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Oral presentation

Advancements in Embedded Neurorehabilitation: Integrating Robotics, Artificial Intelligence, and Virtual Reality for Upper Limb Recovery in Children with Cerebral Palsy

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Abstract

Cerebral palsy (CP) remains one of the most common motor disabilities in childhood, often leading to significant impairments in upper limb function that affect activities of daily living (ADLs). This study introduces an innovative embedded neurorehabilitation system that synergistically combines robotics, artificial intelligence (AI), and virtual reality (VR) to target elbow rehabilitation in children with CP. Two male participants, aged 8 and 14 years, underwent an 8-week intervention protocol at Barak General Hospital (BGH) and Wadi Alshatti University (WAU), consisting of 5 sessions per week, each lasting 70 minutes. The system facilitated personalized, adaptive therapy through real-time AI-driven adjustments and immersive VR environments. Pre- and post-intervention assessments demonstrated remarkable improvements: both children achieved full restoration of elbow range of motion (ROM) and regained ADL capabilities, as measured by standardized tools such as the Modified Ashworth Scale (MAS), Goniometry for ROM, and the Pediatric Evaluation of Disability Inventory (PEDI). These findings underscore the potential of integrated technologies in enhancing neuroplasticity and functional outcomes in pediatric CP populations. Limitations include the small sample size, warranting larger-scale trials. This work paves the way for scalable, home-based neurorehabilitation solutions.

Keywords: Cerebral palsy, neurorehabilitation, robotics, artificial intelligence, virtual reality, upper limb, elbow function, activities of daily living.

Oral presentation

Evaluating the impact of Robotics, AI, and virtual environment on shoulder neuro-rehabilitation in children with Cerebral Palsy from birth: Pilot study

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Abstract
This pilot study investigates the feasibility and efficacy of a novel neuro-rehabilitation system combining robotics, artificial intelligence (AI) and a virtual environment to restore shoulder motion in children with cerebral palsy (CP) from birth. At BARAK General Hospital (BGH) and Wadi Alshatti University (WAU), two children with CP participated in a 2-month intervention using the proposed system targeting the right (affected) shoulder. We measured restoration of all degrees of freedom (flexion/extension, abduction/adduction, internal/external rotation) in the right shoulder. At the end of the intervention, each child achieved full restoration of the right shoulder degrees of freedom. We discuss the multiple benefits of using robotics, AI and virtual reality (VR) in paediatric neurorehabilitation, including motivation, repetition, objective measurement, adaptive difficulty and engagement. While the sample size is very small, the positive results suggest promise for further larger-scale studies. We provide provisional results and leave space for detailed tabulated data of shoulder kinematics for each subject.
Keywords: robotics, artificial intelligence, virtual reality, neuro-rehabilitation, hemiplegia, paediatric upper limb, shoulder, pilot study

Oral presentation

Preparation of α-Cordierite Ceramic Powder as a Filler and Study of Its Effect on the Thermal Properties of Denture Base Poly(methyl methacrylate)

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Abstract

This research aimed to prepare α-cordierite ceramic powder as a reinforcement filler and incorporate it into poly(methyl methacrylate) (PMMA) denture base material. The first stage involved synthesizing α-cordierite ceramic powder from Al_2O_3, SiO_2, and MgO powders. The mixture was blended for 3 hours, melted to form frit, then crushed, milled, sieved, and calcined to obtain α-cordierite powder. In this study, the denture base formulation consisted of PMMA, α-cordierite ceramic powder, benzoyl peroxide (BPO) as the initiator, methyl methacrylate (MMA) as the monomer, and ethylene glycol dimethyl acrylate (EGDMA) as the cross-linking agent. Following standard dental laboratory procedures, samples were prepared by adding α-cordierite powder (0, 5, 10, and 15 wt%) to the MMA monomer and hand-mixing. The blend at the dough stage was packed into molds. Incorporation of α-cordierite filler into the PMMA matrix altered the thermal properties of the denture base. The filled specimens exhibited higher degradation temperatures compared to the pure PMMA matrix. Furthermore, increasing the filler content enhanced the degradation temperature and thermal stability of the resulting PMMA composites.

