cholecystectomy (LC) is a commonly performed procedure for cholelithiasis and cholecystitis, where anesthetic technique significantly influences postoperative outcomes. Conventional opioid-based anesthesia (OBA) is widely used but is associated with adverse effects such as nausea, vomiting, and delayed recovery. Opioid-free anesthesia (OFA), utilizing agents like dexmedetomidine, lidocaine, and ketamine, is emerging as a promising alternative.

OBJECTIVE(S):

1. To compare postoperative outcomes of OFA versus OBA in patients undergoing laparoscopic cholecystectomy.

METHODOLOGY:

A systematic search of PubMed, ClinicalTrials, and Cochrane databases was conducted up to May 2025. Five studies reporting postoperative outcomes of OFA versus OBA were included. Pooled results were expressed as mean difference (MD) with 95% confidence intervals (CI). Heterogeneity was assessed using the I^2 statistic.

RESULTS:

OFA demonstrated better postoperative pain control at 6, 12, and 24 hours compared with OBA. The incidence of nausea and vomiting was significantly lower with OFA. However, the time to awakening was longer in OFA. No significant difference was observed in the overall quality of recovery.

CONCLUSION:

OFA provides better pain control and reduces postoperative nausea and vomiting compared with OBA, though it prolongs awakening time. Its effect on the quality of recovery remains uncertain, highlighting the need for larger trials.

KEYWORDS:

Opioid-Free Anesthesia, Opioid-Based Anesthesia, Postoperative Pain, Quality of Recovery.

PREVALENCE OF HELICOBACTER PYLORI IN BIOPSIED PATIENTS WITH DYSPEPSIA AND GERD: A RETROSPECTIVE INSIGHT

Muhammad Umair, Shaheer Alam, Ayesha Ibrar, Shafaq Faheem, Talia Azad
Supervisor: Fazal Manan
Nowshera Medical College

INTRODUCTION:

Helicobacter pylori is a gram-negative bacterium, which is found to be the culprit of various diseases ranging from gastric to duodenal ulcer to serious conditions. A detailed understanding of its gross and histopathological features is necessary to control its infectivity and treatment.

OBJECTIVE(S):

1. We aim to find the current trend and respective correlation of H. Pylori infection in patients with chronic dyspepsia and GERD who underwent EGD at Shifa International Hospital, Islamabad.

METHODOLOGY:

We conducted a 6-month retrospective study at Shifa International Hospital, Islamabad, to find the prevalence of H. Pylori in the biopsy samples of adult patients who underwent EGD for dyspepsia and GERD.

RESULTS:

Age, gender, endoscopic findings, and histopathological results were noted and analyzed for possible association. The burden of H. pylori has decreased to 42% as compared to the previously reported 88.3% in the same center. Age and gender showed no significant association. A statistically significant association was noted between the severity of gastritis, noted by endoscopic findings and biopsy results. The frequency of H. Pylori was highest in patients with mild gastritis. The Cochran-Mantel-Haenszel test revealed that the odds of positive H. pylori result for every one-unit increase in severity of gastritis increases by 38.3%.

CONCLUSION:

The severity of gastritis positively affects the histopathological testing for H. Pylori. Since this was a single-center study, making it multicenter, including the pediatric population, and eliminating observer bias will further improve the study and provide a more detailed insight.

KEYWORDS:

Helicobacter Pylori, Gastritis, Endoscopic Findings, Biopsy.

THE IMPACT OF PREOPERATIVE STATIN THERAPY ON POSTOPERATIVE OUTCOMES IN PATIENTS UNDERGOING MAJOR ABDOMINAL SURGERY

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Peshawar Medical College

INTRODUCTION:

Major abdominal surgeries are associated with a high risk of postoperative complications, impacting patient recovery and healthcare costs. Statins, known for their lipid-lowering properties, also possess anti-inflammatory and immunomodulatory effects that may improve surgical outcomes. However, the impact of preoperative statin therapy on postoperative outcomes remains unclear.

OBJECTIVE(S):

1. This review aimed to evaluate the effects of preoperative statin therapy on postoperative complications, including infection rates, cardiovascular events, thromboembolic incidents, hospital stay duration, and mortality in patients undergoing major abdominal surgery.

METHODOLOGY:

A comprehensive search of PubMed, CENTRAL, Embase, Web of Science, and Scopus was conducted for studies published from 2010 to 2023. The review included randomized controlled trials, cohort studies, and case-control studies involving adult patients receiving preoperative statin therapy. Data extraction focused on postoperative outcomes, and study quality was assessed using appropriate appraisal tools.

RESULTS:

A total of 45 studies with 36,750 patients were included. Preoperative statin therapy significantly reduced postoperative infections (RR = 0.75, 95% CI: 0.68-0.83), cardiovascular events (OR = 0.78, 95% CI: 0.66-0.92), thromboembolic incidents (OR = 0.82, 95% CI: 0.70-0.97), and hospital stay by 1.7 days (95% CI: -2.3 to -1.2). No significant effect on mortality was observed (RR = 0.90, 95% CI: 0.79-1.03).

CONCLUSION:

Preoperative statin therapy may reduce complications and hospital stay in major abdominal surgery, supporting its inclusion in preoperative care, particularly for high-risk patients.

KEYWORDS:

Statin Therapy, Immunomodulatory Effect, Major Abdominal Surgery.

EFFICACY AND SAFETY OF CHEMOTHERAPY WITH AND WITHOUT IMMUNOTHERAPY (IMMUNE CHECKPOINT INHIBITORS) IN TREATMENT OF OVARIAN CANCER: AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS

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Khyber Medical College

INTRODUCTION:

Integration of immune checkpoint inhibitors (ICIs) into oncological interventions is a major advancement. This study evaluates the efficacy and safety of chemotherapy (CT) with and without ICIs in ovarian cancer (OC).

OBJECTIVE(S):

1. To compare the efficacy and safety of chemotherapy with versus without immune checkpoint inhibitors in patients with ovarian cancer.

METHODOLOGY:

Randomized controlled trials (RCTs) were systematically searched through PubMed, Cochrane Library, Web of Science, Google Scholar, ClinicalTrials.gov, and Grey Matters. English RCTs comparing CT with and without ICIs in OC were included, without restrictions on demographics or histology. The primary outcomes were overall survival (OS), progression-free survival (PFS), complete response (CR), objective response rate (ORR), and stable disease (SD). Secondary outcomes were adverse events (AEs), grade III-V AEs, treatment-related AEs (TRAEs), grade III-V TRAEs, treatment discontinuation, and AE-related mortality. RoB 2.0, GRADE and RevMan 5.1 were used.

RESULTS:

Six RCTs (n = 3467, CT+ICI = 1849, CT alone = 1618) were included. PFS significantly favoured CT+ICI (HR = 0.90, 95% CI: 0.82-0.99, p= 0.03, I2= 0%). Two- and three-year OS showed non-significant trends favoring CT+ICI (RR = 1.03, p = 0.20; RR = 1.17, p = 0.13). Grade III-V AEs (RR = 1.07, p = 0.02), TRAEs (RR = 1.10, p = 0.004), and treatment discontinuation (RR = 1.78, p = 0.01, I2= 64%) were significantly higher with CT+ICI. All studies had low risk of bias, with high-certainty evidence for key outcomes.

CONCLUSION:

Integration of ICIs with CT demonstrated higher efficacy and lower safety in OC patients.

KEYWORDS:

Ovarian Cancer, Chemotherapy, Immune Checkpoint Inhibitors, Overall Survival.

COMPARATIVE ANALYSIS OF DEGS IN SPORADIC AND FAMILIAL AMYOTROPHIC LATERAL SCLEROSIS FOR DRUG REPURPOSING STRATEGIES

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INTRODUCTION:

Amyotrophic Lateral Sclerosis (ALS) is a fatal motor neuron disease, with sporadic cases (90–95%) and familial forms linked to genetic mutations. Despite its global burden and limited treatment options, identifying differentially expressed genes (DEGs) is key to understanding ALS and developing new therapies. This study compares DEGs in sALS and fALS and explores potential drug repurposing.

OBJECTIVE(S):

1. To identify DEGs between sporadic and familial ALS samples using bioinformatics tools.
2. To conduct Gene Ontology and pathway enrichment analyses.
3. To investigate drug-gene interactions to identify drugs for repurposing in ALS treatment.
4. To validate findings through literature review and functional enrichment analyses.

METHODOLOGY:

Gene expression data from the GEO database (GSE11581) were normalized using quality control and batch-effect correction. Differentially expressed genes (DEGs) were identified using DESeq2 ($p < 0.05$, adjusted $p < 0.05$). Drug-gene interactions from DGIdb were filtered (score ≥ 25) and analyzed in Cytoscape. Findings were validated through literature and ALS pathway comparison, with functional enrichment assessed using DAVID, Reactome, and KEGG.

RESULTS:

7,741 DEGs were identified, of which 130 genes for sporadic ALS and 78 genes for familial ALS were highlighted as highly significant. Key genes included SOD1, C9orf72, and UBE3A. Drug-gene interaction analysis revealed potential drugs for repurposing, such as Riluzole, Masitinib, and Tadalafil. Enrichment analysis highlighted pathways like neuroinflammation and protein homeostasis, linked to ALS pathology.

CONCLUSION:

This study identifies key DEGs and potential drug candidates for ALS, supporting precision medicine approaches. Drug repurposing, including Riluzole and Masitinib, shows promise for improving ALS treatment.

KEYWORDS:

ALS, Gene Expression, Drug Repurposing, Molecular Markers.

COMPARISON OF FLACS VS CONVENTIONAL PHACOEMULSIFICATION FOR COMPLEX CATARACTS IN VITRECTOMIZED EYES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Femtosecond Laser-assisted cataract surgery (FLACS) and conventional phacoemulsification (CPS) have been extensively studied and compared in simple cataract patients; limited research exist on their use in post-vitrectomy cataract cases. This study aims to fill this gap and provide evidence to guide clinical decision-making.

OBJECTIVE(S):

1. To determine the safety and effectiveness of FLACS compared to CPS in vitrectomized eyes, to inform evidence-based surgical decision-making in high-risk cataract patients.

METHODOLOGY:

A PRISMA-based SMRA was conducted across PubMed, Cochrane Central, Embase, and Scopus up to March 2026. Studies including FLACS versus CPS in vitrectomized eyes were included. Pooled analyses were accessed using mean difference (inverse-variance) and risk ratio (Mantel–Haenszel). Heterogeneity was accessed using (I²) statistics.

RESULTS:

Five studies involving 365 eyes (FLACS:180, CPS:185) were included. Primary outcomes includes Best Corrected Visual Acuity (BCVA), Intraocular pressure (IOP) and Endothelial cell density (ECD)), FLACS was correlated with the BCVA postoperative being the best one at every point in time (Day 1: [MD -0.28; 95% CI (-0.35, -0.22)]; Week 1: [MD -0.22; 95% CI (-0.29, -0.16)]; 1 Month: [MD -0.17; 95% CI (-0.23, -0.11)]; 3 Month: [MD-0.15; 95% CI (-0.21, -0.10)]. ECD was greater with FLACS (MD 219.72; 95% CI 123.16, 316.29). IOP was statistically insignificant.

CONCLUSION:

FLACS offers better visual recovery, stronger endothelium, and a significant decrease in the corneal edema compared to CPS without any intraoperative or postoperative complications making it a safe, effective, and most preferable surgery in cases of vitrectomized eye.

KEYWORDS:

FLACS, Conventional Phacoemulsification, Vitrectomized Eyes.

SAFETY AND EFFICACY OF CONJOINED UNIFICATION VENOPLASTY OF TYPE C PORTAL VEIN RECONSTRUCTION IN LIVING DONOR LIVER TRANSPLANTATION

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INTRODUCTION:

Type C portal vein (PV) anatomy, with separate anterior and posterior branches, complicates living donor liver transplantation (LDLT) due to challenging reconstruction. The conventional PV Y-Graft (PYG) often requires extra grafts, prolonging surgery and raising risks of thrombosis or biliary strictures. Conjoined Unification Venoplasty (CUV), used at our center, unites both branches directly, potentially simplifying surgery and reducing complications.

OBJECTIVE(S):

1. This study compared CUV and PYG in Type C PV anatomy. A retrospective review of 950 LDLT recipients (March 2019–July 2025) at PKLI&RC identified 60 Type C PV anatomy donors.

METHODOLOGY:

Recipients underwent CUV (n=48) or PYG (n=12). Data included demographics, graft weight, graft-to-recipient weight ratio, ischemia times, blood loss, PV patency, complications, and survival. Data were analyzed using IBM SPSS v27. Analyses used Mann–Whitney U/t- tests for continuous variables and chi-square/Fisher’s exact tests for categorical. $P < 0.05$ was considered significant. Institutional Review Board approval was obtained.

RESULTS:

This study assessed the safety and efficacy of the Conjoined Unification Venoplasty (CUV) technique for both short- and long-term outcomes in living donor liver transplantation (LDLT). Of 60 recipients, 35 (58.3%) were male; the mean age was 25 ± 6.4 years. CUV was used in 48 (80%) and PYG in 12 (20%). Graft weights were comparable ($p=0.978$). CUV yielded shorter cold ischemia time (42.5 min vs. 73.0 min, $p = 0.005$), shorter warm ischemia time (36.0 min vs. 51.5 min, $p = 0.029$), and lower blood loss (300 mL vs. 400 mL, $p = 0.002$). One-year survival was 100% with PYG and 87.5% with CUV. PV complications were infrequent (6.3% vs. 8.3%, $p > 0.999$).

CONCLUSION:

In conclusion, the CUV technique demonstrated superior intraoperative outcomes, including shorter ischemia times and reduced blood loss, compared to PYG in LDLT recipients. However, the lower one-year survival rate in the CUV group (87.5% vs. 100%) warrants further investigation despite comparable graft weights and similar portal vein complication rates.

KEYWORDS:

Type C Portal Vein (PV), Living Donor Liver Transplantation (LDLT), Conjoined Unification Venoplasty (CUV).

NEUROPLASTICITY-ENHANCING INTERVENTIONS FOR PEDIATRIC STROKE RECOVERY: A SYSTEMATIC REVIEW AND GRADE-ASSESSED META-ANALYSIS

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Supervisor: Priscilla Clarita Sirait

Peshawar Medical College

INTRODUCTION:

Multiple therapies, including pharmacologic agents, non-invasive brain stimulation, behavioural and robotic rehabilitation, and stem cell-based interventions aimed at enhancing neuroplasticity. These are of significance in improving recovery.

OBJECTIVE(S):

1. We conducted this meta-analysis and systematic review to determine the efficacy, safety, and clinical impact of neuroplasticity-enhancing therapies for motor function, daily function independence, and quality of life (QoL) improvement after stroke in children and adolescents.

METHODOLOGY:

A thorough search was conducted across PubMed, Embase, clinical trials, and Cochrane Central Register of Controlled Trials for relevant randomized and non-randomized controlled trials, cohorts up to Dec 2025. Mean difference (MD) and 95% CI were used to assess the effectiveness and safety of therapies. Main outcomes were improvement in motor function, QoL, and daily function independence.

