

PROCEEDING OF INTERNATIONAL CONFERENCE 2024

HYBRID EVENT

INTERNATIONAL CONFERENCE 2024
13th – 14th November 2024

Organized By



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Editorial

We are delighted to extend a warm welcome to all participants attending the International Conference 2024 on 13th - 14th November 2024. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in multidisciplinary fields. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for International Conference 2024 contain the most up-to-date, comprehensive, and globally relevant knowledge across various disciplines. All submitted papers underwent rigorous peer-reviewing by 2-4 expert referees, and the papers included in these proceedings were selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results but also serve as a valuable summary and reference for further studies.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also appreciate the efforts of the technical program committee, reviewers, and authors for their dedication.

Since September 2024, the Organizing Committee has received more than 50 manuscript papers, covering various aspects of multidisciplinary research. After review, approximately 16 papers were selected for inclusion in the proceedings of International Conference 2024.

We thank all participants for their significant contribution to the success of the conference. Our gratitude extends to the keynote speakers, individual speakers, technical program committee, reviewers, and the organizing committee for their efforts in making this conference a reality.

Acknowledgement

The International Conference 2024, was successfully held in 13th - 14th November 2024. We extend our heartfelt gratitude to our colleagues, staff, professors, reviewers, and members of the organizing committee for their unwavering support in making this conference a success.

We would also like to thank all the participants who traveled far and wide to attend this conference and those who attended the event virtually, making it a truly global event. This conference provided a platform for students, professionals, researchers, and scientists to share their latest research and developments in various disciplines.

The aim of the conference was to promote research and development activities and to encourage scientific information exchange between researchers, developers, professionals, students, and practitioners from all around the world. Once again, we thank everyone who contributed to making this conference a resounding success.



Nathan Vincent

Program Manager

Institute for Sustainable Innovation & Technology (ISIT)

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A Conceptual Framework of How Entrepreneurial Selling Actions Influence Impulsive Buying: Exploring Cognitive Emotion in the Post-Pandemic Era

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Abstract:

This study contributes to the field of entrepreneurship by examining how entrepreneurial selling actions (ESA) influence impulsive buying (IB) behavior, particularly in the post-pandemic marketplace. The research focuses on sales strategies specifically creative selling and sales innovativeness, exploring how these approaches impact impulsive buying through the mediating role of interactions between sales-involved persons and customers. The aim is to develop a conceptual model that captures these dynamics and serves as a foundation for future empirical research. By conducting a literature review and table analysis, this paper synthesizes existing studies on entrepreneurial selling actions, impulsive buying, and customer interactions, grounding the analysis in cognitive emotion theory (CET) and the Stimuli-Organism-Response (S-O-R) model. Following this review and analysis, a conceptual framework is developed to illustrate the intricate relationships between ESA, interactions, and impulsive buying. The proposed framework examines that entrepreneurial selling actions (ESA), including creative selling and sales innovativeness, have a significant influence on impulsive buying (IB), with interactions between sales-involved persons and customers as a mediator. These interactions, guided by psychological mechanisms from cognitive emotion theory (CET), enhance customer engagement, leading to impulsive buying. Future research can apply this framework to further investigate ESA's impact on impulsive buying, either by empirically validating the model through quantitative methods or exploring deeper emotional and cognitive dimensions of sales interactions using qualitative approaches.

Keywords:

Entrepreneurial Selling Actions; Creative Selling; Sales Innovativeness; Impulsive Buying Themes; Entrepreneurial Marketing.

Conceptualizing the Effects of Entrepreneurial Branding on Purchasing Decisions

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Abstract:

This study examines the impact of Entrepreneurial Branding on consumer Purchasing Decisions by investigating branding constructs and their influence on purchase behavior. The primary objective of this research is to propose a conceptual model with instrumental development, designed for future empirical testing. This paper integrates an intensive literature review and the researcher's experience in entrepreneurial branding to create a foundational framework. The model illustrates connections between Entrepreneurial Branding (EB), Brand Experience (BE), Brand Equity (BEQ), and Purchase Decisions (PD). Moreover, this study recommends a qualitative approach using semi-structured interviews as an empirical testing method to validate these relationships in subsequent research. Criteria for sample selection are also outlined, facilitating future studies. Finally, this paper provides a comprehensive discussion and proposes new directions for further research, aiming to offer practical insights for entrepreneurs and scholars to better understand and leverage entrepreneurial branding in today's competitive market. This framework is intended to bridge gaps in the current understanding of branding's role in influencing consumer decisions.