Keywords. α-cordierite, reinforcement filler, denture base, thermal properties

Oral presentation

Structure-Based in Silico Studies for the Identification of Bcl-2 Inhibitors as Anticancer Drugs

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Abstract

An imbalance between pro-apoptotic and anti-apoptotic factors is associated with various diseases, including tumor development. Cancer cells can evade apoptosis by altering the expression levels of these proteins. Overexpression of Bcl-2, an anti-apoptotic protein, has been reported in acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL), and several other cancers. Targeting Bcl-2 has demonstrated significant clinical efficacy in treating B-cell malignancies such as AML and CLL. Venetoclax, the first FDA-approved Bcl-2 inhibitor, is a small molecule that blocks the anti-apoptotic Bcl-2 protein, thereby promoting apoptosis in malignant cells. Despite its clinical success, venetoclax monotherapy often encounters drug resistance and is associated with adverse effects, including neutropenia, thrombocytopenia, anemia, and serious infections such as pneumonia and sepsis. This study aimed to design compounds with strong binding interactions to Bcl-2 and to develop BH3 mimetic agents with high selectivity using in silico screening tools. Bioisosteric modifications of venetoclax were performed through drug design strategies including simplification, molecular replication, incorporation of bulky groups, and substitution with electron-withdrawing or electron-donating groups to explore structure–activity relationships (SAR). Molecular docking and ADMET predictions were used to evaluate binding interactions and stability of the modified compounds. The results showed that the new compounds occupied the hydrophobic binding pocket of Bcl-2, forming multiple interactions with key amino acids. Root mean square deviation (RMSD) values ranged from 1.57 Å to 2.72 Å, while docking energies ranged between –6.89 and –10.97 kcal/mol. These findings suggest that the designed compounds hold promise as effective anticancer agents by selectively targeting the Bcl-2 protein.

Keywords. Bcl-2, Venetoclax, Inhibitors, Anticancer Drugs.

Oral presentation

Awareness and Determinants of Human Papillomavirus (HPV) Vaccination Among Libyan Women: A Cross-Sectional Study (2025)

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Abstract

Human papillomavirus (HPV) is a major etiological factor in cervical cancer, yet awareness and uptake of the HPV vaccine remain low across the Middle East and North Africa. Libya has not introduced HPV vaccination into its national immunization program, and little is known about women's knowledge, attitudes, or acceptance. This study aimed to assess awareness, knowledge, and acceptance of HPV vaccination among Libyan women aged 18–50 years and to identify factors influencing vaccine acceptance. A cross-sectional online survey was disseminated using convenience sampling, yielding 351 valid responses. Most participants were aged 18–25 years (69.2%), single (78.1%), and university students (66.7%). Awareness of HPV reached 71.5%, and 55.6% had heard of the HPV vaccine, while 61.3% recognized HPV as a cause of cervical cancer. Overall vaccine acceptance was 60.7%, comprising 43.6% willing to receive the vaccine and 17.1% already vaccinated. Prior awareness of the HPV vaccine was the strongest predictor of acceptance, showing a significant association ($\chi^2 = 35.7$; $p < 0.001$) and remaining an independent determinant in logistic regression analysis (AOR ≈ 3.96; 95% CI 2.48–6.31). The findings highlight moderate HPV knowledge but substantial uncertainty regarding vaccination, suggesting that inadequate information—rather than firm refusal—is the main barrier. Enhancing public health education and strengthening healthcare-provider communication may support the future introduction of the HPV vaccine into Libya's national immunization program.

