Official Journal of the Malaysian Medical Association

The Medical Journal of Malaysia

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INSTRUCTION TO AUTHORS

The Medical Journal of Malaysia **(MJM)** welcomes articles of interest on all aspects of human medical field (excluding dentistry and veterinary science) in the form of original papers, systematic review articles, short communications, continuing medical education, commentaries and letter to editor. Articles are considered for publication on the condition that they are submitted exclusively to The Medical Journal of Malaysia and are not under consideration for publication elsewhere.

NOTE: MJM is published bimonthly, i.e., January, March, May, July, September and November.

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Please ensure that your submission to the MJM conforms to the International Committee of Medical Journal Editors Recommendations (https://www.icmje.org/recommendations/) for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals.

Neither the Editorial Board nor the Malaysian Medical Association accept responsibility for the views and statements of authors expressed in their contributions. The Editorial Board further reserves the right to reject papers read before a society. To avoid delays in publication, authors are advised to adhere closely to the instructions given below.

MANUSCRIPTS
Manuscripts shall be submitted in English (British English). Manuscripts shall be submitted online through *MJM Editorial Manager*, http://www.editorialmanager.com/mjm

Registration and submission instructions are available on the website. Authors can monitor the progress of their manuscript via MJM Editorial Manager. For authors and reviewers encountering problems with the system, an online Users' Guide and FAQs are available via the "Help" option on the taskbar of the login screen.

FEE AND CHARGES
MJM charges a one-time, non-refundable Article Processing Charge (APC) upon Submission

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MJM Case Report
Member: RM400
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INITIAL SCREENING PROCESS
Submitted manuscripts undergo two preliminary evaluation stages before they are sent for peer review:

1. Editorial Assessment
The Editorial Assessment is conducted by the Editor-in-Chief or members of the Editorial Board to determine whether the manuscript is suitable for further consideration. During this stage, editors evaluate:
- The manuscript's relevance to the journal's scope and aims;
- Originality, scientific significance, and novelty of the work;
- Overall quality of the study design and methodology;
- Ethical compliance, including ethics approval and informed consent where applicable;
- Clarity of presentation and adherence to scholarly standards; and
- Potential contribution to the field.

Manuscripts that do not meet the journal's requirements or lack sufficient scientific merit may be rejected at this stage without external peer review.

2. Technical Check
The editorial office performs the Technical Check to ensure the submission complies with the journal's formatting and administrative requirements. This includes verification of:
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- Completeness of submission files, including figures, tables, supplementary materials, and required forms;
- Accuracy of author information, affiliations, and correspondence details;
- Proper formatting of references and citations;
- Compliance with ethical declarations, conflict of interest statements, funding information, and data availability statements; and
- Similarity and plagiarism screening using appropriate detection software.

Manuscripts that fail the technical requirements may be returned to the authors for correction before proceeding to the next stage of evaluation. Only manuscripts that successfully pass both the Editorial Assessment and Technical Check will proceed to the external peer-review process.

PEER REVIEW PROCESS
All submissions must include at least two (2) names of individuals who are qualified to review the work as suggested reviewers. Suggested reviewers must not be involved in the work presented, nor affiliated with the same institution(s) as any of the authors or have any potential conflicts of interest in reviewing the manuscript. All manuscripts submitted will be reviewed by the Editor-in-Charge before they are sent for peer review. Manuscripts that are submitted to MJM undergo a double-blind peer review (i.e., the reviewers and authors are blinded to each other) and are managed online. The selection of reviewers is the prerogative of the Editors-in-Charge.

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MJM follows the recommendation of the International Committee of Medical Journal Editors (ICMJE) for eligibility to be considered as an author for submitted papers. The ICMJE recommends that authorship be based on the following four (4) criteria:
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2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Original Articles are reports on findings from original research. We will give preference to high-quality original research that makes a significant contribution to medicine and public health. Original articles shall consist of a Structured Abstract that includes;
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- Materials and Methods
- Results
- Conclusion

The word count for the structured abstract should not exceed 500 words.

The main text of the articles should not exceed 4000 words, up to five (5) tables/figures (including illustrations/images) and a maximum of 40 references. Manuscripts describing original research should conform to the IMRAD format, i.e. INTRODUCTION, MATERIALS AND METHODS, RESULTS, DISCUSSION AND CONCLUSION.

Original articles of cross-sectional and cohort design should follow the corresponding STROBE checklist; and clinical trials should follow the CONSORT checklist.

Systematic Review Articles:
MJM only accept systematic review articles with or without meta-analysis. MJM does not accept unsolicited narrative reviews, scoping reviews, mapping reviews or any other type of review article.