Keywords:

Entrepreneurial Branding, Brand Experience, Brand Equity, Purchase Decision, Personal Branding
Themes: Entrepreneurial Marketing.

Current Overview on Solar Thermochemical Cycles for Green Fuel Production

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Abstract:

Global energy-related CO₂ emissions grew by 1.1% in 2023 to reach 37.4 billion tonnes. If the emission of greenhouse gases is not drastically reduced, the effects on the climate and thus on life on earth will reach catastrophic dimensions according to almost all recognised studies. The majority of these emissions are produced worldwide by fossil fuels, which are primarily responsible for the power, buildings and heating, transportation, and industry sectors. As a result, certain parts of some sectors are being electrified using energy from sustainable sources. However, a lot of industries are still hard to decarbonize using electricity alone because of the wide range of uses for fossil fuels. One alternative to the fossil fuels is the use of green hydrogen produced by water splitting.

In addition to the electrochemical paths for hydrogen production, thermochemical cycles are very promising pathways for the production of green hydrogen at high efficiencies by water splitting, as they require almost exclusively thermal energy, which can be made available very efficiently as concentrated solar radiation. Moreover, these processes can be used to produce not only hydrogen, but also synthesis gas (a mixture of hydrogen and carbon monoxide) directly, which can be then further transformed in green fuels. In research, two paths to water splitting have emerged that are particularly promising in terms of their efficiency: One is metal oxide redox cycle and the other is sulphur cycle process. Amongst the different types of metal oxide redox cycles, the one using Cerium oxide as metal oxide is currently regarded as the most promising for technical realisation. The first pilot plants are in operation and concepts for upscaling the technology are currently being developed. Thus a thermochemical receiver reactor for water splitting with a thermal output of 750 kW was tested at the Plataforma Solar de Almeria (Spain) producing solar hydrogen. A 50 kW test reactor was also successfully tested and operated in Spain as part of the Sun-to-Liquid European project to produce solar synthesis gas from water and carbon dioxide, from which synthetic paraffin was produced in the next step in a Fischer-Tropsch reactor. In parallel recent promising results have been obtained for the hybrid sulphur cycle. Research is further being carried out included on concepts for heat recovery and continuous operation as well as on new redox materials to achieve higher efficiencies and lower production costs. This paper gives a current overview on solar thermochemical cycles for green fuel production and on the last achievements of the most promising cycles.

Keywords:

Solar energy, thermochemical cycle, hydrogen, future fuels.

Sport, Exercise, and Recreation Participation in Malaysia 2023: The Engagement Pattern According to Demographics, Participant Characteristics and Social Groups

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Abstract:

Malaysian Sports Culture Index 2023 (MSCI'23) measures Malaysians' participation level in sports, exercise and recreation activities based on two domains, namely the participation domain and the sporting spirit domain. There is one indicator under the participation domain: activeness, and four indicators under the sporting spirit domain: volunteering, dedication, expenditure, and contribution. This study uses quantitative methods through a self-designed questionnaire. The quantitative data was collected among 7,015 people aged 13 and above through a face-to-face approach. A multi-cluster random sampling selection across Malaysia was facilitated by employing the block enumeration (BE) and residence area (RA) methods, aided by the iGREAT Survey Management System (IYRES) for online recording of respondent feedback. Descriptive analyses were conducted on quantitative data. The analysis shows that 52% of Malaysians engage in sports, exercise, and recreational activities at least once a month. A total of 48% are not involved in any sports-related activities. The level of activity among the people involved shows that 11.8% are at an active level, 68.8% are moderately active and 19.4% are less active (WHO, 2020). Involvement in sports and

