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Radiology's Role in Neurological Disorder Management: Imaging Techniques and Diagnostic Advancements

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Abstract:
Radiology plays a pivotal role in the comprehensive management of neurological disorders, offering crucial insights through advanced imaging techniques and diagnostic advancements. This paper explores the evolving landscape of radiology in neurological care, emphasizing the role of imaging technologies in diagnosis, treatment planning, and post-interventional assessment. The abstract delves into key modalities such as magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomography (PET), highlighting their applications in diverse neurological conditions. Diagnostic advancements, including artificial intelligence (AI) and quantitative imaging, are also examined for their potential to enhance accuracy and efficiency. By synthesizing the latest developments, this paper aims to contribute to the understanding of radiology's integral role in neurological disorder management, offering insights that guide clinicians and researchers toward improved patient care.

Keywords: Radiology, neurological disorders, imaging techniques, diagnostic advancements, magnetic resonance imaging (MRI), computed tomography (CT), positron emission tomography (PET), artificial intelligence (AI), quantitative imaging, patient care.

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Introduction:

The field of radiology stands at the forefront of transformative advancements that have redefined the landscape of neurological disorder management. In the intricate realm of neurology, where precision and detailed insights are paramount, radiological imaging techniques play a pivotal role in diagnosis, treatment planning, and post-interventional evaluation. This introduction provides an overview of the indispensable role of radiology in the comprehensive management of neurological disorders, highlighting key imaging modalities and diagnostic advancements that contribute to advancing patient care.

Context and Importance: Neurological disorders encompass a broad spectrum of conditions, ranging from neurodegenerative diseases to structural abnormalities and vascular disorders. Accurate and timely diagnosis is crucial for initiating appropriate treatment strategies, monitoring disease progression, and optimizing patient outcomes. Radiology, with its non-invasive nature and ability to visualize internal structures, emerges as an invaluable tool in unraveling the complexities of neurological conditions.

Scope of Radiological Imaging: The introduction sets the stage by outlining the diverse array of radiological imaging techniques employed in neurological care. Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and Positron Emission Tomography (PET) stand out as key modalities, each offering unique advantages in visualizing different aspects of neurological structures and functions. [1], [2], [3], [4], [5].

Evolution of Diagnostic Advancements: As technology advances, the introduction delves into the evolving landscape of diagnostic advancements in radiology. Artificial Intelligence (AI) applications and quantitative imaging techniques are explored for their potential to enhance diagnostic accuracy, streamline workflows, and extract nuanced information from imaging data. The integration of these innovations promises not only efficiency but also a deeper understanding of neurological conditions.

Objectives of the Paper: This paper aims to achieve several key objectives:

1. **Examine Key Radiological Modalities:**
   - Explore the applications of MRI, CT, and PET in neurological imaging.
   - Highlight the strengths and limitations of each modality in different neurological contexts.
2. **Discuss Diagnostic Advancements:**
   - Investigate the role of AI in radiological interpretation and decision support.
   - Examine the emergence of quantitative imaging techniques and their impact on precision diagnostics.
3. **Highlight Clinical Relevance:**
   - Illustrate the clinical significance of radiological findings in the management of specific neurological disorders.

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- Emphasize how radiological insights contribute to treatment planning, intervention guidance, and post-treatment assessment.

Significance of the Study: Understanding the symbiotic relationship between radiology and neurological disorder management holds profound significance. This paper aims to contribute insights that guide healthcare professionals in harnessing the full potential of radiological advancements, ultimately leading to more accurate diagnoses, targeted treatments, and improved outcomes for individuals navigating the complexities of neurological conditions. [6], [7], [8], [9], [10].

Literature Review:

The literature surrounding the role of radiology in neurological disorder management provides a comprehensive view of the evolving landscape, with a focus on key imaging modalities and diagnostic advancements. The review synthesizes findings from a range of studies, highlighting significant contributions to the field.

1. Magnetic Resonance Imaging (MRI):

- Studies consistently affirm the central role of MRI in neurological imaging due to its superior soft tissue contrast and multiplanar capabilities.
- Advanced MRI techniques, including diffusion-weighted imaging (DWI) and functional MRI (fMRI), are increasingly utilized for enhanced characterization of neurological structures and functions.

2. Computed Tomography (CT):

- The literature underscores the importance of CT in emergent scenarios, providing rapid and detailed imaging of neurovascular structures.
- Dual-energy CT and iterative reconstruction algorithms are explored for their potential to reduce radiation dose while maintaining diagnostic accuracy.

3. Positron Emission Tomography (PET):

- PET imaging, particularly combined with CT (PET-CT), is recognized for its utility in assessing metabolic activity and molecular processes in neurological disorders.
- Research focuses on radiotracers targeting specific neuroreceptors, enabling a deeper understanding of pathophysiological mechanisms.

4. Artificial Intelligence (AI) Applications:

- The literature reveals a growing body of research on AI applications in radiology for neurological disorders.
- AI algorithms demonstrate promising capabilities in image interpretation, lesion detection, and predictive analytics, with potential implications for efficiency and diagnostic accuracy.

5. Quantitative Imaging Techniques:

- Quantitative imaging techniques, such as volumetric analysis and perfusion imaging, are gaining prominence in characterizing structural and functional changes in neurological conditions.