RESULTS:

A total of 9 studies were included. There was a robust and drastic significant improvement in motor function assessed through the AHA scale with a pooled MD of 4.42 (95% CI: 3.28 to 5.56; $p < 0.0001$). There was also a significant improvement in QoL with a pooled MD of 1.53 (95% CI: 1.37 to 1.70) assessed through the COPM-S scale and a pooled MD of 4.00 (95% CI: 3.58 to 4.43) assessed through the PedsQL. Significant improvements occur in daily function independence using the COPM-P scale (MD: 1.67; 95% CI: 1.55 to 1.79).

CONCLUSION:

PSMA-PET/CT-guided salvage radiotherapy significantly improves failure-free and biochemical progression-free survival compared with conventional SRT, with comparable grade 2 toxicity but a modest increase in grade 3 adverse events. These findings support PSMA-PET/CT-based salvage radiotherapy, while the need for prospective validation persists.

KEYWORDS:

Our Findings Support The Application Of Neuroplasticity-Enhancing Therapies, Including Multimodal Interventions For Pediatric Stroke Recovery.

COMPARATIVE EVALUATION OF MARGINAL BONE LOSS IN IMMEDIATE LOADING VS. DELAYED LOADING OF SINGLE-TOOTH IMPLANTS IN THE POSTERIOR MANDIBLE - A 6-MONTH CLINICAL STUDY

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INTRODUCTION:

Dental implants are a predictable modality for replacing missing teeth; however, the optimal timing of prosthetic loading remains controversial. Immediate loading reduces treatment time and improves patient comfort, whereas delayed loading has traditionally been considered more reliable. Marginal bone loss (MBL) is a key indicator of implant success, particularly in the posterior mandible where occlusal forces are greater.

OBJECTIVE(S):

1. To evaluate and compare marginal bone loss associated with immediate and delayed loading protocols of single-tooth implants in the posterior mandible over a 6-month period.

METHODOLOGY:

A prospective comparative clinical study was conducted on 30 patients requiring single-tooth implants in the posterior mandible. Participants were divided into two groups: immediate loading (n=15; loading within one week) and delayed loading (n=15; loading after 3–4 months). Standardized periapical radiographs were obtained at baseline (time of loading) and at 6 months. Marginal bone levels were measured using ImageJ software and analyzed using SPSS (version XX). Independent t-test and paired t-test were applied, with $p < 0.05$ considered statistically significant.

RESULTS:

At 6 months, mean marginal bone loss was 0.74 ± 0.21 mm in the immediate loading group and 0.69 ± 0.18 mm in the delayed loading group. The difference was not statistically significant ($p=0.42$). Both groups showed a significant increase in MBL over time ($p < 0.05$), remaining within clinically acceptable limits.

CONCLUSION:

Immediate loading demonstrated comparable marginal bone loss to delayed loading, suggesting it is a reliable and time-efficient option without compromising short-term peri-implant bone stability.

KEYWORDS:

Marginal Bone Loss, Immediate Loading Vs. Delayed Loading, Single-Tooth Implants, Posterior Mandible.

FREQUENCY OF HEPATITIS B AND C VIRUS INFECTION IN PATIENTS SEEKING ORAL HEALTH CARE AT A PRIVATE DENTAL COLLEGE: A TWO-YEAR RETROSPECTIVE STUDY

Ayesha Hameed, Zakia Ghani
Supervisor: Dr. Abbas Saleem

INTRODUCTION:

Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections remain significant public health concerns, particularly in dental settings where cross-infection risk is high. Assessing their frequency among dental patients is essential for effective infection control.

OBJECTIVE(S):

1. To determine the frequency of HBV (HBs Ag) and HCV (anti-HCV) infections, analyze demographic distribution, evaluate association with gender, and compare the frequency of both infections.

METHODOLOGY:

A two-year retrospective study (1st January 2024 to 31st December 2025) was conducted at Peshawar Dental College. Data from 19,871 patients were collected from Oral Pathology records, including demographics and serological status. HBs Ag and anti-HCV were assessed using immune chromatographic testing (ICT). Data were analyzed using SPSS version 19. Mean \pm SD was calculated, and chi-square test was applied with $p \leq 0.05$ considered significant.

RESULTS:

The mean age was 37.18 ± 17.82 years (range 4–95). Among participants, 56% were males and 44% females. Frequency of HBs Ag positivity was 11.9% and anti-HCV was 9.8%. Male-to-female ratio among seropositive cases was approximately 1.23:1 for HBV and 1.24:1 for HCV. No significant association was found between hepatitis status and gender ($p=0.580$).

CONCLUSIONS:

A notable frequency of HBV and HCV infections was observed among dental patients, with no significant gender association. These findings emphasize the importance of strict infection control measures and routine screening in dental practice.

KEYWORDS:

Hepatitis B, Hepatitis C, Hbs Ag, Anti-HCV, Dental Patients.

**PUBLIC &
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RECOGNIZING DISEASE MONGERING: AN EXPLORATORY QUALITATIVE STUDY AMONG MEDICAL PRACTITIONERS OF PESHAWAR

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INTRODUCTION:

Disease mongering involves medicalizing normal health variations or exaggerating illness for commercial gain. Influenced by pharmaceutical marketing, media, and patient demand, it raises ethical concerns through overdiagnosis and unnecessary treatment. Awareness of disease mongering among medical practitioners in Pakistan remains underexplored.

OBJECTIVE(S):

1. To explore the awareness, knowledge, and perceptions of disease mongering among medical practitioners and examine its perceived impact on clinical practice.

METHODOLOGY:

An exploratory qualitative study was conducted in Peshawar, Pakistan, from June to September 2025, involving twelve medical practitioners from public and private healthcare institutions across multiple specialties. Participants with at least five years of clinical experience were recruited using purposive sampling. Data were collected through semi-structured, in-depth interviews and analyzed using thematic analysis with NVivo version 15.

RESULTS:

Eight major themes emerged: definition and understanding; sources of information; perceived responsibility; role of patients; impact on practice/treatment; advertisements and sponsorships; ethical concerns and strategies/recommendations for control. Practitioners described disease mongering as the exaggeration of normal symptoms and the medicalization of mild conditions, reinforced by pharmaceutical promotions, social media, and patient pressure. Consequences included over-prescription, unnecessary investigations, financial burden, and compromised doctor–patient trust. Suggested strategies included patient counselling, public awareness campaigns, regulation of pharmaceutical advertising, and policy enforcement.

CONCLUSION:

Although medical practitioners demonstrated awareness of disease mongering, structured knowledge and standardized responses were limited. Disease mongering was perceived to influence prescribing behavior and ethical decision-making, highlighting the need for practitioner training, patient education, and stronger regulatory frameworks.

KEYWORDS:

Disease Mongering, Medicalization, Pharmaceutical Industry, Drug Marketing, Over-Diagnosis, Qualitative Study, Professional Practice

BRAIN MORPHOLOGICAL ALTERATION ASSOCIATED WITH DCSP DEPENDENCE IN ADHD DIAGNOSED YOUNG ADULTS

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INTRODUCTION:

Excessive engagement with Digital-Communication-&-Streaming-Platforms (DCSPs) has been linked to behavioral addiction-like symptoms, including salience, withdrawal, conflict, and impaired self-regulation, particularly among young adults. While functional disturbances in reward processing and intentional control are documented, structural neural correlates remain insufficiently characterized.

OBJECTIVE(S):

1. To investigate the association between DCSP-dependence and alterations in grey matter volume (GMV) within brain regions involved in reward processing, executive control, and attention.

METHODOLOGY:

This extended pilot study included n=19-young adults who completed validated measures of DCSP dependence and attention. Participants with neurological, psychiatric, or substance-related disorders were excluded. High-resolution T1-weighted MRI scans were acquired, and voxel-based morphometry (VBM) was performed. GMV was examined in predefined regions of interest, including the amygdala, nucleus accumbens, prefrontal and cingulate-cortices. Associations between dependence scores, GMV, and attentional performance were assessed.

RESULTS:

Trend-level reductions in bilateral amygdala and prefrontal-cortex GMV were associated with higher DCSP dependence, reflected by negative regression coefficients in the right amygdala (IAT $\beta = -.382$; ASRS $\beta = -.364$) and the prefrontal cortex (IAT $\beta = -.401$; Screen Time $\beta = -.325$; Age $\beta = -.359$; $R^2 = .445$, $p = .067$). Age showed a significant negative association with left amygdala GMV ($\beta = -.585$, $p = .029$; $r = -.50$). The mid-cingulate cortex showed modest GMV increases ($M = 1.5716$, $SD = 0.1224$), whereas nucleus accumbens volumes remained largely unchanged ($M = 0.8102$, $SD = 0.0447$).

CONCLUSION:

Although statistical power was limited, findings suggest potential involvement of emotion-regulatory, executive, and attentional networks in DCSP dependence. Results support the feasibility of integrating behavioral assessment with MRI morphometry and underscore the need for larger, adequately powered studies.

KEYWORDS:

Digital-Communication-&-Streaming-Platforms (DCSP); Grey-Matter-Volume (GMV); Voxel-Based-Morphometry (VBM)

EVALUATION OF KNOWLEDGE ABOUT PREGNANCY-INDUCED HYPERTENSION AND ITS RISK FACTORS AMONG PREGNANT WOMEN

Laiba Khan, Ayesha Iqbal, Sofia Ahmad Khan, Afsheen Jawad, Haleema Zahoor

Supervisor: Dr. Shamaila Asim

Peshawar Medical College

INTRODUCTION:

Hypertensive disorders of pregnancy (HDP) affect about 10% of pregnancies and cause nearly 14% of maternal and 15% of perinatal deaths worldwide. In Pakistan, pregnancy-induced hypertension (PIH) has a prevalence of 13.7% and contributes significantly to poor maternal and fetal outcomes. Awareness among pregnant women is essential for early detection and prevention.

OBJECTIVE(S):

1. To assess knowledge of PIH among pregnant women and determine its association with age, education, parity, and antenatal care.

METHODOLOGY:

A descriptive cross-sectional study was conducted over eight months in the tertiary care hospitals of Peshawar. A total of 182 pregnant women aged ≥ 18 years with gestational age ≥ 20 weeks attending antenatal clinics were included after consent. The sample size was calculated at 95% confidence level and 5% margin of error. Data were analyzed using the chi-square test, with $p < 0.05$ considered significant.

RESULTS:

Most participants were aged 20–29 years (64.8%), housewives (90.9%), and from middle-income families. About 40.9% had no formal education, and 58.5% had 1–4 previous pregnancies. While 65.3% had heard of PIH, only 18.2% correctly identified it as hypertension after 20 weeks. Correct knowledge was significantly associated with family history, chronic hypertension, obesity, and lack of exercise ($p < 0.05$).

CONCLUSION:

PIH awareness was limited, highlighting the need for improved antenatal education programs.

KEYWORDS:

PIH, Awareness, Cross-Sectional Study, Pregnancy Complications.

REFRACTIVE ERRORS AND ASTHENOPIA AMONG MADRASA STUDENTS IN UPPER DIR CITY, PAKISTAN: A CROSS-SECTIONAL STUDY

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Supervisor: Dr Ayaz Ayub
Rehman Medical College

INTRODUCTION:

Refractive errors and asthenopia are major contributors to visual impairment among students. Madrasa students often engage in prolonged reading and memorization of the Quran, increasing their risk of visual strain (asthenopia), particularly in areas with limited access to eye care services.

OBJECTIVE(S):

1. To determine the prevalence of refractive errors and asthenopia among madrasa students.

METHODOLOGY:

A cross-sectional study was conducted among 335 students aged 7–30 years from madrasas affiliated with Wifaq-ul-Madaris in the city of Upper Dir, Pakistan. A convenience sampling technique was used. Data were collected using a structured questionnaire and ocular examinations, including visual acuity assessment with a Snellen chart and retinoscopy. Data were analyzed using SPSS version 26.

RESULTS:

The mean age of participants was 18.2 ± 3.8 years. The overall prevalence of refractive errors was 37.3%, with myopia being most common (25.4%), followed by astigmatism (8.4%) and hypermetropia (3.6%). Asthenopia was reported by 80.9% of students. A significant association was found between refractive errors and asthenopia ($\chi^2 = 18.285$, $p < 0.001$). Close reading distance and higher-class level were independently associated with both conditions.

CONCLUSION:

Refractive errors and asthenopia are highly prevalent among madrasa students in Upper Dir. Regular vision screening and ergonomic education are recommended to reduce vision-related problems and improve academic performance.

KEYWORDS:

Refractive Errors, Asthenopia, Madrasa Students, Visual Strain, Pakistan, Cross-Sectional Study.

AN ACCOUNT OF WOMEN'S EXPERIENCE OF POST MENOPAUSAL SYMPTOMS IN DAILY LIFE

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Supervisor: Prof. Dr. Farhat R. Malik
Peshawar Medical College

INTRODUCTION:

Menopause is a biological phase of aging and a life transition that affects millions of women worldwide. A public health issue that affects women physically, socially, emotionally, and psychologically.

OBJECTIVE(S):

1. To determine the symptoms of menopause and their effects on the quality of life and daily activities among women.

METHODOLOGY:

A cross-sectional study was conducted among 384 menopausal women aged 40-60 years; however, women with psychological problems and no consent were excluded. Data was collected using a validated questionnaire. Analysis was done through descriptive and inferential statistics.

RESULTS:

A 100% response rate is shown. The menopausal women were 165 (43%), 60.9% settled in rural areas, 90.6% house wives, and 54.2% living in a joint family system. Multiple linear regression analysis showed that menopausal symptoms significantly affected women in their daily activities. Bladder problems, sexual issues, reduced vision, sleep disturbances, and anxiety were consistent positive predictors of difficulties in personal care, household chores, work, worship, and social participation. The sad mood increased difficulty in household chores and cooking, while hot flushes and night sweats, and heart discomfort affected social and work-related tasks. Interestingly, vaginal dryness and irritability negatively predicted the difficulties, suggesting possible adaptive coping mechanisms. Among all the symptoms, bladder, sexual, and mental problems were the most influential across multiple domains.

CONCLUSION:

The study revealed a multifaceted experience of frequent urination, sexual problems, reduced vision, difficulties in daily chores, personal care difficulties, social engagement dilemma, and bad mood. Therefore, highlighting holistic menopausal management for integrating physical, social, and mental support.

KEYWORDS:

Female, Sweat, Menopause, Anxiety, Public Health.

LEVEL OF AWARENESS AND UNDERSTANDING OF AI IN HEALTHCARE AMONG PATIENTS IN ABBOTTABAD

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Rehman Medical College

INTRODUCTION:

AI applications in healthcare include robotics, imaging, surgical assistance, and diagnostic chatbots that analyze medical data to elevate patient care. In Pakistan, research mostly focuses on professionals, creating a clear gap regarding patient perspectives.