exercise are the two main choices of Malaysians over recreational activities. The sporting spirit is measured based on indicators of volunteering, dedication, spending and contributions. Voluntary activities are a catalyst for sporting spirit and the main indirect contributor to the MSCI'23 score compared to the other three indicators. The findings of this study also show that gender, ethnicity, marital status, and age influence the score of the index. In terms of age for example, the younger the more active they are. While urban and rural locations do not show a real difference. This study identified and outlined five main themes that influence the participation of Malaysians in sports, namely, individual intrinsic motivation, proper and holistic education, facility condition and management, individual goal priorities and dynamic creative media use. These themes could help stakeholders to determine the types of programs to cultivate sports in Malaysia. Many positive signs show Malaysia's sports culture will continue to improve in the coming years. The completion of the sports program is recommended to focus equally on the domains of participation and sporting spirit.

Teachers' Perceptions of Being Observed and Its Impact on the Promotion of Lesson Study in ELT

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Abstract:

This presentation is part of the "Creation of Cooperative Teaching Spaces Among EFL Teachers through the Implementation of the Lesson Study Approach: An Exploratory Action Research Study" project. This is a research project funded by the National University of Education in Ecuador and aims to generate spaces that promote pedagogical reflection and collaboration among primary and secondary English teachers through the implementation of the lesson study approach.

The lesson study (LS) is a professional development approach that "allows teachers to examine their practices in the classroom setting" (Naem, 2020). LS comprises a collaborative cycle where teachers collaboratively plan, implement, reflect, and replan a lesson (Adler, Mwadzaangati and Takker, 2023). In the present study, five National University of Education researchers worked with six in-service English as a Foreign Language (EFL) teachers from different public schools.

Thirty EFL teachers were trained on the university premises to gain familiarity with the LS process. After that, the researchers invited these EFL teachers to continue the study, and only ... accepted. The researchers organized the LS meetings through Zoom, where EFL teachers planned a class and then they chose the teacher who would implement the class. One researcher visited the teacher who was selected to implement the lesson and videoed the entire class. Then, the video was shared online with the rest of the schoolteachers for its analysis. The researchers planned another session where the six teachers reflected on the first lesson, modified the planning based on their suggestions and recommendations, and chose a new teacher to implement the new lesson plan.

During the process of class observation, despite the collaborative planning, EFL teachers' practices limited creativity and innovation in the class. This presentation shows the areas teachers focus on when being observed.

A questionnaire was created and administered to 3813 EFL teachers around the country to identify the aspects that EFL teachers focused on during class observations. The questionnaire contained three domains regarding class observations: 1. EFL teachers' priorities, 2. Teachers' feelings, and 3. Affective responses to the people who observe them.

Regarding the EFL teachers' priorities when they are observed, the instrument presented 11 activities to the respondents to rank them in order of importance, where 1 was the most important and 11 the least important. Teachers organized these activities: 1. Completing prepared activities, 2. Promoting a good relationship with the students, 3. Controlling students' discipline, 4. Complying with the institutional rules, 5. Using general teaching strategies, 6. giving feedback to students, 7. Using English in the classroom, 8. Group work, 9. Using the ELT methodologies established in the national curriculum, 10. Using technological resources and equipment, 11. The amount of time that the teacher speaks. The results show that teachers the five most important activities they do, show the structure of a rigid class that may not provide space for innovation and creativity. What is also interesting is that EFL teachers seemed not to apply the ELT teaching methodologies recommended in the EFL national curriculum. Additionally, what is essential to notice is that the teachers ranked the least the amount of time that the teachers speak. Considering that the national curriculum promotes

communicative classes where students need to talk more and the teachers reduce their talking time, these results confirm that when teachers are observed, they want to project an image of control of their classes and application of institutional policies.