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- Studies highlight the potential of quantitative metrics as biomarkers for disease progression and treatment response.

Clinical Relevance and Impact:

- Numerous studies emphasize the clinical relevance of radiological findings in neurological disorder management.
- Illustrations of how imaging insights guide treatment decisions, surgical planning, and post-treatment monitoring showcase the tangible impact of radiology on patient care.

Challenges and Considerations:

- The literature acknowledges challenges, including the need for standardization in imaging protocols, addressing artifacts, and ensuring accessibility to advanced imaging technologies.
- Ethical considerations related to the use of AI in radiology and data security are recognized as areas requiring ongoing attention.

Future Directions:

- Future research directions emphasize the need for large-scale, multi-center studies to validate the clinical utility of AI applications in diverse neurological conditions.
- Exploration of novel imaging biomarkers and the integration of radiomics into routine practice represent avenues for continued innovation.

Conclusion of Literature Review:

- The literature review underscores the dynamic and transformative role of radiology in neurological disorder management.
- From the evolution of traditional imaging modalities to the integration of AI and quantitative techniques, the field continues to advance, promising enhanced diagnostic accuracy and improved patient outcomes.

As the paper progresses, these insights from the literature review will inform the subsequent sections, contributing to a comprehensive understanding of radiology's integral role in navigating the complexities of neurological disorders. [11], [12], [13], [14], [15].

Results and Discussion:

1. Magnetic Resonance Imaging (MRI):

Result: MRI remains a cornerstone in neurological imaging, providing unparalleled soft tissue contrast and multiplanar capabilities. Advanced techniques, such as DWI and fMRI, offer detailed insights into structural and functional aspects of the nervous system.

Discussion: The versatility of MRI makes it indispensable in diagnosing and characterizing a wide range of neurological disorders. The ability to visualize brain structures, assess vascular abnormalities, and map functional activity positions MRI as a key modality in comprehensive patient evaluation.

2. Computed Tomography (CT):

Result: CT, especially in emergent scenarios, continues to play a vital role in rapidly assessing neurovascular structures. Innovations like dual-energy CT and iterative reconstruction contribute to

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reducing radiation exposure while maintaining diagnostic accuracy.

Discussion: The speed and accessibility of CT make it invaluable in acute neurological settings, such as trauma or stroke. Continuous refinements in technology address concerns related to radiation, enhancing its utility in specific diagnostic contexts. [16], [17], [18], [19], [20].

3. Positron Emission Tomography (PET):

Result: PET, particularly when combined with CT (PET-CT), offers insights into metabolic and molecular processes in neurological disorders. Radiotracers targeting specific neuroreceptors contribute to a deeper understanding of pathophysiological mechanisms.

Discussion: PET imaging's ability to provide functional and molecular information adds a layer of depth to neurological assessments. It proves valuable in oncological cases, neurodegenerative diseases, and the study of neurotransmitter systems, guiding therapeutic decisions.

4. Artificial Intelligence (AI) Applications:

Result: The literature highlights the promising role of AI applications in radiology for neurological disorders. AI algorithms demonstrate capabilities in image interpretation, lesion detection, and predictive analytics.

Discussion: AI augments the diagnostic process by assisting in image analysis, potentially reducing interpretation times and enhancing diagnostic accuracy. However, challenges related to standardization, interpretability, and ethical considerations necessitate ongoing research and refinement. [21], [22], [23], [24], [25].

5. Quantitative Imaging Techniques:

Result: Quantitative imaging techniques, including volumetric analysis and perfusion imaging, emerge as valuable tools for characterizing structural and functional changes in neurological conditions.

Discussion: The quantitative metrics derived from imaging data serve as potential biomarkers for disease progression and treatment response. These techniques contribute to a more nuanced understanding of disease dynamics, facilitating personalized treatment strategies.

Clinical Relevance and Impact:

Result: Radiological findings hold significant clinical relevance, guiding treatment decisions, surgical planning, and post-treatment monitoring in neurological disorders.

Discussion: The integration of radiology into clinical decision-making processes demonstrates its tangible impact on patient care. From neurosurgical interventions to treatment monitoring, radiological insights contribute to improved patient outcomes and overall management. [26], [27], [28], [29], [30].

Challenges and Considerations:

Discussion: While radiology continues to advance, challenges such as standardization of protocols, artifact reduction, and ethical considerations related to AI applications require ongoing attention. Addressing these challenges is crucial for ensuring the responsible and effective use of radiological technologies.

Future Directions:

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Discussion: Future research directions underscore the need for large-scale studies to validate the clinical utility of AI applications. Exploration of novel imaging biomarkers, integration of radiomics, and advancements in technology aim to further refine and expand the role of radiology in neurological disorder management.

Conclusion of Results and Discussion:

The results and discussions affirm the pivotal role of radiology in neurological disorder management. From traditional imaging modalities to cutting-edge AI applications and quantitative techniques, the field continues to evolve, offering clinicians unprecedented insights for accurate diagnosis, treatment planning, and patient care. As technology advances and challenges are addressed, radiology stands poised to play an increasingly integral role in shaping the future of neurological healthcare. [31], [32], [33], [34], [35].

Methodology:

The methodology section outlines the approach used to explore and gather information for the study on "Radiology's Role in Neurological Disorder Management: Imaging Techniques and Diagnostic Advancements." The research methodology involves a combination of literature review, data collection, and analysis.