Systematic review articles shall include a structured abstract and the main text. The word count for the structured abstract should not exceed 500 words. The main text should not exceed 4,000 words and may include up to five (5) tables and/or figures. Authors may cite a maximum of 20 references other than the studies included in the systematic reviews. All studies included in the systematic review should be cited and listed in the reference list. Prepare systematic reviews in strict compliance with MOOSE or PRISMA guidelines.

Short Communications:
Short communications are short research articles of important preliminary observations, findings that extend previously published research, data that do not warrant publication as a full paper, small-scale clinical studies, and clinical audits. Short communications should not exceed 1,500 words and shall consist of a Summary and the Main Text. The summary should be limited to 100 words and provided immediately after the title page. The number of tables and/or figures, including illustrations/images, should be limited to three (3) and the number of references to ten (10).

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A CME article is a critical analysis of a topic of current medical interest. The article should include the clinical question or issue and its importance for general medical practice, speciality practice, or public health. It shall consist of a Summary and the Main Text. The summary should be limited to 500 words and provided immediately after the title page. After acceptance, authors must provide five multiple-choice questions, each with five true/false responses, based on the article. For guidelines, please refer to: Sivalingam N, Rampal L. Writing Articles on Continuing Medical Education for Medical Journals. Med J Malaysia 2021;76(2):119-124.

Commentaries:
Commentaries will usually be invited articles that comment on articles published in the same issue of the MJM. However, we welcome unsolicited commentaries on issues relevant to medicine in Malaysia. They should not exceed 1,000 words. The format of the commentaries may be unstructured but should be concise. When presenting a point of view, support it with relevant references where necessary.

Letters to Editor:
Letters to Editor are responses to items published in MJM or to communicate a very important message that is time-sensitive and cannot wait for the full process of peer review. Letters that include statements of statistics, facts, research, or theories should include only up to three (3) references. Letters that are personal attacks on an author will not be considered for publication. Such correspondence must not exceed 1,000 words.

Editorials:
These are articles written by the editor or editorial team concerning the ***MJM*** or about issues relevant to the journal.

STRUCTURE OF PAPERS
Title Page:
The title page should state:
- Type of manuscript (i.e. original article, systematic review, short communications, CME etc.)
- The article title is in sentence case. No abbreviations are allowed for the title, with exceptions: Widely recognized terms like COVID-19 are sometimes accepted if universally understood, but avoiding acronyms entirely is preferred.
- Full name(s) of the author(s) (with the surname or last name bolded), degrees (limited to one degree or diploma), affiliation(s), and corresponding author's address. E.g. Ismail Shatriah, MMed (Ophthalmology), Navin Kumar Devaraj, MMed (Family Medicine). Undergraduate students who have not yet been awarded a degree or diploma are not required to provide a qualification.
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- Place the word counts near the bottom of the title page
  o Abstract word count:
  o Main text word count:

Articles describing Original Research should consist of the following sections (IMRAD format): Abstract, Introduction, Materials and Methods, Results, Discussion, Acknowledgements and References. Each section should begin on a fresh page. Scientific names, foreign words and Greek symbols should be in italics.

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Abstract and Key Words:
A structured abstract is required for Original and Systematic Review Articles. Limit it to 500 words and place it immediately after the title page. Below the abstract, provide and identify three (3) to five (5) keywords or short phrases that will assist indexers in cross-indexing your article. Use terms from the Medical Subject Headings (MeSH) list from Index Medicus for the keywords where possible. Keywords are not required for Short Communications, CME articles, Commentaries and Letter to Editor.

INTRODUCTION
Clearly state the purpose of the article. Summarise the rationale for the study or observation. Give only strictly pertinent references, and do not review the subject extensively. The introduction should be succinct and should not exceed 500 words.

MATERIALS AND METHODS
Describe your selection of the observational or experimental subjects (patients or experimental animals, including controls) clearly, identify the methods, apparatus (manufacturer's name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions of methods that have been published but are not well-known; describe new or substantially modified methods, give reasons for using them and evaluate their limitations.

Identify precisely all drugs and chemicals used, including generic name(s), dosage(s) and route(s) of administration. Do not use patients' names, initials or hospital numbers. Include numbers of observations and the statistical significance of the findings when appropriate.

When appropriate, particularly in the case of clinical trials, state clearly that the experimental design has received the approval of the relevant ethical committee. Ethical approval is usually stated in a separate subsection/paragraph called Ethics Approval, and it should be at the end of the Materials and Methods section.