Regarding the teachers' feelings when being observed, 40% of respondents manifested that they felt confident, 23% relaxed, 9.4% impatient, and a small percentage of EFL teachers feel uncomfortable and nervous. It can be implied that during teachers' observations, they felt confident and relaxed when show control of the class follow the lesson plan and institutional policies. As was said before, it does not provide room for innovation and creativity in the class, and in the case of English, the use of the language, which is the objective of the class, is not promoted.

This data complements the affective responses towards the authorities that observe them. 92.8% of teachers expressed gratitude towards the observer, and 7.2% felt frustrated. This also shows that teachers may be inclined to please the school authorities.

Considering that LS is a process where teachers are observed mainly by their peers and the intention is to plan more pertinent classes, EEFL teachers need to change their priorities when they are observed in classes and open more to try different aspects that promote innovation and creativity in classes.

Levene's Test for Verifying Homoscedasticity Between Groups in Quasi-Experiments in Education

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Abstract:

One of the most used quantitative research designs in the educational field is the quasi-experiment with an experimental group and a control group. Its widespread use can be explained, on one hand, by the fact that this design offers greater internal control than pre-experimental designs, which lack a control group. On the other hand, it poses fewer methodological challenges compared to true experiments, whose operational demands often exceed or do not align with the natural behavior of groups in educational populations. Given its prevalence in research studies, it is important to highlight that one of the weaknesses of this design lies precisely in the determination of the treatment and control groups. These groups are often selected based on the researcher's convenience or even inferred through common sense, that is, without a scientifically valid criterion. To address this issue, this article presents Levene's test as an option for verifying homoscedasticity between these two groups, which can contribute to methodological rigor in this aspect that substantially impacts the internal validity of the research findings.

Keywords:

Quasiexperiment; Internal validity; Levene test; Homoscedasticity.

Medium Voltage Underground Fault Localization Using CelloC System

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Abstract:

After a fault occurs on an underground distribution feeder, linesmen crews are deployed to reconfigure the network and resupply customers affected by the outage. Then, the part of the faulty line is taken into work authorization for localizing the fault and replacing the damaged splice or cable segment. The first step is a short duration HIPOT test to determine the faulty phase. The cable on each phase might hold the prescribed voltage showing a healthy phase, might not hold any voltage, showing a conductive fault, or might hold up to a certain voltage when a breakdown or flashover occurs. This last scenario is favorable to fault localization by traveling waves method.

The paper will introduce the novel underground fault localization system (UFLS) CelloC, based on traveling waves method, which targets an accurate timestamping of breakdown transients detected at extremities of the underground distribution feeder when a cable fault occurs. Combined with the network architecture data, fault position, either on the mainline/feeder or on a lateral can be very accurately located. Examples of laboratory and field fault localizations are discussed.

Performance Analysis of Türkiye's Climate Change Resilience within the Disaster Management Framework

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Abstract:

Türkiye is one of the regions that will be most affected by the impacts and variability of climate change, especially in coastal cities. These impacts have led to an increase in socio-economic and environmental vulnerabilities due to the urban development policies implemented in the country in recent years. This study, focusing on resilience policies to climate change impacts within the scope of disaster management, aims to assess the country's performance in recent years in terms of climate change adaptation and coping with disasters. The study analyzes Türkiye's annual climate change performance by using available data. RAWEC (Ranking of Alternatives with Weights of Criterion) method, one of the multi-criteria decision-making methods, is used for the analysis. The LOPCOW (Logarithmic Percentage Change-driven Objective Weighting) method is also used to weight the criteria. Turkey's performance ranking over the years is analyzed within the scope of the data generated based on the Climate Disaster Resilience Index (CDRI) and Climate Change Performance Index (CCPI) parameters. Since the CCPI is an index that includes five dimensions of resilience, "natural, physical, social, economic, and institutional," the data of the study were selected and analyzed considering these dimensions. Thus, Türkiye's current level of climate disaster resilience in targeted areas is measured. The data for the criteria were obtained from the World Bank and TurkStat database. As a result of the study, Türkiye's climate change performance ranking in the analyzed years is obtained, and the reasons for the differences in the performance ranking are evaluated.