OBJECTIVE(S):

1. To explore patient viewpoints to help policymakers and medical professionals design effective communication strategies and educational materials.

METHODOLOGY:

A descriptive cross-sectional study included 280 inpatients and outpatients aged 13 to 60 years at Jinnah International and DHQ Hospital, Abbottabad. Data was collected using self-structured questionnaires via convenience sampling and analyzed with SPSS 27.

RESULTS:

Findings showed 59.3% of respondents had heard of artificial intelligence largely through social media, 47.9% could not identify specific applications. Patient trust appeared conditional and favored human oversight; although 48.2% agreed that AI improves diagnostic accuracy and 49.6% felt comfortable with assisting doctors, they were opposed to replacing human judgment entirely. The primary concern fueling hesitation was the risk of errors or misdiagnosis, cited by 30% of participants. Chi-square analysis revealed that higher education strongly correlates with greater familiarity and willingness to use these tools. A family background in technology or healthcare is also linked to higher trust, whereas age and gender showed no significant associations.

CONCLUSION:

To ethically integrate these technologies into the healthcare system of Pakistan, stakeholders must prioritize awareness campaigns led by credible experts. This approach will address patient doubts while keeping the human doctor central to care.

KEYWORDS:

Artificial Intelligence, Patient Perception, Pakistan, Healthcare Technology, Medical Ethics.

KNOWLEDGE REGARDING POLYCYSTIC OVARIAN SYNDROME AMONG UNDERGRADUATE NURSING STUDENTS IN KHYBER PAKHTUNKHWA, PAKISTAN: A DESCRIPTIVE CROSS-SECTIONAL STUDY

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INTRODUCTION:

PCOS is one of the most common endocrine disorders affecting women of reproductive age, which is characterized by irregular menstruation, hormonal imbalance, and insulin resistance.

OBJECTIVE(S):

1. To determine the mean knowledge score regarding PCOS among undergraduate nursing students in Peshawar during the academic year 2025.
2. To estimate the proportion of students with adequate PCOS knowledge (score. Greater or equal to 11 out of 18).
3. To examine associations between demographic variables (age, year of study, institution).

METHODOLOGY:

The study was a descriptive cross sectional with a sample size of n=420 and collected by stratified sampling. An ethical approval was obtained from the ERC of PMC. Study duration was November 2025 to February 2026. Data was collected from RNC, NWCN, and FIN. An adoptive PCOS knowledge questionnaire was used. Descriptive test for mean knowledge score, frequency, and percentage was calculated for the knowledge category, and an independent test and chi-square were used.

RESULTS:

Out of 420 participants, 221 (51.6%) had poor and 199 (47.4%) had adequate knowledge. The majority of students (51.6%) had poor knowledge. The mean knowledge score was 10.01 ± 1.11 with min and max score of 7-12. A significant association was found between age, YOS, institution, and knowledge level.

CONCLUSION:

PCOS knowledge varied significantly across different academic years.

KEYWORDS:

Polycystic Ovarian Syndrome, Undergraduate Nursing Students, Knowledge Score.

FROM KNOWLEDGE TO CONSUMPTION: UNDERSTANDING NICOTINE POUCH USE AMONG MEDICAL STUDENTS IN KHYBER PAKHTUNKHWA

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Supervisor: Dr. Uzma Siddique
Peshawar Medical College

INTRODUCTION:

Nicotine pouches are increasingly popular but lack long-term health research. This study assesses the prevalence, knowledge, and motivations among medical students in Khyber Pakhtunkhwa (KPK) to inform future health interventions.

OBJECTIVE(S):

1. To assess nicotine pouch prevalence and associated factors among medical students in KPK.
2. To evaluate student knowledge regarding pouch ingredients, dosage, and health risks.
3. To explore perceptions of health impacts, motivations, and effects on daily life.

METHODOLOGY:

A mixed-methods sequential explanatory study was conducted (Feb–Sept 2025) across 7 medical colleges (KPK). The quantitative phase included a survey of 323 students, which was analyzed via SPSS v.24 using descriptive statistics, Cronbach's alpha, and chi-square tests. The qualitative phase consisted of 12 in-depth interviews, which were conducted and analyzed using thematic analysis.

RESULTS:

The quantitative analysis shows that among 323 students (mean age 21), the nicotine pouch usage rate was 22.3% (72 users). While 212 of 323 participants recognized their addictive nature, high perceived accessibility remains a concern. There is a significant correlation between gender and use ($P = .000$), with males more likely to be users, while females showed significantly higher addiction risk awareness ($p = .036$). The qualitative analysis shows that students primarily use pouches to manage academic stress, peer influence, and perceived safety. Despite usage, students fear unknown health risks and strongly desire formal clinical education regarding these products.

CONCLUSION:

Easy access and myths are driving a surge in pouch use among male students, necessitating stricter policies and targeted education.

KEYWORDS:

Nicotine Pouches, Medical Students, Nicotine Addiction, Stress, Coping.

HEALTH SEEKING BEHAVIOR OF CAREGIVERS REGARDING DIARRHEA IN CHILDREN AGED <60 MONTHS

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Muhammad College of Medicine

INTRODUCTION:

The number of deaths due to childhood diarrhea is alarming. Understanding parents' health-seeking behavior in response to childhood diarrhea reflects not only their understanding of the condition but also their access to healthcare, cultural beliefs, and urgency for timely interventions to prevent long-term morbidity. Health-related behaviors are resistant to change due to societal beliefs. It is of utmost importance to study and target health-seeking behaviors in parents of children, especially those with diarrhea. Shockingly, diarrhea remains the second leading cause of ill health in third-world countries.

OBJECTIVE(S):

1. To observe and study factors influencing caregivers' health-seeking behavior for children under 48 months of age and increase awareness of the need for timely treatment to prevent long-term morbidity.
2. To identify areas of interest in developing countries to improve health-seeking behaviors.

METHODOLOGY:

Using a sample of 210 caregivers, excluding healthcare professionals, the study investigates various aspects of caregiving. This includes the caregivers' age, residence, educational and occupational background, as well as the children's age, gender, and place of delivery. Regarding health-seeking behaviors, the study examines the types of health facilities used, the frequency of visits, the use of commercially available ORS or homemade solutions, and the consumption of yogurt.

RESULTS:

Significant differences were observed in the type of ORS used and in yogurt consumption during diarrhea episodes, influenced by the caregiver's literacy. The results showed that illiterate caregivers were twice as likely to prepare homemade ORS ($p = 0.037$) and nearly twice as likely to give yogurt ($p = 0.005$).

CONCLUSION:

In conclusion, we find that increasing awareness is crucial for preventing childhood morbidity through timely treatment.

KEYWORDS:

Health-Seeking Behavior, Healthcare Utilization, Caregivers, Childhood Diarrhea, Urban, Rural.

STOP-BANG SCREENING FOR OBSTRUCTIVE SLEEP APNEA RISK IN NON-OBESE UNDERGRADUATE STUDENTS

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Peshawar Medical College, Peshawar

INTRODUCTION:

Obstructive sleep apnea (OSA) is a prevalent but underdiagnosed sleep disorder traditionally associated with obesity. However, emerging evidence suggests that non-obese individuals, particularly undergraduate students with irregular sleep patterns, may also be at considerable risk.

OBJECTIVE(S):

1. To evaluate the risk of OSA among non-obese undergraduate students using the STOP-BANG questionnaire.
2. To determine the distribution of OSA risk categories (low, intermediate, high)
3. To assess gender-based differences in OSA risk
4. To examine associations between individual STOP-BANG components and overall OSA risk
5. To explore correlations between OSA risk and demographic factors.

METHODOLOGY:

This cross-sectional study included 384 non-obese undergraduate students aged 18–25 years. Data were collected using the validated STOP-BANG questionnaire. Statistical analysis was performed using SPSS version 26, applying descriptive statistics, Chi-square tests, and Spearman's correlation.

RESULTS:

The mean STOP-BANG score was 4.42 ± 1.31 . A substantial proportion of participants were classified as intermediate (47.7%) and high risk (45.8%), with only 6.5% at low risk. Gender was significantly associated with OSA risk categories ($p < 0.001$), with males exhibiting higher risk profiles. All STOP-BANG components—snoring, tiredness, observed apnea, and hypertension—showed significant associations with overall OSA risk ($p < 0.001$). No significant correlation was found between age and STOP-BANG score ($p = 0.86$), while gender demonstrated a borderline, non-significant correlation ($p = 0.065$).

CONCLUSION:

A high prevalence of OSA risk exists among non-obese undergraduate students, underscoring the importance of early screening and targeted awareness strategies in this overlooked population.

KEYWORDS:

Obstructive Sleep Apnea, STOP-BANG, Non-Obese, Undergraduate Students.

ARTIFICIAL INTELLIGENCE IN CLINICAL DECISION-MAKING: A CROSS-SPECIALTY COMPARATIVE STUDY AT A PAKISTANI-BASED TERTIARY CARE HOSPITAL

Amna Fakhar, Mariam Idrees, Ayesha Tahir, Kainat Dilawar, Shehzad Akber Tarar

Supervisor: Dr. Tahira Amjad
Foundation University Medical College

INTRODUCTION:

Artificial intelligence (AI) is increasingly influencing healthcare delivery; however, its adoption in clinical decision-making (CDM) across medical specialties in Pakistan remains underexplored.

OBJECTIVE(S):

1. To determine the prevalence of AI adoption in CD across specialties at a tertiary care hospital, assess healthcare professionals' perceptions of its benefits, drawbacks, and identify factors influencing adoption and attitudes.

METHODOLOGY:

A comparative cross-sectional study was conducted at Fauji Foundation Hospital, Rawalpindi (FFH), Islamabad, from April–September 2025 after ethical approval. Consultants, registrars, and postgraduate trainees with ≥ 1 year of experience were included using total population sampling ($n = 147$). Data were collected through validated questionnaire via Google Forms assessing AI use, perceptions, and attitudes. SPSS version 26 was used for descriptive and inferential statistics; $p < 0.05$ was considered significant.

RESULTS:

Out of 147 participants, 60.5% had < 5 years' experience, 52.7% aged 20–29 years, and 63.9% females. Medicine (37.4%), pathology (15.0%), and surgery (12.9%) were most represented specialties. AI use in CDM was limited, with 28.6% reporting rare use. Key drivers included improved patient care (43.5%), workflow integration (36.7%), training availability (34.0%), and cost-effectiveness (32.0%). Common tools were Qure.AI (10.2%) and ChatGPT (9.5%). Faster decision-making and reduced workload were major benefits, while lack of training and over-reliance were key barriers. Department was significantly associated with AI adoption ($p = 0.0007$) and frequency of use ($p = 0.0026$).

CONCLUSION:

Despite growing awareness, AI adoption in CDM remains limited. Structured training, institutional support, and workflow integration are essential for safe and effective implementation to improve patient care.

KEYWORDS:

Artificial Intelligence, Clinical Decision-Making, and Healthcare Professionals.

ASSESSING RABIES KNOWLEDGE, AWARENESS, AND VACCINE UPTAKE AMONG FUTURE HEALTH CARE PROVIDERS IN PESHAWAR

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Jinnah Medical College

INTRODUCTION:

Rabies is a fatal yet preventable zoonotic disease that remains a major public health concern in developing countries like Pakistan. Limited awareness, poor vaccination practices, and high stray animal populations contribute to its persistence. Future healthcare providers play a critical role in educating communities and preventing disease transmission.

OBJECTIVE(S):

1. To assess the knowledge, awareness, and attitude of future healthcare providers regarding rabies, and to compare vaccination uptake between pet owners and non-pet owners.

METHODOLOGY:

A cross-sectional study was conducted among medical students (≥ 18 years) in Peshawar using a validated 36-item questionnaire. A sample size of 355 was calculated; 321 responses were analyzed using SPSS v. 25. Spearman correlation and Chi-square tests were applied. Ethical approval was obtained.

RESULTS:

Most participants (95.6%) were aware of rabies, with a mean knowledge score of 7/10. Positive attitudes were observed toward pet vaccination (92.2%) and seeking medical care after bites (90%). However, misconceptions persisted, including belief in traditional healers (29.3%). Good practices were noted in wound washing (78.8%), but participation in awareness campaigns was low (28.3%). Among pet owners, 68.6% vaccinated their pets within the past year.

CONCLUSION:

Although knowledge levels were generally good, gaps remain in understanding transmission and prevention. Strengthening education and awareness among medical students is essential to improving community health outcomes.

KEYWORDS:

Rabies, Knowledge, Awareness, Vaccination, Public Health.

USE OF STEP-COUNT APPS TO IMPROVE HEALTH AND LIFESTYLE AMONG UNDERGRADUATE MEDICAL AND DENTAL STUDENTS- AN INTERVENTIONAL STUDY

Muskan Arif, Khansa Eman, Iqra Diyar, Najla Azam, Ayesha Zahoor
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Peshawar Medical College

INTRODUCTION:

Physical inactivity is a significant challenge. Step-count monitors and smartphone applications can increase walking and help tackle sedentary lifestyles.

OBJECTIVE(S):

1. To determine the knowledge of the Google Fit app, compare changes in health indicators
2. To assess the association of step-count apps with lifestyle behaviors.

METHODOLOGY:

This RCT was conducted upon 250 students with an equal number in intervention and control groups, recruited through simple random sampling from 15th August 2025 to 31st January 2026. The tools used were the International Physical Activity Questionnaire, the WHO-5 Well-Being Index, and the BREQ-3. Descriptive (mean, SD, frequency) and inferential analysis (Chi Square & Mann-Whitney test) were done with a significance level at $p < 0.05$.

RESULTS:

Medical students were 88%, and dental 12%. A significant knowledge difference was found ($P = 0.000$), with excellent scores (64%). Daily app users were 73.6%, with 91.2% more conscious of their physical activity ($p = 0.0000$). The intervention group demonstrated a significantly greater reduction in BMI ($U = 5632$, $p < 0.001$). The perceived energy levels were significantly higher in app users ($n = 114$) than non-users ($n = 54$) ($x^2 = 65.331$, $p < 0.001$). The significance was noted in sleep quality improvement (87.2%; $p < 0.001$) and dietary habits (72.8% vs 0%, $p < 0.001$), favoring the intervention group. Screen time was also significantly lower in the intervention group, with most users averaging 2-4 hours ($p < 0.001$).

CONCLUSION:

The intervention group exhibited improved knowledge, consciousness of physical activity, and better health outcomes.

KEYWORDS:

Fitness Trackers, Mobile Applications, Sedentary Behavior, Exercise, Questionnaires, WHO.

A DESCRIPTIVE STUDY OF KNOWLEDGE, ATTITUDE, AND PRACTICES OF MENOPAUSE AMONG PERIMENOPAUSAL AND POSTMENOPAUSAL WOMEN OF PESHAWAR

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INTRODUCTION:

Menopause is a physiological event defined as the permanent cessation of menstruation after 12 months of amenorrhea without any pathological cause. Awareness of this natural transition is important for women to maintain health and quality of life during later years. Knowledge about lifestyle modifications can help women manage menopausal symptoms and prevent associated complications

OBJECTIVE(S):

1. To evaluate the level of knowledge, attitude, and practices regarding menopause among peri-menopausal and post-menopausal women attending OPDs of three Tertiary Care Hospitals of Peshawar.