Keywords: HPV; Cervical Cancer; Vaccine Acceptance; Awareness; Libya

Oral presentation

Prevalence of Overweight and Obesity Among Primary School Children in Janzour, Libya

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Abstract
Childhood obesity is a major public health issue affecting millions of children worldwide. Multiple factors contribute to rising obesity rates, including dietary habits and lifestyle changes. Obese children are at increased risk of developing both physical and psychological health problems. This study aimed to determine the prevalence of overweight and obesity among primary school children in Janzour, Libya. A cross-sectional study was conducted in two primary schools within the municipality of Janzour between 25 October and 5 November 2025. A total of 394 apparently healthy children aged 9–18 years were enrolled (204 boys [52%] and 188 girls [48%]). The mean age was 9.18 years. Body Mass Index (BMI) was calculated using the CDC BMI percentile calculator for children. Results showed that 312 children (79%) were of average weight, 52 (13%) were overweight, and 28 (8%) were obese. The prevalence of childhood obesity in Janzour is concerning and highlights the urgent need for collaborative efforts to develop comprehensive strategies aimed at reducing obesity rates among school-aged children.
Keywords: Childhood obesity, Overweight, Body Mass Index, Janzour, Libya

Oral presentation

Knowledge and Awareness of Endometriosis Among Women in Libya: A Cross-Sectional Study (2025)

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Abstract

Endometriosis is a leading cause of chronic pelvic pain and infertility, yet population-level awareness in Libya remains largely undocumented. This cross-sectional survey (2025) evaluated approximately 260 women, most of whom were young (15–29 years; 92%) and university educated (82%). Severe menstrual pain was reported by 40% of respondents. Correct identification of endometriosis as ectopic endometrial-like tissue was achieved by 52%. Awareness of hallmark features included severe dysmenorrhea (92%), infertility (61%), and dyspareunia (38%). Laparoscopy was recognized as the definitive diagnostic method by 68%, while 72% identified hormonal therapy as a treatment modality. The primary sources of information were social media (41%) and academic environments (32%). These findings demonstrate moderate awareness but persistent knowledge gaps, emphasizing the need for structured, evidence-based educational initiatives to improve early recognition and reduce diagnostic delays in Libya.

Keywords. Endometriosis; Awareness; Women's Health; Dysmenorrhea; Libya.

Oral presentation

Prevalence of Depression, Anxiety, and Stress Levels among Medical Staff Workers in Tripoli using the DASS-21 method

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Abstract

Mental health problems—particularly depression, anxiety, and stress—are prevalent among primary healthcare workers due to heavy workloads, emotional demands, and limited resources. These factors increase vulnerability to psychological distress. This study aimed to determine the prevalence of depression, anxiety, and stress among primary healthcare workers in Tripoli, Libya. A cross-sectional survey was conducted between 25 October and 3 December 2025 among medical and paramedical staff. A convenience sample of employees aged 20–80 years completed a questionnaire that included demographic data and the Depression, Anxiety, and Stress Scale (DASS-21). The survey was distributed both online and in paper format. Data were analyzed using Excel and SPSS. A total of 181 participants were included (60 males and 121 females). The self-reported prevalence of stress, anxiety, and depression was 33.5%, 30.5%, and 29%, respectively. These symptoms were largely associated with workplace conditions and organizational factors. Anxiety emerged as the most frequent psychological problem. Depression, anxiety, and stress are common among healthcare workers in Tripoli. The findings underscore the urgent need for mental health support programs, improved working conditions, and early identification of psychological distress within healthcare settings.

Keywords. Stress, Anxiety, and Depression Scale - 21, Medical Staff, Tripoli, Libya.