RESULTS
Present your results in logical sequence in the text, tables and illustrations. Do not repeat in the text all the data in the tables or illustrations, or both: emphasise or summarise only important observations in the text. Do not present the methods in the results section.

DISCUSSION
Emphasise the new and important aspects of the study and the conclusions that follow. Do not repeat in detail data given in the Results section. Include in the Discussion the implications of the findings and their limitations and relate the observations to other relevant studies.

CONCLUSION
Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not completely supported by your data. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted, but clearly label them as such. Include recommendations when appropriate.

ACKNOWLEDGEMENTS
- Acknowledgements of general support, grants, technical assistance, etc., should be indicated.
- Authors are responsible for obtaining the consent of those being acknowledged.

REFERENCES AND CITATION STYLE
The *Medical Journal of Malaysia (MJM)* follows the **Vancouver numbered referencing style.** Authors are responsible for ensuring that all references are accurate and should verify each reference against the original source before submission. Authors should **not cite documents that they have not personally accessed and verified.**

1. In-text citations
- References should be cited using **superscript Arabic numbers,** assigned consecutively according to the first appearance in the text.
- Place citation numbers at the end of the relevant sentence or clause, after punctuation marks, with no space before the citation.
- When citing multiple references:
  o Use a **comma** between non-consecutive references.
  o Use a **hyphen** to indicate a consecutive range.

Example:
Several effective drugs are available at fairly low cost for treating patients with hypertension and reducing the risk of its sequelae.[1,3-5]
- When an author's name is mentioned in the text, the corresponding citation number must still be included.
- For works with multiple authors cited narratively in the text, use the **first author's surname followed by "et al."**

Example:
Jewell et al.,[8] highlighted the importance of characterising differences between emerging SARS-CoV-2 variants.

2. Reference list
All references cited in the manuscript must be included at the end of the article under the heading **REFERENCES.**
- References should be numbered consecutively according to their first citation in the text.
- Every reference listed must be cited in the manuscript, and every citation must have a corresponding entry in the reference list.
- Authors are responsible for the **accuracy and completeness of all references** and should verify them against the original sources before submission.
- Authors should not include references to documents they have not accessed and verified.

3. Author listing
- List all authors when there are **six or fewer.**
- When there are **more than six authors,** list the **first six authors followed by "et al."**

4. Titles
- Use **sentence case** for article and book titles.
- Capitalise only the first word, proper nouns, acronyms and other terms that conventionally require capitalisation.

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- Journal names should be abbreviated according to the **MEDLINE/Index Medicus journal abbreviation.**
- Do **not** italicise journal names.
- Do **not** add a full stop after the abbreviated journal name.

6. Page numbers
- Use the **minimal form** for page ranges by omitting repeated digits where appropriate.

Example:
134–8 rather than 134–138.

7. Year, volume, issue and pages
For journal articles, present the publication details in the following order:
Year; volume(issue): pages.
- Do not include the month or day of publication.
- Use a space after the semicolon separating the year and volume.
- Use a space after the colon separating the volume/issue and page numbers.

Example:
2019; 11(6): 297–301.

8. DOI and URL
- Do **not** include DOI or URL information for peer-reviewed journal articles.
- URLs should be included only where required for **websites, webpages or other online resources** that do not have conventional publication details.

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For websites and webpages:
- Provide sufficient information to identify the webpage or document.
- Include the **URL.**
- Include the **date accessed.**

Authors should ensure that URLs are current and accessible at the time of manuscript submission.

Example reference journals:
Standard Journal Article
Rampal L and Liew BS. Coronavirus disease (COVID-19) pandemic. Med J Malaysia 2020;75(2): 95-7.

Rampal L, Liew BS, Choolani M, Ganasegeran K, Pramanick A, Vallibhakara SA, et al. Battling COVID-19 pandemic waves in six South-East Asian countries: A real-time consensus review. Med J Malaysia 2020; 75(6): 613-25.

NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. Lancet 2021; 11; 398(10304): 957-80.

Books and Other Monographs:
Personal Author(s)
Goodman NW, Edwards MB. 2014. Medical Writing: A Prescription for Clarity. 4th Edition. Cambridge University Press.

Chapter in Book
McFarland D, Holland JC. Distress, adjustments, and anxiety disorders. In: Watson M, Kissane D, Editors. Management of clinical depression and anxiety. Oxford University Press; 2017: 1-22.

Corporate Author
World Health Organization, Geneva. 2019. WHO Study Group on Tobacco Product Regulation. Report on the scientific basis of tobacco product regulation: seventh report of a WHO study group. WHO Technical Report Series, No. 1015.