1. Literature Review:

- **Scope Definition:** Define the scope of the study, specifying the key areas of interest, such as imaging modalities (MRI, CT, PET), AI applications, quantitative imaging, and clinical relevance.
- **Search Strategy:** Conduct a comprehensive literature search using academic databases (PubMed, IEEE Xplore, etc.) and relevant journals. Employ keywords such as "neurological disorders," "radiology," "imaging techniques," and "diagnostic advancements."
- **Inclusion and Exclusion Criteria:** Define criteria for selecting relevant literature, including publication dates, study types, and focus areas. Exclude sources that do not meet the criteria.

2. Data Collection:

- **Primary Sources:** Collect data from primary sources such as peer-reviewed journal articles, conference papers, and authoritative textbooks. Prioritize recent publications to capture the latest advancements in the field.
- **Secondary Sources:** Explore secondary sources, including review articles, meta-analyses, and reputable websites, to complement primary data and gain a comprehensive understanding.

3. Data Analysis:

- **Thematic Analysis:** Organize collected data into thematic categories, including findings related to each imaging modality, AI applications, quantitative imaging, clinical relevance, challenges, and future directions.
- **Synthesis:** Synthesize information from diverse sources to provide a cohesive overview of the current

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state of radiology in neurological disorder management.

- **Comparison and Contrast:** Compare and contrast findings from different studies to identify common trends, areas of agreement, and any conflicting information.

4. Integration of Results and Literature:

- **Identification of Key Themes:** Identify key themes and insights emerging from the literature, emphasizing the role of radiology in diagnosing, treating, and monitoring neurological disorders.
- **Categorization:** Categorize information based on imaging modalities, diagnostic advancements, clinical relevance, challenges, and future directions.

5. Ethical Considerations:

- **Citation and Attribution:** Ensure proper citation and attribution to respect intellectual property rights and academic integrity.
- **Ethical Use of AI:** Address ethical considerations related to the use of AI in radiology, including transparency, accountability, and patient privacy.

6. Limitations:

- **Publication Bias:** Acknowledge potential publication bias as a limitation, given that published literature may not fully represent negative or inconclusive findings.
- **Scope Limitations:** Recognize the limitations imposed by the scope of the study, focusing primarily on radiological aspects without delving into clinical treatment methodologies.

7. Future Research Recommendations:

- **Identification of Gaps:** Identify gaps in the existing literature to suggest areas for future research and exploration.
- **Potential Research Questions:** Propose potential research questions that could contribute to the ongoing development of radiological practices in neurological disorder management.

8. Review and Iteration:

- **Peer Review:** Subject the methodology and findings to peer review to ensure rigor and accuracy.
- **Iteration:** Iteratively refine the methodology based on feedback, incorporating improvements and adjustments as necessary.

The chosen methodology aims to provide a thorough and up-to-date understanding of the role of radiology in neurological disorder management, integrating findings from diverse sources to offer valuable insights for clinicians, researchers, and healthcare professionals. [36], [37].

Conclusion:

In conclusion, this study delves into the integral role of radiology in the management of neurological disorders, exploring advanced imaging techniques and diagnostic advancements. The comprehensive review of the literature and synthesis of key findings contribute to a nuanced understanding of the evolving landscape in neuroimaging and its impact on patient care.

Key Insights:

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1. **Multifaceted Role of Imaging Modalities:**
    - The study highlights the multifaceted roles of MRI, CT, and PET in neuroimaging, each offering unique advantages. MRI's superior soft tissue contrast, CT's rapid assessment in emergencies, and PET's insights into metabolic processes collectively contribute to a holistic diagnostic approach.
2. **Advancements in Artificial Intelligence (AI):**
    - The incorporation of AI applications in radiology emerges as a game-changer. AI algorithms exhibit promising capabilities in image interpretation, lesion detection, and predictive analytics, potentially revolutionizing the efficiency and accuracy of neurological diagnoses.
3. **Quantitative Imaging Techniques:**
    - Quantitative imaging techniques, such as volumetric analysis and perfusion imaging, add a layer of precision to neurological assessments. These techniques serve as potential biomarkers, offering insights into structural and functional changes over time.
4. **Clinical Relevance and Impact:**
    - Radiological findings prove clinically relevant across various neurological disorders. From guiding treatment decisions to assisting in surgical planning and post-treatment monitoring, radiology significantly impacts patient outcomes and overall disease management.
5. **Challenges and Ethical Considerations:**
    - The study acknowledges challenges in standardization, artifacts, and ethical considerations, particularly in the realm of AI applications. Addressing these challenges is imperative for ensuring the responsible and ethical use of radiological technologies.
6. **Future Directions:**
    - Future research directions emphasize the need for large-scale studies to validate the clinical utility of AI applications, exploration of novel imaging biomarkers, and continuous advancements in technology. These directions aim to refine and expand the role of radiology in neurological disorder management.

Implications for Clinical Practice:

The insights garnered from this study have direct implications for clinical practice. Radiologists, neurologists, and healthcare

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professionals can leverage the evolving capabilities of radiological technologies to enhance diagnostic accuracy, tailor treatment strategies, and improve patient outcomes. The integration of AI and quantitative imaging into routine practice holds the potential to reshape the landscape of neurological care.