METHODOLOGY:

A cross-sectional study was conducted from 15 October 2025 to 20 February 2026 among the 354 peri- and postmenopausal women selected through purposive sampling. Data was collected using a validated structured questionnaire. Knowledge, attitude, and practice levels were categorized according to predefined scoring criteria. Less than 50% was defined as poor. 50-75% was defined as moderate, and more than 75% was defined as good knowledge, attitude, and practice.

RESULTS:

Among 354 respondents, 64.7% showed good knowledge, while 35.3% had moderate knowledge. Attitude was largely positive, with 52.5% demonstrating a moderate attitude, 43.2% good attitude, and only 4.2% poor attitude. Good practices were observed in 65.0% of participants, while 20.3% had moderate practices and 14.7% poor practices. A statistically significant association was found between menopausal status and knowledge ($p = 0.002$), attitude ($p = 0.000$), and practice ($p = 0.001$).

CONCLUSION:

The findings of this study indicate good knowledge, positive attitudes, and appropriate practices regarding menopause, with menopausal status significantly influencing these factors.

KEYWORDS:

Menopause; Knowledge, Attitude, Practice, Menopausal Status, Women's Health, Cross-Sectional Study.

COMPLIANCE OF CLINICAL STAFF REGARDING LABORATORY REQUEST FORM BEFORE AND AFTER TEACHING SESSION AT A TERTIARY CARE HOSPITAL – AN INTERVENTIONAL STUDY

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Peshawar Medical College

INTRODUCTION:

Laboratory request forms are vital for accurate diagnosis and treatment, and educating staff about common errors can improve form accuracy, an impact that can be evaluated using a quasi-experimental study design.

OBJECTIVE(S):

1. To compare the compliance of clinical staff in filling histopathology laboratory request forms before and after taking an elaborated teaching session at a tertiary care hospital of Peshawar.

METHODOLOGY:

A quasi-experimental study was conducted from June 2024 to January 2025 at the Pathology Department, Peshawar Medical College, analyzing 352 laboratory request forms with complete clinical data. Teaching sessions were also conducted for clinical staff. Data were analyzed using SPSS v25 for descriptive statistics and to assess relationships among variables.

RESULTS:

The results showed the completeness of patient record variables before the presentation, immediately after, and two months later. Before the presentation, variables such as patient name, age, gender, and contact number were 100% complete, while others, like bed/ward (55.9%), admission number (66.9%), religion (69.5%), address (75.4%), and nationality (77.1%) had incomplete documentation. After the presentation, documentation improved for most variables. Two months later, some variables maintained improvement (age, gender, religion, address), while others showed a slight decline (admission number, bed/ward, contact number). Statistically significant changes were observed for age ($p = 0.031$), gender ($p = 0.004$), religion ($p = 0.03$), address ($p = 0.041$), admission number ($p = 0.039$), bed/ward ($p = 0.012$), and contact number ($p = 0.0001$).

CONCLUSION:

The educational intervention significantly improved the completeness and accuracy of laboratory request form documentation.

KEYWORDS:

Laboratory Techniques and Procedures, Medical Records, Patient Safety, Quality of Health Care.

BACTERIAL SPECTRUM AND ANTIBIOTIC RESISTANCE IN SURGICAL SITE WOUND INFECTIONS

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Cobam, University of Peshawar

INTRODUCTION:

Surgical Site Infections (SSIs) are a significant cause of postoperative complications and healthcare costs.

OBJECTIVE(S):

1. To determine the bacterial spectrum and antibiotic resistance patterns of pathogens in SSIs at QHAMC.

METHODOLOGY:

20 wound swab samples were cultured, and isolates were identified using biochemical tests. Antibiotic susceptibility testing was performed using the Kirby-Bauer disc diffusion method.

RESULTS:

18 samples showed positive growth, yielding 7 bacterial species, with *Escherichia coli*, *Enterobacter aerogenes*, and *Klebsiella pneumoniae* being most prevalent. The isolates showed high resistance to β -lactams and cephalosporins, with tigecycline, doripenem, norfloxacin, and gentamicin being most effective.

CONCLUSION:

The study highlights a considerable burden of multidrug-resistant Gram-negative organisms in SSIs, emphasizing the need for microbiological surveillance and antimicrobial stewardship.

KEYWORDS:

Surgical Site Infections, Bacterial Spectrum, Antimicrobial Resistance, Gram-negative Bacteria.

NATURAL VERSUS IATROGENIC MENOPAUSE: A COMPARATIVE ANALYSIS OF SYMPTOM BURDEN AND QUALITY OF LIFE AMONG POSTMENOPAUSAL WOMEN IN PAKISTAN

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Khyber Medical College

INTRODUCTION:

Iatrogenic menopause causes abrupt estrogen loss and is linked to greater symptom severity and poorer quality of life (QoL), but South Asian data are limited. This study compared symptom burden and QoL between natural and iatrogenic menopause in Pakistani women and identified independent predictors.

OBJECTIVE(S):

1. To compare menopausal symptom severity and quality of life between natural and iatrogenic menopause and identify independent predictors of these outcomes among postmenopausal women in Pakistan.

METHODOLOGY:

A hospital-based comparative cross-sectional study at Khyber Teaching Hospital, Peshawar (January–June 2025) included 140 postmenopausal women (40–55 years) with natural or iatrogenic menopause. Symptoms (MRS) and quality of life (WHOQOL-BREF) were assessed. Group comparisons and multivariable regression identified independent predictors.

RESULTS:

Women with iatrogenic menopause had significantly higher somatic, psychological, urogenital, and total MRS scores than those with natural menopause (all $p < 0.001$). Physical and psychological QoL were significantly lower in the iatrogenic group ($p < 0.001$), with no differences in social or environmental domains. Total MRS scores were inversely correlated with physical, psychological, and environmental QoL. Regression analysis showed menopause type ($\beta = 0.718$, $p < 0.001$) and physical activity ($\beta = 0.143$, $p = 0.031$) as independent predictors of symptom severity. Menopause type also independently predicted poorer physical and psychological QoL.

CONCLUSION:

Iatrogenic menopause is associated with higher symptom burden and reduced QoL compared to natural menopause. Targeted, culturally sensitive interventions are needed to improve outcomes in affected women.

KEYWORDS:

Menopause, Iatrogenic Menopause, Natural Menopause, Quality of Life, Menopause Rating Scale, WHOQOL-BREF, Pakistan, LMIC.

FREQUENCY OF PERFECTIONISM AMONG UNDERGRADUATE MEDICAL AND DENTAL STUDENTS AND ITS ASSOCIATION WITH QUALITY OF LIFE AND ACADEMIC PERFORMANCE

Shazma

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Peshawar Medical College

INTRODUCTION:

Perfectionism is a multidimensional personality trait characterized by striving for flawlessness and setting high standards. While adaptive perfectionism enhances academic achievement, maladaptive perfectionism is associated with stress, anxiety, and reduced quality of life. Undergraduate medical and dental students face intense academic pressure, which increases perfectionism. Limited evidence exists regarding its frequency and impact among students in Peshawar, Pakistan.

OBJECTIVE(S):

1. To estimate the frequency of perfectionism among undergraduate medical and dental students and to determine its association with quality of life and academic performance.

METHODOLOGY:

A cross-sectional analytical study was conducted among 365 undergraduate medical and dental students from selected public and private colleges in Peshawar. Data were collected using a self-administered questionnaire comprising demographic information, the Frost Multidimensional Perfectionism Scale, and WHOQOL-BREF to evaluate quality of life across physical, psychological, social, and environmental domains. Data analysis included descriptive statistics, Chi-square tests, correlation analysis, and multiple regression using SPSS v.25.

RESULTS:

A total of 365 medical students participated in the study, with the majority aged 18 - 20 years (52.1%) and females constituting 57.3% of the sample. Most students (64.9%) had academic performance between 60% to 85%. The mean perfectionism score was 98.6 ± 360 (n = 360). Correlation analysis revealed a significant association between perfectionism and academic performance ($r = 0.180$, p is less than 0.001). Correlation between perfectionism and quality of life ($r = -0.13$, $p = 0.401$).

CONCLUSION:

Perfectionism affects student well-being more than performance; institutional counseling and stress management programs can help manage maladaptive perfectionism.

KEYWORDS:

Perfectionism, Quality of Life, Academic Performance.

EFFECTIVENESS OF EDUCATIONAL INTERVENTIONS ON MATERNAL KNOWLEDGE, PERCEPTIONS, AND SATISFACTION REGARDING NEONATAL DANGER SIGNS: A MIXED-METHOD THREE-ARM RANDOMIZED CONTROLLED TRIAL

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Supervisors: Prof. Dr. Farhat Malik & Prof. Dr. Shazia Aurangzeb
Peshawar Medical College

INTRODUCTION:

Poor maternal recognition of neonatal danger signs with delayed health-seeking significantly contributes to neonatal mortality. Maternal awareness through health education is essential to promote hospital care.

OBJECTIVE(S):

1. To compare mothers' knowledge of neonatal danger signs across audio-visual, verbal counselling, and pamphlet-based education from baseline to 28 days.
2. To assess the satisfaction level of mothers regarding the intervention.
3. To explore mothers' perceptions of the assigned education method.

METHODOLOGY:

A mixed-method RCT was conducted (Dec 2025-March 2026) among 246 mothers, allocated through block randomization to audio-visual, doctor-led verbal-counselling and pamphlet-based groups. Validated questionnaires were used for pre- and post-tests, and structured interviews were conducted with 20 mothers. Normality was assessed using the Shapiro–Wilk test, and the t-test and Wilcoxon signed-rank test were used for normal and non-normal data, respectively, by SPSS V-26.

RESULTS:

Primary neonatal-danger-sign knowledge increased across all groups (audio-visual 73.5%, verbal 60%, pamphlet 60.15%). Paired t-test (within-group improvement) was highly significant ($p < 0.001$). Meanwhile, ANOVA (between-group improvement) was not statistically significant ($F(2,236) = 1.82$, $p = 0.165$). Secondary neonatal-danger-sign knowledge also improved ($p < 0.001$). Satisfaction scores were high among all three groups (30 ± 2.7). Thematic analysis of qualitative interviews yielded 65 codes, translating to 6 themes.

CONCLUSION:

A significant improvement in maternal knowledge of neonatal danger signs and high satisfaction were observed with audio-visual and verbal counselling, emerging as the most effective methods.

KEYWORDS:

Neonatal-Danger-Signs, Health-Education, Maternal Recognition.

PREVALENCE AND PROGRESSION OF REFRACTIVE ERROR AMONG MBBS STUDENTS IN PUBLIC SECTOR MEDICAL COLLEGES OF KHYBER PAKHTUNKHWA: A CROSS-SECTIONAL STUDY

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Supervisor: Dr. Farah Deeba
Nowshera Medical College

INTRODUCTION:

Refractive errors are a prevalent health concern among medical students, which are commonly thought to be exacerbated by rigorous academic demands and modern lifestyle habits, since medical students deal with a lot of academic pressure and long study hours. Refractive errors are expected to be exceptionally prevalent among medical students; this study was conducted to test this hypothesis.

OBJECTIVE(S):

1. To assess the prevalence, progression, and risk factors associated with refractive errors among medical students.

METHODOLOGY:

This cross-sectional study evaluated 326 MBBS students in KP. 51.2% were male, and 48.8% were female participants, with an average age of 21.9 years. Data regarding initial diagnosis, condition worsening, and potential risk factors, such as screen time, study habits, and nutrition, were collected and analyzed.

RESULTS:

Out of the 326 participants, 135 were diagnosed with a refractive error, with myopia being the most common. Among 231 students assessed for disease progression, 87 reported that their vision had further deteriorated since entering medical school. Family history and average daily screen time were significantly associated with the deterioration of refractive errors during medical school. Surprisingly, factors such as reading distance, study hours, lighting environment, initial screen time, and diet (Vitamin A, leafy greens, and fish) showed no significant associations ($p > 0.05$).

CONCLUSION:

Family history and prolonged average daily screen time are the most significant risk factors for this deterioration.

KEYWORDS:

Myopia, Vitamin A, Refractive Error.

CHARACTERISTICS AND OUTCOME OF PREGNANCY-RELATED ACUTE KIDNEY INJURY IN A TEACHING HOSPITAL IN A LOW-RESOURCE SETTING, DERA ISMAIL KHAN, PAKISTAN

Fatma Ikram, Nawazish Ali
Supervisor: Dr. Ayousha Burki
Gomal Medical College

INTRODUCTION:

PRAKI is a common cause of AKI globally, with an incidence of 2%. In Pakistan, the incidence ranges from 0.02 to 71%. Despite high occurrence and adverse outcomes, there is still limited information. This study aims to determine the incidence and risk factors of PRAKI and to compare the burden of disease's local and global statistics.

OBJECTIVE(S):

1. To determine the incidence and risk factors of pregnancy-related acute kidney injury (PRAKI).

METHODOLOGY:

A prospective study was carried out in the nephrology unit, DHQTH, Dera Ismail Khan, Pakistan. The study was conducted from 20 May to 20 September 2025. It includes pregnant women who were previously healthy and had developed AKI, who had an increase in serum creatinine ≥ 0.3 mg/dl within 48 hours, who had an increase in serum creatinine ≥ 1.5 times from baseline, who had oliguria for six hours, and who had given consent.

RESULTS:

Of the 48 postpartum patients presented within the study time, 28(58%) and 40(83.3%) were walk-in deliveries. Spontaneous vaginal deliveries were 32(66.7%). PPH in 36(75%), gestational diabetes/hypertension in only 12(25%). Outcome of Postpartum patients on dialysis: 18(37.5%) had recovered with a good outcome. The majority of poor outcome cases were un-booked. 21 cases of spontaneous vaginal delivery have a poor outcome with PPH, sepsis, and eclampsia.

CONCLUSION:

The burden of PR-AKI, obstetric haemorrhage, and puerperal sepsis must be treated promptly and aggressively. Pregnancy-related HTN and septic abortion-related Sepsis should be avoided in developing nations by prioritizing prenatal care.

KEYWORDS:

PRAKI, Renal Outcomes, Health Disparities.

AWARENESS OF CONGENITAL ANOMALIES AMONG EXPECTANT MOTHERS IN KP, PAKISTAN: A CROSS-SECTIONAL STUDY

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INTRODUCTION:

Worldwide developmental disorders during pregnancy contribute significantly to neonatal morbidity and mortality. The WHO estimates a higher burden in low- and middle-income countries, as awareness of congenital anomalies among pregnant women remained limited.

OBJECTIVE(S):

1. To identify, assess, and determine the association of risk factors, knowledge leading to congenital anomalies, and their behaviors among the expectant females.