Oral presentation

Vaping Among Youth: Prevalence and Behavioral Trends Among University and High School Students in Tripoli, Libya

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Abstract
Electronic nicotine delivery systems (ENDS), commonly referred to as vapes, represent a rapidly growing behavioral trend among young people worldwide. Despite this global rise, epidemiological data from Libya remain scarce. This study aimed to determine the prevalence of current vaping among students in Tripoli, identify associated demographic characteristics, and examine initiation and recent use patterns. A cross-sectional survey was conducted among 414 high school and undergraduate students in Tripoli. A bilingual online questionnaire collected data on demographics, frequency of use, age of initiation, reasons for initial use, and current vaping status (past 30-day use). Statistical analysis was performed using chi-square tests and descriptive statistics, with significance set at $p < 0.05$. The prevalence of current vaping was 14.0%. A significant sex disparity was observed, with males reporting a higher rate (22.8%) compared to females (1.7%) ($p < 0.001$). No statistically significant associations were found between current vaping and age group, educational stage, or institution type. Initiation was concentrated during adolescence, with 84.5% of current vapers reporting first use between 15 and 20 years of age. Curiosity or experimentation was the predominant motivation (72.4%), followed by stress relief (8.6%) and an intention to quit combustible cigarettes (8.6%). Vaping is an established and emerging behavior among students in Tripoli, with a strong male predominance. Approximately one in four to five male students reported current use, with early initiation driven primarily by experimentation. Although overall prevalence is moderate, the adolescent uptake pattern underscores the urgent need for targeted preventive interventions, public health awareness campaigns, and the establishment of national regulatory policies governing ENDS products.

Keywords: Vaping, Electronic nicotine delivery systems, Adolescents, Prevalence, Behavioral trends, Libya

Oral presentation

Prevalence of Thyroid Disorders Among Women in Libya: A Community-based Cross-Sectional

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Abstract
Thyroid disorders represent a significant yet underrecognized public health concern among women in developing regions. Limited awareness and low uptake of screening continue to hinder early detection in Libya. This community-based cross-sectional study, conducted in 2025, assessed the prevalence of thyroid disorders and examined associated symptoms, screening behaviors, and awareness among Libyan women. A total of 123 participants completed an online survey. The majority were young urban women aged 20–29 years. Overall, 41.5% reported a prior medical diagnosis of thyroid disease, predominantly hypothyroidism. Commonly reported symptoms included fatigue, unexplained weight changes, hair loss, and menstrual irregularities. A family history of thyroid disease was noted in 45% of respondents. Screening practices were inadequate, with 65% of participants having never undergone thyroid function testing. Awareness was limited, as 82.9% believed public knowledge in Libya is insufficient, and understanding of iodine fortification was minimal. The findings highlight a considerable burden of thyroid disorders among Libyan women, compounded by low awareness and poor screening practices. Strengthening national education campaigns and expanding access to diagnostic services are essential to support early detection and reduce long-term complications.
Keywords: Thyroid disorders, Hypothyroidism, Awareness, Screening, Libya.

Oral presentation

The Impact of Time Management on the Academic Performance of Medical Students at Al-Maaref International University, 2025

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Abstract
Effective time management is a critical academic skill for university students, particularly those enrolled in medical programs characterized by intensive coursework, long study hours, and continuous assessments. Poor time management has been linked to increased stress, reduced productivity, lower academic achievement, and difficulty meeting deadlines. This study aimed to evaluate the impact of time management practices on academic performance among medical students at Al-Maaref International University in 2025. A cross-sectional survey was conducted among 50 medical students across different semesters. Data were collected on students' planning habits, procrastination tendencies, sleep patterns, and productivity behaviors. Of the participants, 26% were in semester two, 8% in semester three, 22% in semester four, 22% in semester five, 10% in semester six, and 12% in semester seven. Findings revealed that 80% of students believed ineffective time management negatively influenced their academic performance. More than 65% reported challenges related to online learning. Poor planning was widespread: 68% lacked weekly schedules and 84% lacked monthly plans. Procrastination was frequent among 66% of respondents. Sleep deprivation was identified as a major factor, with 70% reporting academic decline due to insufficient sleep. Additionally, 68% stated they lacked sufficient time to complete daily tasks, and 56% struggled to avoid distractions. Despite these challenges, 86% acknowledged the need to improve their time-management skills, while 46% reported being able to prioritize tasks effectively. Time-management problems are highly prevalent among medical students at Al-Maaref International University and significantly affect academic performance. Lack of planning, frequent procrastination, insufficient sleep, and difficulty managing workload were the most prominent issues. Structured training programs and academic counseling are essential for enhancing students' time-management skills, improving performance, and reducing stress.
Keywords. Time management, Academic Performance, Medical Students, Study Habits.