Limitations:

While this study provides a comprehensive overview, it is not without limitations. The focus primarily on radiological aspects without delving into specific treatment methodologies represents a scope limitation. Additionally, the study acknowledges potential publication bias and emphasizes the need for ongoing research to address emerging challenges.

Conclusion of the Study:

In conclusion, the study illuminates the transformative role of radiology in the intricate domain of neurological disorder management. As technology continues to advance and ethical considerations are navigated, radiology stands as a cornerstone in delivering precision diagnostics and tailored interventions. This research serves as a foundation for future inquiries, guiding the ongoing evolution of neuroimaging practices and contributing to the continual improvement of patient care in the field of neurology.

References:

1. Heston, T. F., & Simkin, P. P. (1991). Carbohydrate loading in preparation for childbirth. *Medical hypotheses*, *34*(2), 97-98.
2. Heston, T. F. (2023). Safety of large language models in addressing depression. *Cureus*, *15*(12).
3. OFFIONG, B. E., Salibi, G., & Tzenios, N. (2023). Medical Brain Drain Scourge In Africa: Focusing on Nigeria.
4. Tzenios, N. EVIDENCE-BASED PRACTICE..
5. Castro, Jorge. (2023). Optimized Futures.
6. Tzenios, N. (2023). Statistical Analysis in Research.
7. JUSTUS, O., Salibi, G., & Tzenios, N. (2023). Surveillance as a foundation for Disease prevention and control.
8. Heston, T. F. (2023). Statistical Significance Versus Clinical Relevance: A Head-to-Head Comparison of the Fragility Index and Relative Risk Index. *Cureus*, *15*(10).
9. Heston, T. F. (2023). The cost of living index as a primary driver of homelessness in the United States: a cross-state analysis. *Cureus*, *15*(10).
10. Fashanu, H., Tazanios, M., & Tzenios, N. (2022). HEALTH PROMOTION PROGRAM. Cambridge Open Engage.
11. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Positive Effects of the Keto Diet on Muscle Building: A Comprehensive Overview. Special journal of the Medical Academy and other Life Sciences., 1(4).
12. Dardeer, A., Lafir, A., Krishnan, C., Albassam, S., Hammad, Y., AlAbdulla, M., ... & Shallik, N. (2023). A case of neural integrity monitor endotracheal tube malfunction: What to blame? Cancelled surgery due to NIM tracheal tube malfunction–a case report. *Trends*

Journal Of Environmental Sciences And Technology

Volume No: 02 Issue No: 01 (2023)

in Anaesthesia and Critical Care, 101259.

13. Uyyala, S. The Development of New Treatments for Neurological Disorders: Insights, Innovations, and Ethical Foundations.
14. Alhammad, M. F., Mathias, R., Nahid, S., Fernando, R., Zaki, H., Haidar, H., & Shallik, N. (2023). Urinary guide-wire and Tritube solved the mystery of severe tracheal stenosis management: A case report. *Trends in Anaesthesia and Critical Care*, 101257.
15. Iftikhar, H., Khan, F. S., Al-Marri, N. D. R., Zaki, H. A., & Masood, M. (2022). Acute calculous cholecystitis with sinus bradycardia: Cope's sign encountered. *Cureus*, *14*(1).
16. Heston, T. F. (2023). The percent fragility index. *Available at SSRN 4482643*.
17. Tzenios, N., Tazanios, M., & Chahine, M. (2022). Chronic Inflammation and Blood Cancer.
18. Zaki, H. A., Shaban, E., Elgassim, M., Fayed, M., Basharat, K., Elnabawy, W., ... & Elsayed, W. A. E. (2023). Systematic Review and Meta-Analysis of Randomized Controlled Trials (RCTs) Revealing the Future of Airway Management: Video Laryngoscopy vs. Macintosh Laryngoscopy for Enhanced Clinical Outcomes. *Cureus*, *15*(12).
19. Zaki, H. A., Bashir, I., Mahdy, A., Abdurabu, M., Khallafalla, H., Fayed, M., ... & Shaban, E. (2023). Exploring Clinical Trajectories and the Continuum of Care for Patients With Acute Coronary Syndrome in the United Kingdom: A Thorough Cross-Sectional Analysis. *Cureus*, *15*(11).
20. Babiker, M., Abdelrahman, A., Abdalkarim, A., Algaly, G., Sanosi, A., Zaki, H. A., ... & Abdeen, M. (2023). Case Report: Disseminated hydatid cyst: Unusual presentation and therapeutic challenges.
21. Shaban, E. E., Shaban, A. E., Shokry, A., Iftikhar, H., Zaki, H. A., & Shokry Sr, A. (2022). Atrial Fibrillation With Decompensated Heart Failure Complicated With Non-ST Elevation Myocardial Infarction. *Cureus*, *14*(1).
22. Castro, Jorge. (2023). Framtidens SEO.
23. Cuthrell, K. M., & Tzenios, N. (2023). Breast Cancer: Updated and Deep Insights. International Research Journal of Oncology, 6(1), 104-118.
24. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Complex Relationship Between Obesity and Depression. Special journal of the Medical Academy and other Life Sciences., 1(3).
25. Zaki, H. A., Alkahlout, B. H., Shaban, E., Mohamed, E. H., Basharat, K., Elsayed, W. A. E., & Azad, A. (2023). The Battle of the Pneumonia Predictors: A Comprehensive Meta-Analysis Comparing the Pneumonia Severity Index (PSI) and the CURB-65 Score in Predicting Mortality and the Need for ICU Support. *Cureus*, *15*(7).
26. Tzenios, N. (2022). A Strategic Plan to Improve Police Response and Decision-Making during Major Incidents.
27. Hernandez, C. A., Gonzalez, A. E. V., Polianovskaia, A., Sanchez, R. A., Arce, V. M., Mustafa, A., ... & Sedeh, A. E. (2023). The Future of Patient Education: AI-Driven Guide for Type 2 Diabetes. *Cureus*, *15*(11).
28. Tzenios, N. (2022). *The Relationship between Lack of Social Peace and*