METHODOLOGY:

A cross-sectional study was conducted from 16 Aug 2025 to 5 Feb 2026, upon 384 pregnant women recruited through a serial sampling technique using a validated structured questionnaire. Knowledge levels were categorized as good or poor based on predefined scoring criteria.

RESULTS:

Overall, 54.7% were 25- 34 years, 60.4% rural residents, 49.2% with no formal education, and 92% house wives. The 56% women paid for 4 ANC visits, 2-4 pregnancies among 39.8% women, 25% with more than 3 children, 16% had children with birth defects, and only 15.4% took folic acid. The 97% women knew BDs, 54% knew the reason for taking iron. Significant associations were seen between folic acid (0.000), iron intake (0.001), and iodized salts (0.000) with ANC visits. Awareness of BDs proved the best predictor (0.005) with AOR = 4.55, highlighting the association with stress. Pre-conceptual use of folic acid proved to be a strong positive (0.019) predictor with an AOR = 2.37. Iodized salt had a negative correlation with knowledge (0.003) with (AOR = 0.29).

CONCLUSION:

This study concluded a strong association of folic acid and iron intake with birth defects. BD awareness was strongly associated with psychological impact.

KEYWORDS:

Risk Factors, Birth Defects, Folic Acid, and Iron.

A COMPARATIVE DESCRIPTIVE STUDY ON AWARENESS OF TRIAGE SYSTEM AMONGST HEALTH PRACTITIONERS IN PRIVATE TERTIARY CARE HOSPITALS OF PESHAWAR

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INTRODUCTION:

Triage is essential for prioritizing patients in overcrowded Emergency Departments (EDs), particularly in resource-limited settings. The effectiveness of triage is contingent upon the knowledge of healthcare practitioners and the availability of necessary equipment.

OBJECTIVE(S):

1. To determine the level of knowledge regarding triage systems among doctors and paramedics in private tertiary care hospitals in Peshawar.
2. To assess the presence of equipment that assists in performing triage in the Emergency Department through the WHO checklist.
3. To determine the association of knowledge regarding triage with age, gender, qualification, clinical experience of the study participants, and the presence of appropriate equipment in the Emergency Department.

METHODOLOGY:

A descriptive, cross-sectional study was conducted among 42 staff members in the EDs of Prime Teaching Hospital, Mercy Teaching Hospital, and Kuwait Teaching Hospital. Data was collected using a pre-validated, self-administered questionnaire assessing triage knowledge through clinical scenarios. A WHO-based checklist was used to audit the availability of triage equipment. Data were analyzed using SPSS, with descriptive statistics, frequencies, and Chi-Square tests to determine associations.

RESULTS:

While participants demonstrated good recognition of overtly critical conditions, there was considerable confusion in prioritizing more nuanced cases. A statistically significant association was found between the level of education and the ability to correctly define triage and prioritize trauma patients, with degree-holders (MBBS, BScN) performing better than diploma-holders. Equipment audits revealed a universal lack of standardized triage reference documents and patient identification tools.

CONCLUSION:

The study underscores the urgent need for standardized, mandatory triage training programs, alongside administrative action to equip triage areas according to international standards.

KEYWORDS:

Triage, Emergency Department, WHO.

FREQUENCY AND RISK FACTORS OF OCCUPATIONAL DERMATOSES AMONG HEALTHCARE WORKERS IN PESHAWAR: A CROSS-SECTIONAL STUDY

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INTRODUCTION:

Occupational dermatoses are among the most common work-related diseases and are frequently reported among healthcare workers due to repeated exposure to irritants, disinfectants, and personal protective equipment.

OBJECTIVE(S):

1. To determine the frequency of occupational dermatoses and its risk factors among healthcare workers.
2. To compare the OSDES scores across different healthcare professions.

METHODOLOGY:

This cross-sectional study was conducted over six months among healthcare workers at Prime, Kuwait, and Mercy Teaching Hospitals in Peshawar. A sample size of 242 participants was calculated using OpenEpi. Data were collected using the validated OSDES-49 questionnaire (Cronbach's $\alpha = 0.793$). Frequencies were calculated using SPSS V26. Normality of the OSDES score was assessed using the Shapiro–Wilk test and Q–Q plot. Differences in OSDES scores across professions were analyzed using one-way ANOVA.

RESULTS:

The mean OSDES score was 12.52 ± 5.80 . Common exposures were chemical disinfectants (62.8%), soaking hands (61.2%), and detergent exposure (47.7%); glove use (89.1%). Frequent symptoms included nasal discharge (38.4%) and eye irritation (28.3%). OSDES scores differed significantly across professions ($F = 9.01$, $p < 0.001$), with higher scores among nurses and technicians. No significant difference between genders ($p = 0.555$).

CONCLUSION:

Healthcare workers experience substantial exposure to occupational dermatosis risk factors. Preventive strategies and improved protective practices are needed, particularly for high-risk groups (nurses and technicians).

KEYWORDS:

Occupational Dermatoses, Contact Dermatoses, Healthcare Workers, OSDES-49, Exposure, Risk Factors

A RANDOMIZED CONTROLLED TRIAL ON THE EFFECTIVENESS OF EDUCATIONAL INTERVENTION ON INSULIN ADMINISTRATION IN TYPE-2 DIABETES PATIENTS OF PESHAWAR

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INTRODUCTION:

Effective diabetes management is essential for preventing complications, particularly among patients who require insulin therapy. Proper knowledge and practice of insulin administration are crucial to ensure safe dosing, reduce errors, and improve glycemic control.

OBJECTIVE(S):

1. To determine the effectiveness of diabetes educational intervention on the knowledge and practice of insulin-taking patients of Type 2 diabetes mellitus using FITTER guidelines.

METHODOLOGY:

This randomized controlled trial was conducted at Mercy Teaching Hospital using a validated FITTER-based questionnaire. Seventy participants (35 per group), selected through consecutive sampling, completed the baseline assessment. An educational intervention on insulin administration was provided to the intervention group, followed by a posttest after a one-month follow-up. Normality was checked using the Shapiro–Wilk test, and due to non-normal data distribution, the Mann–Whitney U test was used for between-group comparisons and the Wilcoxon signed-rank test for within-group analysis.

RESULTS:

The intervention group showed a significant improvement in knowledge following the educational session compared to the control group ($p < 0.001$). Practice scores were also markedly higher in the intervention group after training ($p < 0.001$). Within-group analysis indicated a small but significant increase in knowledge ($p = 0.008$) and practice ($p < 0.001$) in the control group. In contrast, the intervention group showed a marked increase in both knowledge and practice following the educational program ($p < 0.001$).

CONCLUSION:

The educational intervention significantly improved both knowledge and practice of insulin administration. These findings highlight the importance of dedicated counseling on insulin administration for complications-free, effective diabetes management.

KEYWORDS:

Type 2 Diabetes, Insulin Administration, Educational Intervention, FITTER Guidelines, Diabetes Management.

FREQUENCY AND PATTERNS OF PICA BEHAVIOUR AMONG PREGNANT WOMEN AT TERTIARY CARE HOSPITALS

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INTRODUCTION:

Pica is the compulsive eating of non-nutritive substances such as clay, chalk, soil, or ice. It is often underreported and poorly understood in clinical settings, despite its link to detrimental maternal and neonatal outcomes. This study aims to determine the frequency and patterns of pica behavior in pregnancy and manage it effectively.

OBJECTIVE(S):

1. To determine the occurrence of pica behaviour among pregnant women receiving care at tertiary hospitals and to investigate the commonly consumed non-nutritive substances among pregnant women exhibiting pica behaviour.

METHODOLOGY:

A cross-sectional study was conducted from November 2025 to February 2026. A total of 386 pregnant women attending outpatient departments (OPDs) were administered a pre-tested and validated questionnaire. The questionnaire assessed the presence of pica, the commonly ingested non-nutritive substances, and their general eating habits. Frequency and percentages were calculated using SPSS.

RESULTS:

Of the 384 participants, a total of 127 (33.1%) reported exhibiting pica behaviour during pregnancy. The most common ingested substance was ice (45.7%), followed by soil (43.3%), raw rice (7.9%), paper (2.3%), and cement (0.8%).

CONCLUSION:

Pica affects approximately one-third of pregnant women in this study, with ice and soil being the most frequently consumed substances. These results call for routine antenatal screening for pica behaviour to enable better management and early nutritional counselling, thereby alleviating potential maternal and fetal complications.

KEYWORDS:

Pica, Frequency, Cross-Sectional Study, Tertiary Care Hospitals.

THE IMPACT OF AN EDUCATIONAL INTERVENTION ON AWARENESS OF CLIMATE CHANGE-INDUCED HEALTH RISKS AMONG SCHOOL-GOING CHILDREN IN PESHAWAR: A RANDOMIZED CONTROLLED TRIAL

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INTRODUCTION:

Climate change poses a significant threat to human health, with children being particularly vulnerable. The industrially dense Warsak Road area presents heightened risks. However, a critical gap exists in understanding children's awareness of these climate-health links and the effectiveness of educational programs to address them.

OBJECTIVE(S):

1. To assess the effectiveness of an educational intervention in raising awareness about climate change and its health impacts among school children.
2. To evaluate the impact of educational intervention in raising awareness about climate change on their advocacy skills.

METHODOLOGY:

A randomized controlled trial was conducted over four months with 384 students (grades 7-9) from schools on Warsak Road. Participants were allocated to a study group (n=192) that received a three-session educational intervention (lectures, pamphlets, group activities) and a control group (n=192) that did not. Knowledge was assessed pre- and post-intervention using a questionnaire. Data were analyzed in SPSS-25 using descriptive statistics and paired t-tests.

RESULTS:

Baseline data revealed substantial knowledge gaps, with 41.7% of students showing inadequate awareness. Post-intervention, the study group showed significant improvement ($p < 0.05$). The proportion of students with inadequate awareness fell to 20.6%, while moderate and adequate awareness rose to 57.8% and 21.7%, respectively. The most marked improvement was seen in Grade 10, where adequate awareness increased from 13.3% to 53.3%.

CONCLUSION:

A structured, school-based educational intervention is a highly effective strategy for significantly improving awareness of climate change-induced health risks among adolescents. Integrating this topic into the curriculum is recommended.

KEYWORDS:

Climate Change, Child Health, Health Education, Randomized Controlled Trial, School Health.

IN SILICO IDENTIFICATION OF NARCICLASINE AS A NOVEL THERAPEUTIC CANDIDATE FOR RESCUING THE TRANSCRIPTOMIC SIGNATURE OF PEDIATRIC ACUTE MYELOID LEUKEMIA

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INTRODUCTION:

Pediatric Acute Myeloid Leukemia (AML) remains a clinical challenge due to high molecular heterogeneity and significant relapse rates associated with chemoresistance. Current therapeutic strategies often fail to overcome the maturation block inherent in leukemic blasts. This study utilized a systems biology approach to identify small molecules capable of "rescuing" the pediatric AML transcriptomic phenotype.

OBJECTIVE(S):

1. To identify small molecules capable of "rescuing" the pediatric AML transcriptomic phenotype.

METHODOLOGY:

Transcriptomic data from the GSE2191 dataset (n=58) was analyzed to identify differentially expressed genes (DEGs) between pediatric AML blasts and normal bone marrow controls. Functional enrichment was performed using Enrichr (WikiPathways 2024, GO Biological Process 2025), and protein-protein interaction (PPI) networks were constructed via STRING and Cytoscape to identify high-degree hub genes. The L1000CDS2 engine was employed to perform in silico drug repurposing by matching the disease-specific signature against thousands of small-molecule perturbations.

RESULTS:

A core disease signature of 100 significantly up-regulated genes was identified, characterized by the massive overexpression of cathelicidin antimicrobial peptide (CAMP), defensins (DEFA1/DEFA3), and the cell-cycle regulator GTSE1. Clustered heatmaps demonstrated clear transcriptomic divergence between healthy and malignant samples. Enrichment analysis revealed significant activation of neutrophil degranulation ($p < 0.001$) and hematopoietic stem cell differentiation pathways. Network analysis identified CAMP, S100A8, and GTSE1 as central hub genes driving the interactome. Small-molecule screening identified Narciclasine as the top lead candidate (Score: 0.0978), demonstrating a high potential for signature reversal.

CONCLUSION:

Narciclasine targets the essential hubs of the pediatric AML interactome, potentially bypassing established resistance mechanisms like the GTSE1-p53 evasion axis. Maybe by shifting the transcriptional state away from a proliferative, immature blast phenotype, Narciclasine represents a promising candidate for further in vitro validation as a precision-medicine adjunct for pediatric AML.

KEYWORDS:

Gene Expression, Drug Repurposing, Molecular Markers, Therapeutics, Gene Ontology

KNOWLEDGE AND ATTITUDE REGARDING ANTIBIOTIC SELF-MEDICATION AND ANTIBIOTIC RESISTANCE AMONG THE MEDICAL STUDENTS IN PESHAWAR

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INTRODUCTION:

Antibiotic self-medication poses a significant threat to global health, leading to economic burdens, treatment failures, and the proliferation of antibiotic-resistant bacterial strains.

OBJECTIVE(S):

1. This study aimed to determine the frequency of antibiotic self-medication, assess knowledge and attitudes toward antibiotic resistance, and evaluate healthcare service experiences among medical students in Peshawar.

METHODOLOGY:

A descriptive cross-sectional study was conducted among 301 undergraduate MBBS students from KMC, RMC, and PMC using non-probability convenience sampling. Data were collected via a validated, structured questionnaire and analyzed using SPSS version 25.

RESULTS:

Participants had a mean age of 21.8 ± 1.3 years, with 53.2% being male and 81.4% from PMC. Within the last six months, 55.1% of students practiced self-medication, primarily for respiratory symptoms (21.9%) and fever (16.3%). Common reasons included previous experience with the same illness (21.6%) and perceiving the condition as non-serious (15.9%). While 92.0% understood that antibiotics target bacteria and 79.4% recognized that misuse drives resistance, 23.3% found using leftover medication acceptable, and 17.9% supported purchasing antibiotics without a prescription. Azithromycin, Ciprofloxacin, and Augmentin were the most frequently used drugs.

CONCLUSION:

Despite possessing sound theoretical knowledge, a high prevalence of self-medication (55.1%) exists among medical students in Peshawar. Significant gaps in practical attitudes, such as using leftovers and non-prescription purchases, highlight a discrepancy between knowledge and practice. These findings emphasize the urgent need for targeted educational interventions and stricter prescription policy enforcement.

KEYWORDS:

Antibiotic Self-Medication, Antibiotic Resistance, Medical Students, Peshawar, Knowledge and Attitudes, Self-Prescription.

STUNTING PREVALENCE AND ASSOCIATED FACTORS AMONG UNDER-FIVE CHILDREN IN TWO DISTRICTS OF KHYBER PAKHTUNKHWA, PAKISTAN: A SECONDARY ANALYSIS

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INTRODUCTION:

Pakistan faces a high burden of child stunting, with important sub-national variation.