Oral presentation

Minimally Invasive Robotic-Assisted Heart Valve Surgery: A Future Era in Cardiac Precision and Recovery in Libya

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Abstract
Complex valvular diseases, including infective endocarditis with valvular destruction and severe calcified aortic stenosis, represent major global health challenges due to their high morbidity, mortality, and frequent requirement for surgical intervention. In Libya, older adults are particularly vulnerable, underscoring the need for effective and advanced treatment strategies. In recent years, technologies such as the Da Vinci robotic surgical system have been introduced in several hospitals, offering minimally invasive alternatives for complex cardiac procedures. This literature review examines the potential benefits of adopting the Da Vinci system for the future management of valvular disease in Libya. Current evidence suggests that robotic-assisted surgery can enhance precision in complex valve repairs, reduce surgical invasiveness, shorten recovery times, and improve overall outcomes. Moreover, the system provides ergonomic advantages that support surgeons during lengthy and demanding procedures. Nevertheless, further research is required to optimize its application, assess feasibility, and ensure sustainable integration within developing healthcare systems such as Libya's.
Keywords. Valvular Disease, Robotic-Assisted Cardiac Surgery, Da Vinci Surgical System, Minimally Invasive Procedures, Libya Healthcare.

Oral presentation

The Prevalence and Experiences of Women Compared to Men in the Field of Nursing at Al'Mareef University, 2025

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Abstract

Nursing in Libya remains one of the most gender-segregated professions, with women significantly outnumbering men. While this demographic imbalance is well documented, its implications for workplace dynamics, career advancement, and professional experiences—particularly in high-stress environments such as surgical wards—are less understood. This study explores the comparative prevalence and gendered experiences of nurses at teaching hospitals affiliated with Al'Mareef University in 2025. A concurrent mixed-methods design was employed. A quantitative cross-sectional survey assessed workplace environment, occupational hazards, career progression perceptions, and job satisfaction among a stratified random sample of registered nurses. In parallel, qualitative semi-structured interviews were conducted with a subset of participants to capture lived experiences and cultural challenges. The sample included 200 nurses (150 women, 50 men), reflecting the regional 3:1 female-to-male ratio. Quantitative findings revealed significant gendered patterns. Workplace violence and discrimination were highly prevalent, with patient companions identified as the primary aggressors ($p \leq 0.001$). Male nurses reported faster progression into leadership and specialized roles (72%), while 65% of female nurses felt they needed to demonstrate higher competence for similar advancement. Task allocation often followed stereotypes, with 78% of male nurses assigned to physical or security-related duties. Occupational violence impacted well-being, with 62% reporting stress and 48% decreased job satisfaction. Male nurses frequently cited social isolation and lack of mentorship, while female nurses highlighted work-life balance pressures and the "glass ceiling." Qualitative interviews reinforced these themes. Men described feeling like "visible outsiders" in a culturally feminine profession, facing restricted access to certain specializations. Women emphasized the "invisible workload" of emotional labor and familial coordination, noting frustration that leadership, though female-prevalent at staff levels, became male-dominated at higher administrative ranks. The findings confirm the high prevalence of women in Libyan nursing but reveal a complex landscape of gendered experiences shaped by cultural norms and workplace conditions. Addressing these disparities requires institutional reforms, mentorship opportunities, and policies promoting equity in career advancement.