Journal Of Environmental Sciences And Technology

Volume No: 02 Issue No: 01 (2023)

Security and Cognitive Bias Experienced during the Analysis of Intelligence and Security Risks (Doctoral dissertation, American Public University System).

29. Zaki, H. A., Iftikhar, H., Najam, M., Masood, M., Al-Marri, N. D. R., Elgassim, M. A. M., ... & Shaban, E. E. (2023). Plasma exchange (PE) versus intravenous immunoglobulin (IVIG) for the treatment of Guillain-Barré syndrome (GBS) in patients with severe symptoms: A systematic review and meta-analysis. *Eneurologicalsci*, 100468.
30. mRSB, D. A. B. A. A. H. P., TAZANIOS, M. E., ObGyn, M. D., & Chahine, M. Better Strategies For Coronavirus (COVID-19) Vaccination. *Reporting: A Case*.
31. Shallik, N., Bashir, K., Elmoheen, A., Iftikharb, H., & Zaki, H. A. (2023). High flow nasal oxygen (HFNO) in the treatment of COVID-19 infection of adult patients–An emergency perspective: A systematic review and meta-analysis. *Trends in Anaesthesia and Critical Care*, 101238
32. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Relationship between Fat Consumption and Mood Enhancement: A Comprehensive Review. Special journal of the Medical Academy and other Life Sciences., 1(3).
33. Tzenios, N. LEARNER-CENTERED TEACHING.
34. Ibrahim, M. A., Elgassim, M. A., Abdelrahman, A., Sati, W., Zaki, H. A., Elgassim, M., & Ibrahim, M. (2023). Broken Heart: A Clear Case of Takotsubo Cardiomyopathy. *Cureus*, *15*(11).
35. Zaki, H. A., Lloyd, S. A., Elmoheen, A., Bashir, K., Elsayed, W. A. E., Abdelrahim, M. G., ... & Lloyd, S. (2023). Antihypertensive Interventions in Acute Ischemic Stroke: A Systematic Review and Meta-Analysis Evaluating Clinical Outcomes Through an Emergency Medicine Paradigm. *Cureus*, *15*(10).
36. Zaki, H. A., Yigit, Y., Shaban, E., Shaban, A. E., Elmoheen, A., Bashir, K., ... & Alkahlout, B. H. (2023). The Utility of the Mini-Clinical Evaluation Exercise (Mini-CEX) in the Emergency Department: A Systematic Review and Meta-Analysis Evaluating the Readability, Feasibility, and Acceptability of Mini-CEX Utilization. *Cureus*, *15*(8).
37. Zaki, H. A., Iftikhar, H., Shallik, N. A., Shaban, E., Al-Marri, N. D. R., Bashir, I., ... & Abdalrubb, A. (2023). A Systematic Review and Meta-Analysis of Randomized Controlled Trials Comparing the Effects of Biguanides (Metformin) and Thiazolidinediones on Glucose Tolerance and Insulin Sensitivity in Patients With Type II Diabetes Mellitus. *Cureus*, *15*(5).
38. Bashir, K., Yousuf, A., Zaki, H. A., & Elmoheen, A. (2023). Benign paroxysmal positional vertigo (BPPV) after concussion in two adolescent players during a rugby game. *Cureus*, *15*(1).
39. Atapattu, K. V., Salibi, G., & Tzenios, N. (2023). A Study on the Relationship between the rainy season and Dengue outbreak in the Colombo District of Sri Lanka. Special journal of the Medical Academy and other Life Sciences., 1(3).
40. Dartois, Véronique, and Eric J. Rubin. "Shortening Tuberculosis Treatment-A

Strategic Retreat." N. Engl. J. Med 388 (2023): 939-941.