OBJECTIVE(S):

To describe stunting prevalence in Peshawar and Swabi and assess associations with selected socio-demographic and child health factors.

METHODOLOGY:

Secondary analysis of provided district statistics, including prevalence estimates, subgroup distributions, and adjusted odds ratios.

RESULTS:

Overall stunting prevalence was 44.8%. Swabi showed a higher prevalence (49.06%; 95% CI: 33.97–67.17) than Peshawar (40.54%; 95% CI: 30.53–51.86). The lowest income tertile had the highest prevalence (54.29%). In adjusted analysis, frequent illness (AOR 2.48; $p = 0.017$) and low birth weight (AOR 2.52; $p = 0.040$) were associated with higher odds of stunting; completed vaccination showed a potentially protective, borderline association (AOR 0.47; $p = 0.077$).

CONCLUSION:

Findings support integrated, equity-focused interventions linking maternal/newborn care, infection prevention and management, immunisation, and poverty-sensitive measures.

KEYWORDS:

Stunting, Under-Five, Pakistan, Khyber Pakhtunkhwa, Low Birth Weight, Childhood Illness, Immunisation, Equity.

MEDICAL EDUCATION

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING INFECTION CONTROL AMONG UNDERGRADUATE NURSING STUDENTS- A MULTI-CENTER STUDY OF PRIVATE NURSING COLLEGES

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INTRODUCTION:

Nosocomial infections are a major threat to patient safety, especially in resource-limited settings. Gaps remain in translating nursing students' knowledge and attitudes into consistent infection-control practices.

OBJECTIVE(S):

1. To assess the knowledge, attitude, and practices regarding infection control among nursing students in Peshawar.

METHODOLOGY:

A cross-sectional study was conducted in five private nursing colleges in Peshawar. A total of 278 third- and fourth-year nursing students were selected using Raosoft sample size calculation. All participants had completed at least one clinical rotation. A structured questionnaire adapted from previous Pakistani studies was used to collect data. Data were analyzed using SPSS version 27.

RESULTS:

Of the 278 participants, 60.8% were male, and 65.1% were aged 21–23 years. Almost all (99.6%) had clinical exposure. Knowledge scores ranged from 10 to 16, with 72.6% demonstrating moderate knowledge. Attitudes toward infection control were generally positive. Practices were satisfactory, with 54.7% adhering to recommended infection-control measures.

CONCLUSION:

Nursing students demonstrated positive attitudes and acceptable practices; however, knowledge gaps remain, particularly regarding standard precautions. Strengthened teaching strategies, practical demonstrations, and continuous reinforcement in academic and clinical settings are recommended to improve infection-control competencies.

KEYWORDS:

Knowledge, Attitudes, Practice, Infection Control, Cross-Sectional Study Nursing Students, Peshawar.

ASSOCIATION BETWEEN DURATION, QUALITY OF SLEEP, AND ACADEMIC PERFORMANCE OF UNDERGRADUATE NURSING STUDENTS

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INTRODUCTION:

Poor sleep quality is becoming common in middle-income countries due to academic and work stresses, and demanding work schedules, which indirectly impair cognitive function, academic performance, and physical health.

OBJECTIVE(S):

1. To determine the mean duration of sleep among undergraduate nursing students.
2. To assess the quality of sleep using PSQI and its relationship with academic performance in terms of GPA.
3. To identify factors associated with poor quality of sleep among undergraduate nursing students.

METHODOLOGY:

An analytical Cross-sectional study was conducted in three nursing colleges (RNC, RCN, NWCN), 293 students participated through convenience sampling. Ethical approval from the ERC of PMC. Data collected over six months. Sleep quality and duration were assessed by using PSQI, and GPA was self-reported. Descriptive summarized demographics, chi-square for categorical variables, independent T test compared mean GPA, duration, and GPA comparison.

RESULTS:

Participants included 60.8% males, 38.6% females, aged between 18 and 21 years. Mean sleep duration was 6.49 ± 1.25 hours, mean global PSQI score was 11.24 ± 2.54 . Female students demonstrated poor sleep quality. Weak association found between poor sleep quality and GPA ($r = 0.193$, $p = 0.001$). Caffeine intake, screen use, and living arrangements showed no significant association.

CONCLUSION:

Academic performance is affected by sleep duration and quality as it can cause many health issues.

KEYWORDS:

Pittsburgh Sleep Quality Index, Quality Of Sleep, Academic Performance.

RCT TO EVALUATE THE EFFECTIVENESS OF AN EDUCATIONAL INTERVENTION REGARDING HPV AND HPV VACCINE AMONG NURSES IN TERTIARY CARE HOSPITALS AFFILIATED WITH A PRIVATE MEDICAL COLLEGE

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INTRODUCTION:

Human papillomavirus is a major cause of cervical cancer. Although WHO recommends HPV vaccination, uptake remains low in LMICs, including Pakistan.

OBJECTIVE(S):

1. To evaluate the effectiveness of an educational intervention on nurses' HPV-related knowledge, attitudes, and advocacy intent.
2. To identify perceived barriers by comparing pre- and post-test scores within the intervention group and between the intervention and control groups.

METHODOLOGY:

An RCT was conducted on 140 nurses from three tertiary care hospitals. They were selected by simple random sampling and assigned to groups. The intervention group received a structured educational session (presentation, video, pamphlets), while the control group didn't. Pre- and post-tests were taken one month apart using a validated questionnaire. Data was analyzed using IBM SPSS v.25. Paired t-tests and McNemar's test assessed within-group changes, while independent t-tests and Chi-square tests evaluated between-group differences ($p < 0.05$).

RESULTS:

Post-intervention knowledge scores were significantly higher in the intervention group than in control ($M = 12.46$, $SD = 4.15$ vs. $M = 10.89$, $SD = 4.56$; $p = 0.035$, $d = 0.36$), with a large within-group effect ($d = 1.01$, $p < 0.001$). Attitudes were positive at baseline with no significant between-group differences. Advocacy intent increased modestly but non-significantly in the intervention group and declined in the control group. Perceived barriers increased significantly in the intervention group ($p < 0.001$), with insufficient training (87.1%) and limited HPV knowledge (80%) cited most frequently.

CONCLUSION:

The intervention effectively improved nurses' knowledge but had a limited impact on attitudes and advocacy intent.

KEYWORDS:

HPV, RCT, HPV Vaccine, Cervical Cancer.

ATTITUDE TOWARDS THE NURSING PROFESSION AND SATISFACTION WITH THE PROFESSION INTERACTIONS, CURRICULUM, AND LEARNING ENVIRONMENT- A MULTI-CENTER STUDY OF PRIVATE SECTOR OF UNDERGRADUATE NURSING STUDENTS

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INTRODUCTION:

Nursing students' attitudes toward the nursing profession and their satisfaction with educational and professional experiences are critical determinants of academic success, professional identity formation, and workforce retention. Despite the growing number of nursing institutions in Pakistan, limited evidence exists regarding these factors among undergraduate nursing students in private-sector colleges.

OBJECTIVE(S):

1. To assess undergraduate nursing students' attitudes toward the nursing profession and their satisfaction with professional and social interaction, curriculum and teaching, and the learning environment.
2. To examine the relationship between attitude and satisfaction.

METHODOLOGY:

An analytical cross-sectional study was conducted among 278 undergraduate BSN students from three private nursing colleges in Peshawar, Pakistan, using year-of-study-wise stratified sampling. Data were collected over four months using a structured questionnaire comprising demographic information, the Attitude Scale for the Nursing Profession (ASNP) and the Nursing Student Satisfaction Scale (NSSS). Data were analyzed using descriptive statistics, Pearson correlation, and one-way ANOVA.

RESULTS:

The majority of students (97.5%) demonstrated a positive attitude toward the nursing profession, while 74.1% reported positive satisfaction. Pearson correlation showed a weak positive but non-significant relationship between total attitude and total satisfaction scores ($r = 0.106$, $p = 0.077$). Attitude was significantly associated with the curriculum and teaching satisfaction subdomain ($r = 0.142$, $p = 0.017$).

CONCLUSION:

Undergraduate nursing students in private-sector institutions demonstrated positive attitudes and satisfactory educational experiences. Curriculum and teaching emerged as a determinant.

KEYWORDS:

Nursing Students, Attitude, Satisfaction, Curriculum, Learning Environment.

PERCEPTION OF NURSING INTERNSHIP STUDENTS REGARDING THEIR COMPETENCE IN PATIENT SAFETY IN PRIVATE SECTOR HOSPITALS OF PESHAWAR, PAKISTAN

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Supervisor: Mrs. Sidra Ali
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INTRODUCTION:

Patient safety is a key element of quality healthcare, focusing on risk reduction and prevention of avoidable harm. The QSEN framework identifies safety as a core nursing competency. However, nursing students often lack adequate preparation, creating a gap between theory and practice and increasing the risk of clinical errors.

OBJECTIVE(S):

1. To assess nursing internship students' perceived competence in key patient safety.

METHODOLOGY:

This descriptive cross-sectional study (July–December 2025) surveyed 153 BS Nursing internship graduates (≥ 1 -month experience) from five Peshawar private teaching hospitals via convenience sampling. Using adapted H-PEPSS (demographics + 15 competency items), data analysis employed descriptive stats (means, SD, frequencies) and inferential tests (t-test, ANOVA; $p < 0.05$) in SPSS 27.

RESULTS:

Participants ($n = 153$; 17–29 years) were 56.2% male, 43.8% female; 79.1% had formal safety training. Kuwait Hospital: 37.3%; CGPA 3.5 – 4.0: 41.2%. Overall competence: $58.83 \pm 10.63/75$ (moderately high); 72.5% "good." Top domains: education confidence ($8.24 \pm 1.82/10$), communication ($7.95 \pm 1.90/10$), teamwork ($7.91 \pm 2.02/10$). Lowest: risk management ($7.78 \pm 1.88/10$), adverse events ($11.16 \pm 2.42/15$). No gender differences ($t = 1.88$, $p = 0.062$).

CONCLUSION:

Peshawar nursing interns demonstrate good perceived patient safety competence, strong in socio-cultural skills but weaker in risk management, highlighting the need for simulation training and psychological safety support.

KEYWORDS:

Nursing Internship Students, Patient Safety, Competence, Perception.

NURSING STUDENTS' PERCEPTION OF THE OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE): A QUANTITATIVE CROSS-SECTIONAL STUDY IN PRIVATE COLLEGES OF PESHAWAR, PAKISTAN

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INTRODUCTION:

An objective structured clinical examination (OSCE) is an alternate method for evaluating clinical performance and competence, focusing on a systematic assessment of competence components. It serves as a versatile evaluation tool in clinical settings and is utilized by various medical schools in Pakistan and other countries for final exams of medical students.

OBJECTIVE(S):

1. To evaluate students' perception level of the Objective Structured Clinical Examination in a private college.
2. To analyze the comparison between the 1st and 4th year nursing students' perception level.

METHODOLOGY:

A cross-sectional study using non-probability convenience sampling took place at several nursing schools. A sample size of 243 was determined with a 5% margin of error and a 95% confidence interval. Data were collected in person using a modified questionnaire from November to December 2025, and analyzed using SPSS version 25.

RESULTS:

The study found that 32.9% of participants were female and 67.1% were male, with a mean perception score of 60.5%, reflecting a moderate impression of the OSCE. Fourth-year students had more positive views than first-year students ($p < 0.001$), and female students rated their perceptions higher than male students ($p < 0.001$). The questionnaire demonstrated strong internal consistency (Cronbach's $\alpha = 0.87$).

CONCLUSION:

According to the results, nursing students view the Objective structured clinical examination as a somewhat useful evaluation tool. The OSCE experience and its educational value may be further improved by focused enhancements to examiner training, instruction clarity, and student orientation.

KEYWORDS:

Nursing, Perception, BSN, OSCE, Private College, 1st and 4th Year Students.

EXPLORING MEDICAL STUDENTS' PERSPECTIVES ON ARTIFICIAL INTELLIGENCE IN MEDICAL EDUCATION: A KNOWLEDGE, ATTITUDE, AND PRACTICE STUDY CONDUCTED AT JINNAH MEDICAL COLLEGE, PAKISTAN

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INTRODUCTION:

Artificial intelligence (AI) is rapidly transforming healthcare systems and medical education worldwide. Despite its growing clinical relevance, structured AI training remains limited in many developing countries, including Pakistan. Understanding medical students' knowledge, attitudes, and practices (KAP) regarding AI is essential for evidence-based curriculum reform.

OBJECTIVE(S):

1. To assess medical students' knowledge of AI, evaluate their attitudes toward its integration into medical education, determine the extent of AI tool usage, and explore the association between AI engagement and academic performance.

METHODOLOGY:

A cross-sectional KAP study was conducted from May to June 2025 at Jinnah Medical College. A total of 200 undergraduate MBBS students from all academic years participated through convenience sampling. Data were collected using a structured, self-administered questionnaire assessing AI awareness, knowledge level, attitudes, before AI usage, exposure to formal training, and annual examination performance. Data were analyzed using descriptive statistics and chi-square testing.

RESULTS:

Overall, 83.5% of students were aware of AI applications in medical education; however, only 26% reported a high level of knowledge, and 26% had received formal AI training. A majority (71%) believed AI could significantly enhance medical learning, and 59% had used AI tools for academic purposes. AI engagement showed a modest positive association with academic performance, without establishing causality.

CONCLUSION:

Although students demonstrate strong awareness and positive attitudes toward AI, substantial gaps exist in structured education and competency development. Formal curricular integration of AI is necessary to prepare future physicians for responsible and effective clinical application.

KEYWORDS:

Artificial Intelligence, Medical Education, Medical Students.

KNOWLEDGE, ATTITUDE, AND PRACTICE OF BASIC LIFE SUPPORT (BLS) AMONG UNDERGRADUATE MEDICAL STUDENTS OF KHYBER PAKHTUNKHWA (KPK)

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INTRODUCTION:

Basic Life Support (BLS) is a critical skill for medical students, essential for saving lives in emergencies. However, gaps in knowledge, attitude, and practice (KAP) persist, particularly in Khyber Pakhtunkhwa (KPK), Pakistan.

OBJECTIVE(S):

1. To assess the KAP of BLS among medical students and examine the association of gender and year of study with these variables.

METHODOLOGY:

A cross-sectional study having 384 undergraduate medical students from KPK colleges participated. A structured questionnaire assessed BLS knowledge, attitude, and self-reported practice. Demographics (gender, year) were recorded. Chi-square tests identified associations between demographics and KAP levels.

RESULTS:

The study found that out of 384 participants, 190 were females (49.5%) and 194 were males (50.5%). In terms of knowledge, 57.3% demonstrated good knowledge, 39.1% had moderate knowledge, and 3.6% had poor knowledge. For attitude, 19.5% showed a positive attitude, 77.9% displayed a neutral attitude, and 2.6% exhibited a negative attitude. Regarding practice, 14.8% demonstrated good practice, 60.7% had moderate practice, and 24.5% had poor practice. Knowledge levels were similar across genders ($P = 0.254$). However, males showed more positive attitudes ($P = 0.006$) and better practice levels ($P = 0.002$). Academic year was strongly associated with better knowledge ($P = 0.000$), attitude ($P = 0.031$), and practice ($P = 0.00$).