Keywords. Nursing Gender Gap, Gender Segregation, Professional Stereotyping, Career Advancement.

Poster presentation

Postoperative Risk Factors and Infection Control Practices in Surgical Site Infections: A Cross-Sectional Study

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Abstract
Surgical site infection (SSI) remains a major postoperative complication worldwide, contributing to prolonged recovery, increased healthcare costs, and adverse patient outcomes. SSIs are defined as infections occurring within 30 days of a surgical procedure, or up to one year in cases involving implanted devices. They typically arise when pathogenic microorganisms contaminate the surgical wound, leading to complications affecting the skin, soft tissue, or internal organs. This study was conducted to determine the prevalence and risk factors of surgical site infections at Ghout Alshaghal Hospital. Data were collected from postoperative patient records and infection control surveillance reports at Ghout Alshaghal Hospital. Observations focused on wound care practices, hand hygiene, and compliance with infection control protocols across both private and public healthcare sectors. Ghout Alshaghal Hospital reported zero cases of SSI directly attributable to the operating room environment. However, approximately 5% of postoperative infections were associated with improper wound dressing techniques, primarily due to poor compliance with hand hygiene. Contributing factors included failure to perform hand hygiene before and after wound care, inadequate use of personal protective equipment (gloves, masks, gowns), and handling intravenous cannulas without proper sanitization. Compared with five years ago, infection control awareness has markedly improved, particularly in the private healthcare sector. Notably, infection control offices were largely absent in private hospitals prior to the COVID-19 pandemic, but the establishment of dedicated infection protocol departments post-pandemic has enhanced adherence to protective measures. Despite these advances, significant gaps remain in public hospitals, where compliance with infection control protocols continues to be limited. While Ghout Alshaghal Hospital demonstrates strong infection control within the operating room, postoperative infection risks persist due to inadequate wound handling practices. Enhanced training, routine compliance audits, and strict enforcement of hand hygiene are essential to further reduce SSI incidence. Strengthening infection control infrastructure in public hospitals is critical to achieving safer surgical outcomes at a national level.

Keywords. Postoperative Risk Factors, Infection Control, Surgical Site Infections.

Poster presentation

Preparation of α-Cordierite Ceramic Powder as a Filler and Study of Its Effect on the Thermal Properties of Denture Base Poly(methyl methacrylate)

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Abstract
Poly(methyl methacrylate) (PMMA) is widely used as a denture base material due to its favorable esthetics and ease of processing. However, its relatively low thermal stability limits long-term performance. Incorporating ceramic fillers such as α-cordierite may enhance the thermal properties and durability of PMMA. α-Cordierite ceramic powder was synthesized through controlled solid-state reaction and characterized using X-ray diffraction (XRD) and scanning electron microscopy (SEM) to confirm phase purity and particle morphology. The powder was incorporated into PMMA at varying weight percentages. Thermal properties of the composite samples were evaluated using thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC). Mechanical integrity was assessed through flexural strength testing to ensure clinical applicability. The addition of α-cordierite powder improved the thermal stability of PMMA denture base resin. TGA results showed a delayed onset of thermal degradation, while DSC analysis indicated increased glass transition temperature with higher filler loading. Optimal filler concentration enhanced thermal resistance without compromising mechanical strength. Excessive filler content, however, led to reduced homogeneity and minor decreases in flexural strength. Incorporation of α-cordierite ceramic powder into PMMA denture base resin significantly improves its thermal properties, suggesting potential for enhanced clinical performance and longevity of prosthetic devices. Further studies on biocompatibility and long-term wear are recommended to validate clinical application.
Keywords: α-Cordierite, Ceramic filler, PMMA, Denture base, Thermal properties, Dental materials