Keywords:

Climate disaster resilience, climate change, climate change performance, disaster management, Türkiye.

The Influence of Coping on Depressive Symptoms for Older African Americans Post-Trauma

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Abstract:

Objectives: Past studies indicate that religious coping is commonly used among African Americans during times of distress. However, this study sought to explore other commonly utilized coping strategies and examine the influence of coping on psychological distress. The aims of this paper are to: (1) examine prominent coping mechanisms employed by older, African Americans, and (2) determine which coping mechanisms negatively influence depressive symptomatology.

Methods: Data was collected from 61, older African American trauma survivors, ages 55 to 98, via structured interviews. Coping strategies were measured with 26 items from the Brief COPE and depressive symptoms with 20 items using the CES-D. Categorical regression (elastic net regularization) and bootstrapping were used to investigate the relationship between the predictors and depression.

Results: The primary coping characteristics used by these respondents were acceptance, active coping, and positive reframing. The regression analysis indicated that emotional support, positive reframing, humor, and income have a buffering effect on depressive symptoms. Further, three maladaptive/avoidant coping strategies were positively associated with depressive symptoms; these were – self-blame, substance use, and self-distraction.

Conclusion: Participants were more likely to use a mix of both problem-focused and emotion-focused strategies and least likely to utilize avoidant coping. Practice and research implications of these findings are presented.

Keywords:

Coping, depression, older African Americans, race, trauma.

Comparative Analysis of Fault Classification Algorithms for Triplex Pumps

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Abstract:

Maintenance strategies have undergone significant evolution during the last thirty years, leveraging advancements in digital twin modelling, sensor technology, communication, augmented reality, artificial intelligence, and predictive analytics. Fault detection and isolation (FDI) within complex systems like triplex pumps have emerged as critical components for effective maintenance planning. Thus, monitoring the triplex pump is crucial to managing faults and avoiding unscheduled maintenance. Feature extraction and selection are pivotal for optimizing fault diagnosis algorithms. This paper aims to present a comparison study of fault classification algorithms based on data collected from the simulation model of a triplex pump under different failure scenarios. The features are extracted from the pump's flow signal and grouped into four sets of features. The first set includes all the extracted features from the signal. These features are a combination of time domain and frequency domain features. The second set includes only the time domain features. The third set of features includes the frequency domain. The fourth set includes the peak magnitude in the power spectrum and the mean value of the flow signal, which are the features that rank highest in both the second and third sets based on Chi2 algorithms. Fourteen classification algorithms are trained, validated, and tested using four feature sets based on the simulation data. The simulation provides data for seven operation scenarios, including healthy conditions with free fault, three single failures, and three combined failures. The performance of the classification algorithms is evaluated using the recall, precision, accuracy, and the F1 score. The results indicate that the Weighted KNN and Bagged Trees Ensemble algorithms achieve perfect accuracy (100%) across all feature sets, indicating their robustness and effectiveness in classification tasks. However, some algorithms exhibit variable performance depending on the feature set used. For example, the Efficient Linear SVM algorithm shows a significant decrease in accuracy when utilizing the 14-feature set or 5 frequency-domain features compared to others, suggesting a potential mismatch for time-domain feature spaces. In addition, the performance metrics, including accuracy, precision, recall and F1 score, across models showed a remarkable variation between them. Weighted KNN, Bagged Trees Ensemble and Neural Network models were found to be exceptional, with all perfect scores indicating that they can accurately classify instances according to these metrics.

Keywords:

Fault Detection, Features Domain, Classification Algorithms, Triplex pump.