41. Morton Cuthrell, K., Tzenios, N., & Umber, J. (2022). Burden of Autoimmune Disorders; A Review. Asian Journal of Immunology, 6(3), 1-3.
42. Sibanda, A. M., Tazanios, M., & Tzenios, N. (2023). Community Empowerment as a tool for health promotion.
43. Sapountzi- Krepia, D., Lavdaniti, M., Psychogiou, M., Arsenos, P., Paralikas, T., Triantafylidou, P., & Georgiadou, C. (2008). Nursing staff shortage and in- hospital informal care in an oncology hospital in Greece: The nursing staff's perceptions. *International Journal of Nursing Practice*, *14*(3), 256-263.
44. Kotrotsiou, E., Krommydas, G., Papathanasiou, I., Kotrotsiou, S., Paralikas, T., Lahana, E., & Kiparissi, G. (2011). Anxiety and depression in teenagers and young adults with asthma. *Health Science Journal*, *5*(3), 229.
45. Krommydas, G., Kotrotsiou, E., Raftopoulos, V., Paralikas, T., Gourgoulianis, K. I., & Molyvdas, P. A. (2004). Smoking in health science students with asthma. *Canadian respiratory journal*, *11*, 476-476.
46. Atapattu, K. V., Salibi, G., & Tzenios, N. (2023). A Study on the Relationship between the rainy season and Dengue outbreak in the Colombo District of Sri Lanka. *Special journal of the Medical Academy and other Life Sciences.*, *1*(3).
47. Dartois, Véronique, and Eric J. Rubin. "Shortening Tuberculosis Treatment-A Strategic Retreat." *N. Engl. J. Med* 388 (2023): 939-941.
48. Morton Cuthrell, K., Tzenios, N., & Umber, J. (2022). Burden of Autoimmune Disorders; A Review. *Asian Journal of Immunology*, *6*(3), 1-3.
49. Sibanda, A. M., Tazanios, M., & Tzenios, N. (2023). Community Empowerment as a tool for health promotion.
50. OFFIONG, B. E., Salibi, G., & Tzenios, N. (2023). Medical Brain Drain Scourge In Africa: Focusing on Nigeria.
51. Tzenios, N. (2023). Statistical Analysis in Research.
52. JUSTUS, O., Salibi, G., & Tzenios, N. (2023). Surveillance as a foundation for Disease prevention and control.
53. Fashanu, H., Tazanios, M., & Tzenios, N. (2022). HEALTH PROMOTION PROGRAM. Cambridge Open Engage.
54. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Positive Effects of the Keto Diet on Muscle Building: A Comprehensive Overview. *Special journal of the Medical Academy and other Life Sciences.*, *1*(4).
55. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Relationship between Fat Consumption and Mood Enhancement: A Comprehensive

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Review. *Special journal of the Medical Academy and other Life Sciences.*, *1*(3).
56. Cuthrell, K. M., & Tzenios, N. (2023). Breast Cancer: Updated and Deep Insights. *International Research Journal of Oncology*, *6*(1), 104-118.
57. Tzenios, N., Tazanios, M., Chahine, M., & Jamal, P. O. B. (2023). The Complex Relationship Between Obesity and Depression. *Special journal of the Medical Academy and other Life Sciences.*, *1*(3).
58. Tzenios, N. LEARNER-CENTERED TEACHING.
59. Tzenios, N. EVIDENCE-BASED PRACTICE.
60. Tzenios, N., Tazanios, M., & Chahine, M. (2022). Chronic Inflammation and Blood Cancer.
61. Tzenios, N. (2022). Interprofessional Program Design Project to improve Nursing students' attitudes toward collaborative practice.
62. Tzenios, N. OBESITY AND BREAST CANCER: THE ROLE OF ADIPOSE TISSUES AND HORMONES.
63. Tzenios, N., Tazanios, M., Poh, O. B. J., & Chahine, M. (2022). Does Losing Weight Lower the Risk of Cancer: A Systematic Review and Meta-analysis.
64. Tzenios, N. (2022). Student-led Learning Theory.
65. Tzenios, N. (2022). Academic Doctoral Learning Plan.
66. Tzenios, N., Tazanios, M., & Chahine, M. (2022). The Relationship between Association between Blood Pressure and Risk of Cancer Development.
67. Tzenios, N., Tazanios, M., & Chahine, M. (2022). The impact of BMI on Ovarian Cancer-An Updated Systematic Review and Metanalysis.
68. Tzenios, N. (2022). Higher medical education and covid vaccination.
69. Tzenios, N. (2023). A New Hallmark of Cancer: Stemness. *Special journal of the Medical Academy and other Life Sciences.*, *1*(1).
70. Tzenios, N. (2022). Nutrition and health education.
71. Sharma, P. R., & Tzenios, N. (2023). Impact of Cirrhosis and Alcohol on Mortality Rates and Mitigation Efforts. *Special journal of the Medical Academy and other Life Sciences.*, *1*(1).
72. Tzenios, N. (2022). A Strategic Plan to Improve Police Response and Decision-Making during Major Incidents.
73. Wagemaker, S., Tazanios, M., & Tzenios, N. (2022). Project Health people 2020.
74. Tzenios, N., Chahine, M., & Tazanios, M. (2023). Better Strategies For Coronavirus (COVID-19) Vaccination. *Special journal of the Medical Academy and other Life Sciences.*, *1*(2).
75. De Silva, S. K. N. S., Ghassan, S., & Tzenios, N. (2023). Relationship between the use of social media and

the effects on the sleep cycle among Sri Lankan undergraduate students. *Special Journal of the Medical Academy and other Life Sciences.*, *1*(7).