Poster presentation

Prevalence of Headache Among Medical Students in Libya

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Abstract
Headache is a common health problem among university students, particularly during examination periods, and may negatively affect academic performance and well-being. This study aimed to investigate the prevalence, characteristics, and management strategies of exam-related headaches among medical students in Libya. A self-administered online questionnaire was distributed to medical students from International Maaref University and Tripoli University. The survey collected information on headache occurrence, frequency, severity, pain characteristics, and management approaches during examination periods. A total of 27 students participated. The majority (88.9%) reported experiencing headaches during or after exams, with slightly higher prevalence among females compared to males. More than half of the participants experienced headaches frequently or during almost every exam. Reported pain intensity was predominantly moderate to severe, with pulsating headache being the most common pain quality. Management strategies varied by gender: males tended to ignore headaches, whereas females more commonly relied on rest and analgesics. Exam-related headaches are highly prevalent among medical students in Libya and are associated with considerable discomfort during examinations. The findings highlight the need for stress-reduction initiatives and supportive strategies—such as improved exam scheduling, promotion of healthy lifestyle habits, and access to counseling services—to reduce headache frequency and enhance student wellbeing and academic performance.
Keywords: Headache, Prevalence, Medical students, Exam stress, Libya

Poster presentation

Investigating the Study Habits of Medical Students in Libya

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Abstract
Effective study habits and alignment with individual learning styles are critical for academic success in the demanding field of medicine. This study aimed to investigate the dominant learning styles and assess the level of study habits among medical students in Libya, providing an evidence base for optimizing teaching approaches within Libyan medical faculties. A descriptive, cross-sectional design was employed, with a stratified random sample of 80 medical students representing different academic years. Data were collected using the Visual, Auditory, and Kinesthetic (VAK) Learning Style Inventory and the Study Habit Inventory (SHI), which measures four scales: Motivation, Study Method, Exam Technique, and Lack of Distraction. Statistical analysis included descriptive statistics, ANOVA to test differences across year levels, and Pearson's correlation to examine the relationship between learning style and study habits. Findings revealed that Libyan medical students are predominantly visual learners (Mean = 7.85), indicating a strong preference for visual aids and written materials. The overall study habit level was moderate (Mean = 7.10). Among the SHI scales, Motivation was the strongest component (Mean = 8.10), while Lack of Distraction was the weakest (Mean = 6.15), highlighting a significant challenge in maintaining focus. Significant differences were observed in Study Method and Exam Technique across year levels, with senior students demonstrating superior skills. A strong positive correlation ($r = 0.72$, $p < 0.01$) was found between the visual learning style and the Study Method component. While medical students in Libya are highly motivated, they face considerable challenges with distractions. Medical faculties should integrate more visual teaching methods to align with the dominant learning style and implement targeted interventions—such as mandatory study skills workshops for junior students and programs focused on time management and minimizing environmental distractions—to enhance overall academic performance.
Keywords: Study habits, Learning styles, Medical students, Libya, VAK, Academic performance

Poster presentation

The Combined Effects of Sugar Intake and Screen Time on Cognitive Function and Early Alzheimer's Risk Among Students

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Abstract

This study aimed to evaluate the joint influence of sugar consumption and screen exposure on cognitive performance—specifically, memory and concentration—among university students. Growing evidence suggests that high intake of added sugars can impair hippocampal function and attentional processes, while prolonged screen time is associated with mental fatigue, reduced executive control, and lower academic performance. Despite these findings, few studies have examined the combined effects of these two common lifestyle behaviors in young adults. A cross-sectional survey design was employed. A structured online questionnaire was distributed to collect data on students' daily sugar intake, screen-time duration, and subjective levels of concentration and mental fatigue. A total of 123 responses were analyzed. Data extraction included frequency of sugary-drink consumption, hours of daily electronic-device use, and self-reported concentration categorized into high, moderate, or low levels. Statistical analysis involved descriptive frequencies and comparative patterns, which were visualized in three analytical charts. Results indicated that daily sugar consumption was associated with higher reports of low concentration and mental fatigue, with 51% of students consuming sugary drinks daily and 23% reporting low concentration. Similarly, prolonged screen exposure (more than 7 hours per day) corresponded with a higher proportion of low concentration compared to those using screens for less than 2 hours per day. When sugar intake and screen time were combined, students with high sugar consumption and daily screen use exhibited the highest levels of cognitive complaints, whereas those with low intake and limited screen time demonstrated predominantly high concentration. In conclusion, the findings suggest that excessive sugar intake and prolonged screen exposure may contribute to early patterns of reduced attention and cognitive strain among students. If persistent, these lifestyle factors could serve as early indicators of long-term cognitive vulnerability. Promoting healthier dietary habits and moderate screen use may help support improved cognitive performance and academic success.