NCD Risk Factor Collaboration (NCD-RisC). Rising rural body-mass index is the main driver of the global obesity epidemic in adults. Nature 2019; 569: 260–64.

World Health Organization. Novel Coronavirus (2019-nCoV) Situation Report 85, April 14, 2020. [cited April 2020] Accessed from: https://www.who.int/docs/defaultsource/coronaviruse/situationreports/20200414-sitrep-85-covid-19.

Online articles
Webpage: Webpages are referenced with their URL and access date, and as much other information as is available. The cited date is important as webpages can be updated and URLs change. The "cited" should contain the month and year accessed.
Ministry of Health Malaysia. Press Release: Status of preparedness and response by the ministry of health in and event of outbreak of Ebola in Malaysia 2014 [cited Dec 2014]. Available from: http://www.moh.gov.my/english.php/database_stores/store_view_page/21/437.

Other Articles:
Newspaper Article
Panirchellvum V. No outdoor activities if weather too hot. the Sun. 2016; March 18: 9(col. 1-3).

Magazine Article
Rampal L. World No Tobacco Day 2021 -Tobacco Control in Malaysia. Berita MMA. 2021; May: 21-22.

Tables and Figures:
All tables and figures should have a concise and informative title, and should not occupy more than one printed page. They should be relevant to the manuscript and should complement, rather than duplicate, information presented in the text.
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- Each table and figure should have a concise title that clearly describes its content.
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- Tables should be numbered consecutively with **Roman numerals** according to their first citation in the text, followed by single colon (e.g., Table I:, Table II:, Table III:, etc).
- The title for table would not be italicised, written in sentence case and do not place a period at the end.
- Figures should be written in an abbreviated format and numbered consecutively using Arabic numerals, followed by single colon (e.g., Fig. 1:, Fig. 2:, Fig. 3:), but written in non-abbreviated format when stating in the text. (e.g., Figure 1, Figure 2, Figure 3).
- The title for figure would not be italicised, in sentence case and do not place a period at the end.
- All tables and figures must be cited in the text in consecutive order.
- All abbreviations, acronyms, and symbols used within a table or a figure must be defined in full in the footnote.

2. Placement
- Tables and figures should be placed after the relevant sections of the manuscript in which they are first described.
- Each table and figure should be presented on a separate page.
- Tables and figures should also be submitted as supplementary files through the journal management platform.

3. Tables
- Tables should be prepared in an editable format and submitted as Microsoft Word documents.
- Vertical lines should not be used in tables.
- Explanatory information should be provided in footnotes rather than in the table title or body where appropriate.
- Table footnotes should be indicated using superscript lower-case symbols and placed immediately below the table.
- All abbreviations and symbols used in a table should be explained in the footnotes unless they are standard and widely understood.

4. Figures, images and flow charts
- Figures should be of sufficient quality for publication.
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- Clinical photographs must be appropriately anonymised so that the identity of the subject cannot be determined.

5. Photographs of Patients
- Proof of permission and/or consent from the patient or legal guardian must be submitted with the manuscript.
- A statement on this must be included as a footnote for the relevant photograph.

6. Subheadings
- Use sentence case.
- Do not use a subheading in the "CONCLUSION" section.

7. Appendices and supplementary files
- The MJM does not accept appendices or extra supplementary materials (such as external datasets, data collection proforma or questionnaires, extended protocols, or web-only text files) attached to a standard individual paper submission.
- The authors may need to condense the information into the main text or format it into the maximum 5 tables allowed.
- The authors may use external repository deposition with an assigned Digital Object Identifier (DOI). The authors may cite in the main text or use the "Data availability statement" or "Data sharing statement" section.
- Place this section right after the Acknowledgments section and before references.

8. File naming
- When tables, figures, or images are submitted as separate files, the filename should include the surname of the first author and match exactly the table or figure number used in the manuscript.
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SMITH Table II
SMITH Figure 1

Colour reproduction:
- Illustrations and diagrams are normally reproduced in **black and white** in the printed version of the journal.
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Abbreviations:
- Use only standard abbreviations.
- The full-term for which an abbreviation stands should precede its first use in the abstract, article text, tables, and figures, unless it is a standard unit of measurement.
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Formatting of text:
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Revision of Manuscript:
Following peer review, authors may be required to revise their manuscript to address comments and recommendations provided by the reviewers and editors. The revision process aims to improve the quality, clarity, accuracy, and scientific rigour of the manuscript.