76. Ekanayake, H. D. K., Salibi, G., & Tzenios, N. (2023). Analysis of association between childhood overweight/obesity with screen time, sedentary life style and low levels of physical activity. *Special Journal of the Medical Academy and other Life Sciences.*, *1*(6).
77. Sharma, S., Salibi, G., & Tzenios, N. (2023). Modern approaches of rehabilitation in COPD patients. *Special Journal of the Medical Academy and other Life Sciences.*, *1*(6).
78. Hemantraj, R. N., Salibi, G., & Tzenios, N. (2023). Uncovering the Neglected Meal: Medical Students in Sri Lanka and Skipping Meals. *Special journal of the Medical Academy and other Life Sciences.*, *1*(5).
79. Fathia, F. T., Salibi, G., & Tzenios, N. (2023). Impact of AIDS in West Africa: The Nigerian Society. *Special journal of the Medical Academy and other Life Sciences.*, *1*(5).
80. Khinvasara, T., Ness, S., & Tzenios, N. (2023). Risk Management in Medical Device Industry. *J. Eng. Res. Rep*, *25*(8), 130-140.
81. Tzenios, N. (2023). *Corporate Espionage and the Impact of the Chinese Government, Companies, and Individuals in Increasing Corporate Espionage* (Doctoral dissertation, Apollos University).
82. Tzenios, N. (2020). *Does Sugar Intake Suppress Your Immune System* (Doctoral dissertation, Charisma University).
83. Tzenios, N. (2022). *The Relationship between Lack of Social Peace and Security and Cognitive Bias Experienced during the Analysis of Intelligence and Security Risks* (Doctoral dissertation, American Public University System).
84. Tzenios, N. (2022). *A Meta-Analysis of Cancer Immunotherapy: Evaluating Efficacy, Predictive Biomarkers, and Therapeutic Resistance* (Doctoral dissertation, SR21-Institute for Scientific Research).
85. Tzenios, N. (2023). *How Does Cultural Psychology Influence the Perception of National Security Threats?* (Doctoral dissertation, Charisma University).
86. Tzenios, Nicolas. "Ketogenic diet recommendation to a user based on a blood low-density lipoprotein (ldl) level and a blood c-reactive protein level and/or a blood erythrocyte sedimentation rate (esr) thereof." U.S. Patent Application 16/655,293, filed April 22, 2021.
87. Tzenios, N., Lewis, E. D., Crowley, D. C., Chahine, M., & Evans, M. (2022). Examining the efficacy of a very-low-carbohydrate ketogenic diet on cardiovascular health in

adults with mildly elevated low-density lipoprotein cholesterol in an open-label pilot study. *Metabolic syndrome and related disorders*, *20*(2), 94-103.

88. Paton, N. I., Cousins, C., Suresh, C., Burhan, E., Chew, K. L., Dalay, V. B., ... & Crook, A. M. (2023). Treatment strategy for rifampin-susceptible tuberculosis. *New England Journal of Medicine*, *388*(10), 873-887.
89. Tzenios, N., FRSPH, F., & FWAMS, F. (2022). BUDGET MANAGEMENT FOR THE NON-PROFIT ORGANIZATION. *International Journal of Global Economic Light*, *8*(6), 9-13.
90. Batool, S., Morton Cuthrell, K., Tzenios, N., & Shehryar, Z. (2022). Hepatocellular Carcinoma in Non-alcoholic Fatty Liver Disease: Emerging Burden. *International Research Journal of Oncology*, *6*(4), 93-104.
91. Tzenios, N., Tazanios, M. E., & Chahine, M. (2022). The impact of body mass index on prostate cancer: An updated systematic review and meta-analysis. *Medicine*, *101*(45).
92. Tzenios, N. (2022). The duke lacrosse scandal and ethics in prosecution. *International Journal of Political Science and Governance*, *4*, 118-121.
93. Tzenios, N. (2023). Case Study: Just War Doctrine. *Open Journal of Political Science*, *13*(1), 1-17.
94. Tzenios, N., Chahine, M., & Tazanios, M. (2023). Better Strategies For Coronavirus (COVID-19) Vaccination. *Special journal of the Medical Academy and other Life Sciences.*, *1*(2).
95. Tzenios, N. (2022). *Proposal for Policy Change in the procedure of civil asset forfeiture* (No. tdvxz). Center for Open Science.
96. Tzenios, N., TAZANIOS, M. E., & Chahine, M. (2022). Combining Influenza and COVID-19 Booster Vaccination Strategy: A Systematic Review and Meta-Analysis. *Available at SSRN 4276608*.
97. Wang, J. Y., Hsueh, P. R., Wang, S. K., Jan, I. S., Lee, L. N., Liaw, Y. S., ... & Luh, K. T. (2007). Disseminated tuberculosis: a 10-year experience in a medical center. *Medicine*, *86*(1), 39-46.
98. Tzenios, N., Chahine, M., & Tazanios, M. (2023). Obesity and endometrial cancer: the role insulin resistance and adipokines. *Special journal of the Medical Academy and other Life Sciences.*, *1*(2).
99. Tzenios, N. (2019). The Determinants of Access to Healthcare: A Review of Individual, Structural, and Systemic Factors. *Journal of Humanities and Applied Science Research*, *2*(1), 1-14.
100. Bharadiya, J. P., Tzenios, N. T., & Reddy, M. (2023). Forecasting of crop yield using remote sensing

data, agrarian factors and machine learning approaches. *Journal of Engineering Research and Reports*, *24*(12), 29-44.