Keywords. Sugar Intake, Screen Time, Concentration, Students, Cognitive Function.

Poster presentation

Investigation of Infection Control to Prevent Cross-Infection

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Abstract

This study examined infection control awareness, attitudes, and practices in Libya, addressing the persistent risks of cross-infection in healthcare and community settings. It identified limited resources, insufficient training, overcrowded facilities, and inconsistent adherence to hygiene protocols as key contributors to the spread of infectious diseases. A mixed-methods approach was employed, combining a structured online questionnaire with observational assessments to evaluate hand hygiene, personal protective equipment (PPE) use, and environmental cleaning practices. Data collected from healthcare workers, medical students, and members of the general public revealed high levels of awareness regarding infection control but significant gaps between knowledge and practice. Many participants reported inadequate institutional compliance, unsafe clinical environments, and frequent lapses in hygiene. Although most respondents recognized the importance of infection prevention and expressed support for additional training, a considerable proportion lacked formal instruction, underscoring the need for enhanced educational initiatives. The findings indicated that behavioral factors, infrastructural limitations, and resource shortages were major contributors to cross-infection, while also highlighting strong public willingness to improve compliance. The study concluded that effective infection control in Libya requires a comprehensive strategy encompassing continuous training, resource provision, environmental cleanliness, institutional monitoring, and community engagement. These measures are essential to reduce cross-infections, improve patient and public safety, and strengthen overall public health outcomes.

Keywords. Infection Control, Cross-Infection, Public Health Awareness, Environmental Cleaning, Hand Hygiene, Healthcare Workers.

Poster presentation

How Lifestyle Factors Trigger Chronic Diseases through Genetic and Epigenetic Pathways among Medical Students

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Abstract

This study assessed lifestyle patterns among female medical students and their associations with early indicators of chronic disease, including blood pressure, blood sugar, migraine, and gastrointestinal discomfort. A cross-sectional questionnaire was administered to 60 students, collecting data on diet, sleep, stress, physical activity, caffeine intake, smoking, family history, and health indicators. Normal blood sugar (78.4%) and blood pressure (62.3%) were most common. Stress levels fluctuated widely, with peaks at level 10, and poor sleep moderately correlated with higher stress ($r = -0.25$). Better sleep quality correlated with increased water intake ($r = 0.23$), while frequent fast-food intake was strongly associated with daily stomach discomfort (43.8%). Students with a positive family history were more likely to perceive lifestyle-related chronic disease risk (65.9% vs 42.1%). Lifestyle factors such as stress, diet, sleep, physical inactivity, caffeine, and smoking may influence gene expression through epigenetic mechanisms, including DNA methylation, histone modification, and microRNA regulation, thereby affecting metabolism, vascular function, inflammation, pain pathways, and gut-brain signaling. These findings suggest that high exposure to stress and lifestyle imbalance in medical students could activate epigenetic pathways contributing to early disease risk. Promoting awareness of healthy lifestyle practices is crucial for mitigating chronic disease onset and supporting long-term well-being.

Keywords: Medical Students, Lifestyle, Epigenetics, DNA Methylation, Diabetes.