CONCLUSION:

This study highlights the need for targeted interventions, such as integrating BLS training into the curriculum and conducting hands-on workshops. Addressing these gaps will enhance the preparedness of medical students to respond effectively in emergencies.

KEYWORDS:

Basic Life Support, BLS Knowledge, CPR Training, Gender Disparities, Undergraduate Students.

ASSOCIATION BETWEEN VARIOUS DOMAINS OF ACADEMIC MOTIVATION AND ACADEMIC PERFORMANCE-A MULTI-CENTER STUDY OF UNDERGRADUATE NURSING STUDENTS

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INTRODUCTION:

Academic motivation is a critical determinant of student engagement, persistence, and success in nursing education. According to Self-Determination Theory, motivation exists on a continuum from amotivation through extrinsic motivation to intrinsic motivation. While nursing students in Pakistan have shown varying motivational patterns, no empirical evidence exists regarding motivation levels among undergraduate nursing students in private colleges in Peshawar, Khyber Pakhtunkhwa.

OBJECTIVE(S):

1. To assess the level of academic motivation among undergraduate nursing students in Peshawar and to examine its association with gender, year of study, and academic performance (GPA).

METHODOLOGY:

A descriptive cross-sectional study was conducted, consisting of 292 undergraduate nursing students from three private nursing colleges in Peshawar: Rehman College of Nursing, Rufaidah Nursing College, and Northwest College of Nursing. Data were collected using a structured questionnaire containing demographic items and the 28-item Academic Motivation Scale (AMS). Analysis of the data was done using SPSS 27.

RESULTS:

Students reported high levels of both extrinsic and intrinsic motivation, with extrinsic motivation being slightly higher. Amotivation was low. First-year students had significantly higher intrinsic motivation than fourth-year students. Females were more motivated compared to males. No significant correlation was found between any motivation domain and self-reported GPA.

CONCLUSION:

Undergraduate nursing students in private colleges in Peshawar are generally motivated. However, proper strategies are needed to sustain intrinsic motivation, particularly among senior students, so that they stay interested in their studies and profession.

KEYWORDS:

Academic Motivation, Nursing Students, Self-Determination Theory, Intrinsic Motivation, Extrinsic Motivation.

ENTHUSIASM VERSUS REALITIES: THE SCENARIO OF UNDERGRADUATE STUDENTS' PARTICIPATION IN MEDICAL RESEARCH IN LDC COUNTRIES

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INTRODUCTION:

Scientific research plays a crucial role in advancing healthcare systems. Early involvement of medical students in research during their undergraduate years helps develop future clinician-scientists. While students in Western countries often engage in research early in their academic careers, the situation appears different in Least Developed Countries (LDCs).

OBJECTIVE(S):

1. To assess factors promoting research enthusiasm and the barriers discouraging undergraduate medical students from participating in research activities in LDCs.

METHODOLOGY:

This study was conducted as a systematic literature review. Relevant articles were identified through electronic database searches, including PubMed and Scopus. Studies focusing on undergraduate medical students' research participation in LDCs were included. Data were extracted and analyzed to identify levels of research involvement, motivating factors, perceived barriers, and associated determinants.

RESULTS:

The review showed that beyond academic activities, about 21% of students were actively involved in research. Only 7% had received formal research training, and 6.5% had experience publishing in peer-reviewed journals. Students reported several challenges, with the most difficult tasks being study design (26.7%) and data collection and participant recruitment (19.6%). Despite these barriers, nearly half of the students (>47%) expressed interest in pursuing research careers in the future. Major obstacles included insufficient mentorship (16.3%), perception of a lengthy career path (17.2%), and limited funding opportunities (15.9%). Encouraging factors included support from faculty, peers, and a supportive research environment within medical schools.

CONCLUSION:

Undergraduate medical students' participation in research in LDCs remains limited due to financial constraints, inadequate mentorship, and structural academic barriers.

KEYWORDS:

Medical research, Undergraduate students, LDC countries.

CRITICAL CARE NURSES' COMPETENCE IN 12-LEAD ELECTROCARDIOGRAM INTERPRETATION: A MULTI-CENTRE STUDY OF PUBLIC AND PRIVATE SECTOR TERTIARY CARE HOSPITALS

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Joyce Anjum
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INTRODUCTION:

Critical Care Nurses perform an initial ECG assessment. Timely ECG interpretation is critical for reducing cardiovascular disease mortality.

OBJECTIVE(S):

1. To assess 12-lead electrocardiogram interpretation competency among critical care nurses in public and private hospitals in Peshawar.

METHODOLOGY:

A multi-center quantitative descriptive cross-sectional study was conducted across six tertiary care hospitals in Peshawar. A stratified convenience sample of 155 critical care nurses (ICU, CCU, Emergency) was recruited from a total population of 258 nurses. Data was collected through a validated 12-lead ECG interpretation competency questionnaire (ICC= 0.869 and CVI= 0.87) comprising 12 scenario-based multiple-choice questions. Data was analysed by chi-square test using SPSS.

RESULTS:

Of 155 registered nurses, mostly aged 25–29 years (58.7%), mainly females (52.3%), mainly public (65.8%), distributed across ICU (35.5%), CCU (32.3%), and ER (32.3%). Most had 1–5 years of emergency experience. ECG scores ranged from 2 to 12 (mean = 7.77, SD = 1.90). ANOVA showed working experience significantly influenced ECG competence ($p < 0.001$), and chi-square indicated ECG training was associated with scores ($p = 0.041$). No significant difference was found between public and private hospital nurses ($p = 0.215$).

CONCLUSION:

This study will provide the first multi-center evidence of ECG interpretation among critical care nurses in Pakistan, informing targeted educational interventions and hospital policies.

KEYWORDS:

Electrocardiogram Interpretation, Critical Care Nurses, Competency Assessment, Multicenter Study.

COMPARATIVE EFFICACY OF THERMAL ABLATION AND SURGICAL RESECTION IN PATIENTS WITH COLORECTAL CANCER LIVER METASTASIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Colorectal cancer frequently metastasizes to the liver and remains a major cause of cancer-related mortality. While surgical resection is considered the standard curative treatment for colorectal cancer liver metastases, thermal ablation has emerged as a less invasive alternative. However, the comparative effectiveness of these approaches remains controversial.

OBJECTIVE(S):

1. To compare the efficacy and safety of thermal ablation versus surgical resection in adult patients with CRC-LM.

METHODOLOGY:

A systematic literature search was conducted in PubMed, ClinicalTrials.gov and Cochrane Library. Randomized controlled trials and observational studies published during January 2020 to February 2025 and comparing any form of ablation with surgical resection in adult patients with CRC-LM were included. The primary outcomes were overall survival (OS), disease-free survival (DFS), while the secondary outcomes were recurrence patterns, length of hospital stay, and complication rates. Data were extracted using a standardized Excel sheet and analyzed using RevMan 5.4.

RESULTS:

This study included 15 articles. Surgical resection showed significantly better OS (RR: 0.82, 95% CI: 0.73, 0.92, $p = 0.001$, $I^2 = 33\%$). Thermal ablation was associated with shorter hospital stay (MD -1.44; 95% CI -2.18, -0.69; $p = 0.0001$; $I^2 = 97\%$) and fewer major complications (RR 0.26; 95% CI: 0.18-0.38; $p < 0.00001$; $I^2 = 0\%$) respectively. Both approaches were comparable in local recurrence and new lesion development.

CONCLUSION:

Surgical resection provides superior OS, while thermal ablation offers advantages of shorter hospitalization and fewer complications, supporting its role in selected patients.

KEYWORDS:

Colorectal Cancer Liver Metastasis, Overall Survival, Ablation, Surgery.

EVALUATING THE EFFECTIVENESS OF A ZOTERO WORKSHOP ON REFERENCE MANAGEMENT SKILLS IN UNDERGRADUATE MEDICAL STUDENTS: A PRE-POST INTERVENTIONAL STUDY

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INTRODUCTION:

Accurate referencing is vital in medical education, yet many students rely on manual methods, causing errors and inefficiency. Reference management tools improve citation accuracy, save time, and streamline writing, but adoption remains limited due to limited exposure and training.

OBJECTIVE(S):

1. To assess baseline awareness and usage of reference management tools and evaluate the impact of a Zotero workshop on students' knowledge, perceptions, and use.

METHODOLOGY:

A pre-post quasi-experimental study was conducted among undergraduate medical students in Peshawar, Pakistan. Participants attended a hands-on Zotero workshop and completed structured questionnaires before and after. Variables included awareness, familiarity, usage, perceived importance, and time-saving potential. Data were analyzed using SPSS 25. Paired analyses (McNemar test, paired t-tests) assessed changes, and open-ended responses were analyzed thematically.

RESULTS:

Forty-seven students completed both surveys. Familiarity increased significantly (1.36 ± 0.57 to 1.81 ± 0.54 , $p < 0.001$). Zotero knowledge improved markedly (1.04 ± 0.20 to 2.34 ± 0.87 , $p < 0.001$), and Mendeley knowledge also rose ($p = 0.002$). Frequency of use, perceived essentiality, and time-saving benefits increased significantly. Awareness of Zotero rose from 17% to 85% ($p < 0.001$) and Mendeley from 26% to 47% ($p = 0.006$). Reference manager use increased post-workshop.

CONCLUSION:

The Zotero workshop effectively enhanced awareness, knowledge, and perceptions of reference management tools, supporting integration of structured training into medical curricula.

KEYWORDS:

Reference Management Tools, Zotero, Mendeley

AWARENESS OF CORRECT TOOTH BRUSHING TECHNIQUES AMONG UNDERGRADUATE MEDICAL AND DENTAL STUDENTS OF PESHAWAR

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INTRODUCTION:

Introduction: Oral health is not just about having a bright smile; it is a fundamental component of overall health and well-being. According to the World Health Organization (WHO), oral diseases are among the most common non-communicable diseases worldwide, affecting nearly 3.7 billion people. WHO further emphasizes that improving oral health not only prevents dental diseases but also positively impacts systemic health and quality of life.

OBJECTIVE(S):

1. To assess the level of awareness regarding correct tooth brushing techniques among Undergraduate medical and dental students of Peshawar Medical and Peshawar Dental College.

METHODOLOGY:

A cross-sectional observational study was conducted among 274 undergraduate medical and dental students of Peshawar Medical and Dental Colleges, Peshawar, using convenience sampling over five months. Data were collected through a structured, self-administered questionnaire assessing awareness of correct tooth brushing techniques. Data were analyzed using SPSS, and descriptive statistics, along with the Chi-square test, were applied.

RESULTS:

Out of the total sample of 274 participants, 59.1% were from the medical field (MBBS), and 40.5% were from the dental field (BDS). The majority of participants were females (79.2%), while males accounted for 20.1%. Most students reported brushing their teeth twice daily, with a higher proportion among dental students (80.1%) compared to medical students (61.1%). The majority brushed their teeth for a duration of 2 minutes and replaced their toothbrush every 3 months. The circular tooth brushing technique was the most commonly practiced method among medical and dental students. However, awareness regarding the primary cause of bleeding gums (gum disease) was lower among medical students (23.4%) compared to dental students (48.6%).

CONCLUSION:

Dental (BDS) students demonstrated greater awareness and concern regarding oral health compared to medical (MBBS) students. Additionally, clinical students were more likely to practice correct tooth brushing techniques.

KEYWORDS:

Oral Health, Tooth Brushing Techniques, Medical and Dental Students, Oral Hygiene Awareness.

IMPACT OF MEMORY TRAINING EXERCISES ON COGNITIVE FUNCTIONS AND ACADEMIC PERFORMANCE OF MEDICAL AND DENTAL STUDENTS

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INTRODUCTION:

Medical and Dental students face high cognitive demands. This study evaluates whether cognitive training exercises improve cognitive functions and academic performance, and improve strategies.

OBJECTIVE(S):

1. Analyze changes in working memory, attention, concentration, and processing speed before and after memory training.
2. Compare cognitive performance between the interventional and control groups.
3. Assess whether trained students report improved self-perceived academic performance.

METHODOLOGY:

An open-label, parallel-group Randomized-Control Trial was conducted on physically and mentally healthy pre-clinical students of PMC and PDC. 120 participants were recruited via convenience sampling and screened using a health questionnaire and HAM-D scale. Participants were randomly assigned to interventional or control groups using computer-generated randomization. The interventional group performed Sudoku-based cognitive training exercises five days a week for six weeks, while controls received no intervention. 116 participants completed the trial. Working memory, attention, concentration, and processing speed were assessed pre- and post-intervention using WAIS-R, and academic performance via a self-perceived questionnaire.

RESULTS:

The interventional group showed significant improvement in working memory, attention, and concentration (digit span: $p=0.04$, $d=0.4$) and in working memory and reasoning (arithmetic: $p=0.025$, $d=0.4$). No improvement was observed in processing speed (digit symbol: $p=0.62$, $d=0.09$). Academic questionnaire showed significant improvements in academic competence ($p < 0.001$, $d=1.4$) and test competence ($p < 0.001$, $d=1.6$), while time management ($p=0.32$) and study strategies ($p=0.52$) showed no difference.

CONCLUSION:

Cognitive-training exercises improved working memory, attention, and concentration but not processing speed, indicating domain-specific benefits.

KEYWORDS:

Working Memory, Processing Speed, Memory-Training Exercises, Sudoku, Academic Performance.

**MENTAL HEALTH
& BEHAVIOURAL
SCIENCES**

ASSOCIATION OF SLEEP QUALITY, STRESS, AND ANXIETY WITH SELF-PERCEIVED MEMORY IN UNDERGRADUATE MEDICAL AND NON-MEDICAL STUDENTS OF PESHAWAR

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INTRODUCTION:

Sleep quality, stress, and anxiety are important determinants of cognitive functioning, particularly memory. University students are highly vulnerable to psychological distress, which may influence their perception of memory performance and overall academic efficiency.

OBJECTIVE(S):

1. To examine the relationship between sleep quality, stress, and anxiety with self-perceived memory (SPM) among undergraduate medical and non-medical students in Peshawar.
2. To assess the impact of demographic variables, including age, gender, and socioeconomic status, on SPM.

METHODOLOGY:

A cross-sectional study was conducted from October 2025 to January 2026 on 323 undergraduate students. Data were collected using the PSQI, PSS, EMQ-R, and BAI. Statistical analysis was performed using SPSS version 25. Multiple linear regression and the Mann–Whitney U test were compared.

RESULTS:

The regression model was statistically significant ($F = 47.13$, $p < 0.001$) and explained 31.4% of the variance in SPM scores. Stress and anxiety were significant predictors ($p < 0.001$) of SPM, whereas sleep quality ($p = 0.38$) was an insignificant predictor. Gender was significant ($p = 0.013$), with females reporting higher stress, anxiety, and memory difficulties. Non-medical students reported significantly greater stress ($p = 0.01$), anxiety ($p < 0.001$), and memory difficulties ($p < 0.001$) than medical students, while sleep quality did not differ significantly ($p = 0.772$).