Youth Autonomy and Depression: Unveiling Gender Differences

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Abstract:

Adolescence is a transformational phase of one's life, given the physical and psychological changes that occur during this phase. Autonomy is a psychological development task which may assume the shape of detachment and maybe characterized by alienation and distrust towards parent's role during this phase. Studies suggest that male and female adolescents undergo depressive symptoms during this transitional period because of autonomy development. In this study, an effort will be made to study emotional autonomy as a predictor of depression and to understand the gender differences in this prediction. A sample of 400 adolescents (242 = Females and 158 = Males) in the age group of 15 – 22 (Mean Age = 18.36 yrs) years is taken. Beck Depression Inventory (Beck, Steer and Brown, 1996) and Emotional Autonomy Scale (Steinberg and Silverberg, 1986) are used to collect the data. The results will be analyzed according to appropriate statistical analysis and the results found significant at 0.01 level will be elucidated. The implications of the study will be elaborated.

Urban Analysis with Means of Geometrical and Mathematical Theories

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Abstract:

This paper presents an approach to urban theories that enable socialization with mathematics and efforts to transform the design process into a more scientific and predictable formulation. This effort is also a critique of purist geometric tendencies in most urban practitioners, insisting that from this inability to understand the real urban life, come artificial proposals, which contribute to the sum of problems facing the city today. Along with the natural tendency of cities for complex structures, with patterns not simple to understand, over the centuries designers have been accompanied by the human tendency to establish clear rules, based on rigid geometric forms, often described as "pure". Unfortunately, these seemingly incomprehensible and chaotic monsters, which we call cities, are living organisms, and therefore obey invisible codes and laws in their functioning and especially in their growth. For the theories presented in this paper, these laws are summarized in centers of human function and the pathways that connect them. Based on this concept, it is possible to analyze the city and its meaning, through a translation into mathematical models, which are practically graphs, allowing proposals for changes in the current structures, or for the expansion and birth of new ones.

Keywords:

Urban web, patterns, morphology, space syntax.

Architectural Heritage Restoration as a Mean of Social-Economic Revitalization in the Historical City of Gjirokastra

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Abstract:

Historical cities in Albania are among the biggest potentials for the development of tourism. As such, they are constantly undergoing restorative and rehabilitative interventions. The problem of these interventions is that they focus on the physical restoration of the objects without addressing the strategy of economic management and continuous use of the object.

The most important of the historical Albanian cities is Gjirokastra, which holds the largest part of the architectural heritage, which is proven by the status given to it in 2005 by the UNESCO organization as a protected area. There have been many interventions in the city of Gjirokastra, but they have not resolved a long-term maintenance strategy for these historic buildings. During the communist period, these objects were forgotten and partially destroyed. The restoration of traditional houses aims to revive the memories of the old image of the city. These interventions are recreating the old atmosphere of the alleys of Gjirokaster, the original appearance of the buildings and the re-evaluation of the traditional building materials. This image of a stone city-museum should be accompanied by the noises of the people who lived there, the aromas of traditional cooking, the colors of their clothing, old customs and traditions.

This paper tries to make a connection between the physical revival of traditional houses and the socio-economic revival of the forgotten atmosphere of Gjirokastra inside these houses.

Keywords:

Restoration, architectural heritage, revitalization, history, Gjirokastër.

Major Neurocognitive Disorder as Primary Diagnosis in Man Admitted to a Forensic Psychiatric Hospital: A Case Report

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Abstract:

Background: The prevalence of older prisoners continues to rise, and with it the prevalence of Major Neurocognitive Disorder (dementia) rises^{3,4}. This population in both prisons and forensic psychiatric facilities has special needs that may not be met in the current system. This case report aims to highlight the need for proper screening and discuss better ways to care for such patients.

Case Presentation: This case follows a 67-year-old African American male who presented to Saint Elizabeths Hospital (Washington, DC) for inpatient competency evaluation. He carried misdemeanor charges of alleged shoplifting. He had no known past psychiatric history from his report, and no records to indicate contact with behavioral health services in regional health information exchange (HEI). Records from HEI did reveal an emergency room visit for possible head injury about a year prior to forensic hospitalization, with CT head revealing “Extensive supratentorial low-attenuation, likely small vessel ischemic disease.”