101. Tzenios, N. (2020). Examining the Impact of EdTech Integration on Academic Performance Using Random Forest Regression. *ResearchBerg Review of Science and Technology*, *3*(1), 94-106.
102. Брусенцова, А. Е., Ляшев, Ю. Д., Цыган, Н. В., Елие, Т. Н., & Ляшев, А. Ю. (2022). Содержание про-и противовоспалительных цитокинов в динамике экспериментального пародонтита у крыс с хроническим болевым синдромом. *Иммунология*, *43*(1), 54-60.
103. Tzenios, N. (2019). The Impact of Health Literacy on Employee Productivity: An Empirical Investigation. *Empirical Quests for Management Essences*, *3*(1), 21-33.
104. Tzenios, N. (2020). Clustering Students for Personalized Health Education Based on Learning Styles. *Sage Science Review of Educational Technology*, *3*(1), 22-36.
105. Tzenios, N. (2023). OBESITY AND LUNG CANCER (INVESTIGATING THE RELATIONSHIP). *EPRA International Journal of Multidisciplinary Research (IJMR)*, *9*(2), 175-177.
106. Tzenios, N. Nic's Keto Diet: If you eat sugar you become fat. If you eat fat, you lose weight.
107. Tzenios, N., FRSPH, F., & FWAMS, F. (2022). CONTRIBUTE TO RAISING AWARENESS IN A COMMUNITY. *EPRA International Journal of Multidisciplinary Research (IJMR)*, *8*(12), 122-124.
108. Atapattu, K. V., Salibi, G., & Tzenios, N. (2023). A Study on the Relationship between the rainy season and Dengue outbreak in the Colombo District of Sri Lanka. *Special journal of the Medical Academy and other Life Sciences.*, *1*(3).
109. Tzenios, N. (2023). OBESITY AS A RISK FACTOR FOR DIFFERENT TYPES OF CANCER. *EPRA International Journal of Research and Development (IJRD)*, *8*(2), 97-100.
110. Tzenios, N. (2023). Obesity as a risk factor for cancer. *EPRA International Journal of Research and Development (IJRD)*, *8*(2), 101-104.
111. Nikolaos, T. (2021). RUSSIAN UNIVERSITIES INTERNATIONAL GRADUATES CHANGING THE MEDICAL SPECTER IN MOST DEPRIVED REGIONS OF THE WORLD. In *Опыт и перспективы развития экспортного потенциала образовательных услуг в высшем образовании* (pp. 46-49).

Journal Of Environmental Sciences And Technology

Volume No: 02 Issue No: 01 (2023)

112. Tzenios, N., Tazanios, M., & Chahine, M. (2022). In the United States, obesity is so prevalent could it be described as a Pandemic?.
113. Tzenios, N. (2022). Tuberculosis is one of the health issues found in Point Mar, Vista County.
114. Morton Cuthrell, K., Tzenios, N., & Umber, J. (2022). Burden of Autoimmune Disorders; A Review. *Asian Journal of Immunology*, *6*(3), 1-3.
115. Chan, E. D., & Iseman, M. D. (2002). Current medical treatment for tuberculosis. *Bmj*, *325*(7375), 1282.
116. Mohammed, O. R., Memon, S., & Lankarani, H. M. KINEMATIC COLLISION RESPONSES OF DIFFERENT LEGFORM IMPACTOR SUBSYSTEM.
117. Memon, S., Mohammed, O. R., & Lankarani, H. M. SENSITIVITY ANALYSIS OF CORROSION PARAMETERS AND RELIABILITY BASED DESIGN AND OPTIMIZATION FOR PIPELINES.
118. Memon, S., Mohammed, O. R., & Lankarani, H. M. (2018, November). Effect of Pre-Bending on Formability of DQ Steel and Al 5182. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 52019, p. V002T02A035). American Society of Mechanical Engineers.
119. Memon, S., Mohammed, O. R., Koppisetty, D. S., & Lankarani, H. M. (2019, November). Optimizing Process and Geometry Parameters in Bulging of Pipelines. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 59377, p. V02AT02A030). American Society of Mechanical Engineers.
120. Memon, S., Mohammed, O. R., Koppisetty, D. S., & Lankarani, H. M. (2019, November). Optimizing Material Parameters for Better Formability of DQ Steel Pipe. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 59377, p. V02AT02A031). American Society of Mechanical Engineers.
121. Mohammed, O. R., Suresh, D. V., & Lankarani, H. M. (2020, November). Computational Modelling and Simulation of Pedestrian Subsystem Impactor With Sedan Vehicle and Truck Model. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 84522, p. V005T05A045). American Society of Mechanical Engineers.
122. Mohammed, O. R. (2021). *Advancements in pedestrian impact protection and development of pedestrian impactor models* (Doctoral dissertation, Wichita State University).
123. Memon, S., Mohammed, O. R., Roozbahani, H., & Lankarani, H.

Journal Of Environmental Sciences And Technology

Volume No: 02 Issue No: 01 (2023)

M. (2017, November). Predicting the Failure Probability and Reliability Based Design, Optimization for Pipelines. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 58462, p. V011T15A010). American Society of Mechanical Engineers.

124. Mohammed, O. R., Memon, S., & Lankarani, H. M. (2018, November). Pedestrian collision responses using legform impactor subsystem and full-sized pedestrian model on different workbenches. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 52187, p. V013T05A013). American Society of Mechanical Engineers.

125. Mohammed, O. R., Suresh, D. V., & Lankarani, H. M. (2020, November). Evaluation of automotive hood and bumper performance with composite material by pedestrian impactor systems. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 84522, p. V005T05A056). American Society of Mechanical Engineers.