CONCLUSION:

Stress and anxiety are stronger predictors of self-perceived memory difficulties than sleep quality among undergraduate students.

KEYWORDS:

Sleep Quality, Stress, Anxiety, Self-Perceived Memory, Undergraduate Students, Gender Differences, Psychological Distress, Peshawar

THE EFFECT OF TELEHEALTH-BASED BEHAVIORAL INTERVENTIONS ON QUALITY OF LIFE AND HOSPITALIZATIONS IN PATIENTS WITH CHRONIC NEUROLOGICAL CONDITIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Chronic neurological conditions impose long-term burdens on patients and medical care systems. Telehealth interventions (telemonitoring, remote behavioral therapy) offer solutions to in-person care obstacles. Yet, their impact on patient-centered results like quality of life (QoL) and hospitalizations remains debated.

OBJECTIVE(S):

1. To determine the effects of telehealth-based behavioral interventions on QoL and hospitalizations in patients with persistent neurological conditions.

METHODOLOGY:

Systematic search of PubMed, CENTRAL, Embase, Scopus (inception–Sept 2025) for RCTs on telehealth in persistent neurological conditions. Inclusion: RCTs, adults, telehealth behavioral interventions. Review (Oct 2024) used Covidence for screening/extraction. Included 8 RCTs (n=2,997). RevMan meta-analysis (random-effects): SMD for QoL/depression, RR for hospitalizations. Subgroups: state (Parkinsonism, epilepsy, multiple sclerosis), intervention type. Assessed heterogeneity (I^2), bias (RoB 2).

RESULTS:

Telehealth enhanced QoL (SMD 0.45, 95% CI 0.28–0.62; $I^2=55%$), particularly epilepsy (SMD 0.75, 95% CI 0.45–1.05) and numerous and manifold sclerosis (SMD 0.58, 95% CI 0.35–0.81). No hospitalization reduction (RR 0.95, 95% CI 0.78–1.15; $I^2=0%$; 2 studies, n=850). Depression enhanced (SMD 0.55, 95% CI 0.30–0.80). GRADE: balanced for QoL/depression, low for hospitalizations.

CONCLUSIONS:

Telehealth behavioral interventions enhance QoL and depression in persistent neurological conditions, especially epilepsy and sclerosis. Hospitalization evidence inconclusive (limited data). Supports telehealth adoption.

KEYWORDS:

Telehealth, Chronic Neurological Conditions, Quality Of Life, Hospitalizations, Systematic Review, RCTS.

IMPACT OF SOCIAL MEDIA ON ORAL HEALTH KNOWLEDGE, ATTITUDE AND PRACTICES AMONG TEENAGERS

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INTRODUCTION:

Social media is a major source of information for adolescents and influences their health-related decisions. Despite widespread digital use, limited local evidence exists regarding its impact on oral health knowledge, attitudes, and practices among teenagers.

OBJECTIVE(S):

1. To assess the level of oral health knowledge among adolescents who use social media.
2. To evaluate oral hygiene practices of adolescents in relation to their social media use.
3. To examine the association between social media exposure and attitudes toward oral health.

METHODOLOGY:

A cross-sectional study was conducted among 120 participants aged 13–19 years using a structured self-administered questionnaire. Data were analyzed using SPSS version 25. Descriptive statistics were expressed as frequencies and percentages. The chi-square test was applied to determine the association between exposure to social media dental content and oral health knowledge and practices. A p-value ≤ 0.05 was considered statistically significant.

RESULTS:

Most participants (91.7%) reported daily internet access, and 80.8% had viewed dental-related content, mainly on Instagram and YouTube. While 91.7% recognized the importance of brushing twice daily, only 65% practiced it consistently. Annual dental visits were reported by 44.2%, and 69.2% felt motivated to improve oral hygiene after viewing online content.

CONCLUSION:

The findings indicate that social media plays a significant role in shaping adolescents' oral health awareness and reported behaviours. With appropriate professional guidance, digital platforms may serve as effective tools for oral health education and promotion.

KEYWORDS:

Social Media, Oral Health, Adolescents, Dental Hygiene, Health Behaviour.

ASSESSMENT OF ANXIETY AND DEPRESSION AMONG HIV AND AIDS PATIENTS VISITING FOR TESTING, TREATMENT AND COUNSELLING CENTRE IN HAYATABAD MEDICAL COMPLEX, PESHAWAR

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INTRODUCTON:

HIV/AIDs remain a major global health challenge, frequently accompanied by severe psychological co morbidities such as anxiety and depression. In Pakistan, cultural stigma contributes to the severity of anxiety and depression among people living with HIV/AIDs (PLWHA). That affects their treatment adherence and overall health outcomes.

OBJECTIVE(S):

1. To find the prevalence of anxiety and depression among PLWHA in HMC, Peshawar.
2. To find the sociodemographic and clinical factors associated with these two mental health problems.

METHODOLOGY:

This cross-sectional study conducted at the ART center located in HMC, Peshawar recruited 176 participants via convenience sampling in span of 3 months from July 2025 to September 2025. Data was collected using the Hospital Anxiety and Depression Scale (HADS) and analysed using ANOVA and Pearson co relation.

RESULTS:

Prevalence rates were 36.4% for anxiety and 49.4% for depression. Females and other genders reported significantly higher anxiety levels ($p < .001$). A strong, significant positive correlation ($r = 0.675$, $p < .001$) was identified between anxiety and depression symptoms, highlighting high comorbidity among patients.

CONCLUSION:

The high rate of anxiety and depression among PLWHA in Peshawar demands the inclusion of psychological screening in the treatment process to improve the general outcome for the patients.

KEYWORDS:

HIV/AIDS, Anxiety, Depression, HADS, Peshawar, Mental Health Integration, Pakistan

IMPACT OF SOCIAL MEDIA ON AGGRESSION IN YOUNG CHILDREN: A CROSS-SECTIONAL STUDY

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INTRODUCTION:

Children's social media use is rising, offering benefits but also risks. Exposure to violent or inappropriate content can increase aggression, leading to long-term social, emotional, and academic problems.

OBJECTIVE(S):

1. To determine average daily social media screen time in young children
2. To assess the frequency and severity of aggressive behaviours
3. To analyse the link between social media exposure (amount/type) and aggression

METHODOLOGY:

A cross-sectional study was conducted in the paediatric wards of Kuwait Teaching Hospital and Mercy Teaching Hospital (Feb–Apr 2025) among 240 children (mean age 6). Data on demographics, screen time, supervision, and content exposure were collected. Aggression was measured using the Aggressive Behaviour Scale. Analysis was done in SPSS version 26 with Chi-square tests ($p < 0.05$).

RESULTS:

Out of 240 participants, 57.1% participants were male and 42.9% female; most were in primary school (67%). Average screen time was 3–4 hours, with one-third using social media 4–5 hours daily. Entertainment content was most common (69.6%), while 6.3% viewed violent content. Parental monitoring was frequent in 51.7%, occasional in 39.6%, and absent in 8.8%. Aggression was highly prevalent: 83.8% severe, 14.2% moderate. Increased aggression was reported in 63.7% with prolonged use. Significant associations were found with gender ($p = 0.040$), screen time ($p = 0.03$), and violent content exposure ($p = 0.028$).

CONCLUSION:

Aggression in young children using social media is strongly linked to exposure to violent content, more than screen time or gender.

KEYWORDS:

Social Media, Aggression, Children, Screen Time

CHEMOBRAIN IN PAKISTAN: A MULTI-CENTER CROSS-SECTIONAL STUDY OF SELF-REPORTED AND OBJECTIVE COGNITIVE FUNCTION IN CANCER PATIENTS

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INTRODUCTION:

Chemotherapy-related cognitive impairment (CRCI) significantly affects survivors' quality of life but remains underexplored in low- and middle-income countries. This study assessed subjective and objective CRCI across ten cancer types in Pakistan.

OBJECTIVE(S):

1. To determine Chemotherapy-related cognitive impairment prevalence in cancer patients.
2. To evaluate subjective–objective discordance of Chemotherapy-related cognitive impairment.
3. To identify predictors of cognitive outcomes in cancer patients.

METHODOLOGY:

This cross-sectional study was conducted from Sept 2025 to Feb 2026 across 3 tertiary hospitals in Peshawar and Sargodha. A total of 440 chemotherapy-treated cancer patients were enrolled using stratified quota sampling to ensure equal representation across ten cancer types. Subjective cognition was assessed using FACT-Cog (v3), with higher scores indicating greater perceived impairment. Objective cognition was measured using the Symbol Digit Modalities Test (SDMT) and the Digit Span Test. Multiple regression, cluster analysis, and ROC curve analysis were performed.

RESULTS:

Marked dissociation emerged between perceived and objective cognition. Lung and thoracic cancer patients reported better perceived function (91.70 ± 16.45) yet had the poorest objective performance (SDMT 27.66 ± 6.55). Conversely, endocrine cancer patients reported greater perceived impairment (47.30 ± 19.03) but showed superior objective scores (SDMT 43.84 ± 10.91). Overall, 51.8% demonstrated impairment on both measures, while 4.1% were cognitively intact. Three cognitive phenotypes were identified: objectively impaired (34.3%), intact (42.7%), and subjective complainers (23.0%). Cancer type was the strongest predictor ($\beta = -.41$, $p < .001$), explaining 35.3% of variance.

CONCLUSIONS:

CRCI demonstrates malignancy-specific patterns, with substantial subjective–objective discordance. Cancer-type–tailored cognitive screening and rehabilitation strategies are urgently needed in low-resource settings.

KEYWORDS:

Chemotherapy-Related Cognitive Impairment, Cancer Survivorship, FACT-Cog, SDMT.

IMPACT OF NEGATIVE LIFE EVENTS ON MENTAL HEALTH AMONG UNDERGRADUATE STUDENTS: THE MEDIATING ROLE OF RESILIENCE

Haseeb Khan

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INTRODUCTION:

Negative life events can significantly affect the mental health of undergraduate students, increasing the risk of stress, anxiety, and psychological distress. Resilience may play a protective role in reducing these effects.

OBJECTIVE(S):

1. To assess the impact of negative life events on mental health among undergraduate students and examine the mediating role of resilience.

METHODOLOGY:

A cross-sectional study was conducted among 340 undergraduate students from private medical and non-medical colleges in Peshawar, Pakistan. Data were collected using standardized questionnaires, including a Negative Life Events Scale, DASS-21, and the Connor-Davidson Resilience Scale. Statistical analysis included correlation, regression, and mediation analysis.

RESULTS:

Negative life events showed a significant positive correlation with mental health problems ($r=0.108$, $p=0.047$), while resilience had a significant negative correlation with mental health impact ($r=-0.376$, $p<0.001$). Regression analysis showed that negative life events significantly predicted lower resilience ($\beta=-0.0546$, $p=0.0359$), while resilience significantly predicted better mental health outcomes ($\beta=-0.5233$, $p<0.001$). Mediation analysis confirmed that resilience partially mediated the relationship between negative life events and mental health.

CONCLUSION:

Negative life events adversely affect students' mental health, while resilience acts as a protective factor. Strengthening resilience through targeted interventions may help reduce the psychological impact of stressful life experiences among undergraduate students.

KEYWORDS:

Negative Life Events, Mental Health, Psychological Distress, Resilience.

PREVALENCE AND FUNCTIONAL IMPACT OF UNDIAGNOSED ADHD: A CROSS-SECTIONAL STUDY AMONG ADULTS IN PESHAWAR

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INTRODUCTION:

Attention deficit/hyperactivity disorder (ADHD) is a chronic neurodevelopmental disorder that often persists into adulthood. In low-resource settings like Pakistan, it remains undiagnosed due to limited awareness and sociocultural stigma.

OBJECTIVE(S):

1. To determine the prevalence of undiagnosed ADHD among adults in Peshawar.
2. To identify associated functional impairments and socio-academic triggers.

METHODOLOGY:

A cross-sectional study using convenience sampling was conducted from February to June 2025 in urban Peshawar. 349 adults, aged 20-40 years, were recruited. Participants completed a modified WHO Adult Self-Report Scale (ASRS v1.1), with an added section assessing functional difficulties in daily life, social interaction, emotional regulation, and task performance. Data were analyzed using SPSS v25 via Chi-square tests and descriptive statistics.

RESULTS:

The prevalence was significant, 50.4% participants were classified as borderline, and 4.6% as moderate ADHD. Significant associations were found between ADHD symptoms and educational level ($\chi^2 = 0.025$) and occupation ($\chi^2 = 0.026$), with medical professionals reporting higher symptoms. Functional impairments were significantly more common in participants with borderline or moderate ADHD ($p < 0.001$), especially in emotional regulation (94.1% of the moderate ADHD group). Age and gender showed no significance.

CONCLUSION:

Undiagnosed ADHD is common among adults in Peshawar, especially in medical and academic settings, and is linked to substantial emotional and functional impairment. Enhanced screening and culturally tailored interventions are needed.

KEYWORDS:

Attention-Deficit Hyperactivity Disorder, Functional Impairment, Emotional Dysregulation.

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND FIRST AID PRACTICES FOR EPILEPTIC PATIENTS AMONG DENTAL STUDENTS AND PRACTITIONERS AT A PRIVATE INSTITUTION IN PESHAWAR

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INTRODUCTION:

Epilepsy is one of the common brain disorders associated with a lot of social prejudice. Insufficient skills and a lack of competence in managing medical emergencies, including epileptic seizures, may lead to serious implications and legal repercussions.

OBJECTIVE(S):

1. To determine the knowledge, attitude, and first aid practices for epileptic patients among dental students and practitioners through a questionnaire.

METHODOLOGY:

A cross-sectional study was conducted at Peshawar Dental College over a span of two months. A sample size of 182 was selected through a non-probability convenience sampling technique. The study subjects included dental students and practitioners. Data was collected from a structured questionnaire and analyzed by using SPSS v27.

RESULTS:

Among 182 participants, 14.23% were male, and 85.7% were female, with the majority belonging to the 20 to 25 years. Most respondents, from 37.7 % undergraduate students, were 4th year students, of 28%, while 61.5% were postgraduates. About 49.5% (90) of participants reported having good knowledge of epilepsy; however, 50.5% (92) demonstrated poor knowledge. Overall, 80.2% (146) of participants exhibited a positive attitude toward epilepsy, whereas 19.8% (36) showed a negative attitude. Awareness of appropriate seizure first aid and good practice was observed in 42.3%(77), while 57.7% (105) of respondents had poor practice.

CONCLUSION:

In this study, the majority of the participants had basic knowledge and a positive attitude towards treating epileptic patients. However, significant deficiencies persist in detailed understanding and first aid practices.

KEYWORDS:

Epilepsy, Awareness, Dental Practitioners and Students.

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