The patient reported that he had recently lost his job and was evicted from his home. Review of symptoms was negative for any current or prior history of mood, anxiety, or other psychiatric symptoms. Impairment of Mini-Mental State Exam (MMSE) prompted the team to administer the Montreal Cognitive Assessment (MOCA). Based on notable multi-domain cognitive deficits and patient’s decline in life functioning, he was diagnosed with Major Neurocognitive Disorder. He was recommended for neurology consult for further neurocognitive disorder work up.

Discussion: This case demonstrates the unique circumstance of an older adult with dementia psychiatrically hospitalized for forensic competency evaluation, despite no psychiatric comorbidities. This patient’s story highlights the need for diversion of resources from criminal justice system to social supports. Older adults in prison and psychiatric facilities may face social isolation and lack of targeted programming, which leads to adverse consequences¹. In addition, due to a lack of physical prowess, they may be vulnerable to their younger counterparts and be victimized². There can be great benefit to creating specific programs for older adults in prisons and psychiatric facilities, and greater steps should be taken to cater to this population.

Keywords:

Major Neurocognitive Disorder, Dementia, Forensic Psychiatry.

Positron Emission Tomography in Early Oropharyngeal Cancer

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Abstract:

Positron emission tomography (PET) has emerged as the primary imaging modality in the diagnosis, staging, and monitoring of oropharyngeal cancers (OPC). It provides functional imaging and metabolic information, PET, often combined with computed tomography (CT) as PET/CT, enhances the accuracy of cancer detection that can sometimes be occult on initial staging scans. This technology is particularly valuable in the context of OPC, where the precise identification of primary tumors and metastatic nodes can significantly influence treatment planning and prognostication. In this paper, we explore the application of PET in early stage OPC, adherence to the NICE guidelines in our hospital and how we can use these scans as effectively as possible.

Oropharyngeal malignancy is defined as cancer originating from the base of tongue, oropharynx, tonsils, epiglottis or soft palate. It is a malignancy that is increasing in prevalence in the western world with two main subdivisions of pathogenesis, Human Papilloma Virus (HPV) and non-HPV mediated Squamous Cell Carcinoma (SCC).

In 2017 there was a change in how these cancers were staged by the American Joint Committee on Cancer (AJCC) in the new 8th edition. The T stage was altered to include Depth of invasion (DOI), as deeper tumours were more commonly associated with metastatic disease and with it a worse prognosis. A DOI of greater than 10mm is now classified as at least T3. Nodal staging was also changed to include another indicator of poor prognosis in Extra nodal extension (ENE). If a patient is ENE+ or has any lymph node greater than 6cm, this would now be classified as N3 in HPV negative patients.¹

Regarding staging of OPC, the NICE guidelines recommend PET to all patients with Oropharyngeal Tumours excluding those with T1/T2 with N0 nodal status. PET scans are recommended for all T3 and T4 tumours, anyone with nodal metastatic disease confirmed on initial CT or Magnetic Resonance Imaging (MRI) and histological confirmation of lymphatic disease.²

A Case of Urinary Tract Infection Caused by Achromobacter Xylosoxidans in an Immunocompetent Young Male Patient

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Abstract:

Achromobacter xylosoxidans, previously called Alcaligenes xylosoxidans, is an oxidase positive, motile bacillus found predominantly in polluted aquatic sources. Irrespective of the age group, it primarily causes opportunistic infection and hospital acquired infection under certain conditions. Being a rare causative agent, it has been notified to cause prosthetic valve endocarditis, peritonitis, skin and soft tissue infection, hepatobiliary infections, bacteremia (3), otitis media (6), pneumonia, urinary tract infections, meningitis, and corneal ulcers, particularly in immunosuppressed patients. Infection in an immunologically competent patient is quite rare, and only limited studies are available regarding its prevalence. Urinary tract infection secondary to achromobacter xylosoxidans in an immunocompetent adult is quite uncommon. In our study, we dealt with a case of urinary tract infection (2) in an immunocompetent young male patient caused by A. xylosoxidans, who got admitted, treated with susceptible antibiotics, recovered, and discharged back home with no specific complaints.

Keywords:

Achromobacter Xylosoxidans, Immunocompetent.