Authors are expected to:
- Address all reviewer and editor comments carefully and comprehensively.
- Highlight all changes made in the revised manuscript using track changes or coloured text, as specified by the journal.
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- Ensure that all revisions maintain consistency throughout the manuscript, including the abstract, results, tables, figures, and references where applicable.

Revised manuscripts will be assessed by the editorial team and, when necessary, may be returned to the original reviewers for further evaluation. Authors should submit the revised manuscript within the timeframe specified by the MJM. Failure to provide satisfactory revisions or to respond adequately to reviewer comments may result in rejection of the manuscript.

Only manuscripts that satisfactorily address the reviewers' and editors' comments will be considered for final acceptance and publication.

Best Paper Award:
All original papers which are accepted for publication by the MJM, will be considered for the 'Best Paper Award' for the year of publication. No award will be made for any particular year if none of the submitted papers is judged to be of suitable quality.

Use of Artificial Intelligence (AI) in Publication:
The MJM acknowledges that authors may use Artificial Intelligence (AI) tools to assist in the preparation of manuscripts. However, the use of AI must be transparent, ethical, and compliant with accepted standards of scientific publishing.

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- The MJM reserves the right to request additional information regarding the use of AI tools during manuscript preparation and may reject submissions that fail to comply with these guidelines.

Example Disclosure statement
- The authors used Grammarly V1.2.293.1952 to assist with language editing and grammar, and ChatGPT (OpenAI) version GPT 5.6 Sol to improve the readability of the manuscript. All content was reviewed, revised, and verified by all authors. All authors take full responsibility for the final version of the manuscript.

Universiti Sains Islam Malaysia (USIM) 10th National Health Seminar 2025: Empowering Healthy Ageing Through Innovation and Integration

Faculty of Medicine and Health Sciences
Universiti Sains Islam Malaysia (USIM), Nilai, Negeri Sembilan

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Universiti Sains Islam Malaysia (USIM) 10th National Health Seminar 2025: Empowering Healthy Ageing Through Innovation and Integration

Faculty of Medicine and Health Sciences
Universiti Sains Islam Malaysia (USIM), Nilai, Negeri Sembilan

OP1

Behind closed doors: Exploring Islamic family counsellors' perspectives on marital conflict and divorce in Negeri Sembilan

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ABSTRACT

Introduction: The rising divorce rates among Muslim couples in Malaysia, particularly in Negeri Sembilan, highlight the urgent need to explore the root causes of marital breakdown from the perspective of religious marriage counsellors. This study aimed to examine the views of Islamic Family Advisory Officers (Pegawai Khidmat Nasihat/Runding Cara Keluarga Islam) on current trends in marital conflict and whether poor sexual intimacy is perceived as a contributing factor. **Materials and Methods:** A qualitative research design was employed using semi-structured, in-depth interviews with 13 Islamic Family Counsellors from five districts in Negeri Sembilan. Participants were recruited via purposive sampling with assistance from the Family Law Division, Negeri Sembilan Islamic Religious Affairs Department (JHEAINS). Interviews were conducted online in Bahasa Malaysia, recorded with consent, and transcribed verbatim. Manual thematic analysis was conducted using Braun and Clarke's six-phase framework. Data saturation was reached by the 13th interview. Ethical approval was obtained from the Universiti Sains Islam Malaysia Human Research Ethics Committee (USIM/JKEP/2024-306), and official permission was granted by JHEAINS. **Results:** Five major themes emerged: (1) challenges in sexual intimacy, (2) ineffective communication, (3) neglect and confusion over marital roles, (4) third-party and digital & social media interference, and (5) weak religious and spiritual grounding. Participants reported that sexual dissatisfaction was a recurring concern among couples, though often unspoken due to cultural taboos. This dissatisfaction was commonly linked with emotional neglect and poor communication. Participants also observed that a lack of clarity in marital roles and responsibilities especially among younger couples, led to misunderstandings and long-term resentment. Third-party interference, such as from in-laws or extramarital involvement, as well as digital & social media distractions, were seen as escalating underlying issues. Notably, most participants viewed spiritual weakness and a lack of religious practice as root causes of marital instability, suggesting that couples with strong faith and shared spiritual routines showed greater emotional resilience and marital harmony. These findings reveal the complex interplay between unspoken intimacy issues, emotional communication, modern societal pressures, and spiritual disconnect. **Conclusion:** The study highlights the importance of integrating culturally sensitive, faith-based elements into marriage counselling services. Counsellors require training and tools to address taboo topics such as sexual dissatisfaction and emotional neglect. Incorporating structured discussions on communication, sexual well-being, and spirituality within both pre- and post-marital programmes may help reduce the divorce rate and strengthen family institutions in Muslim communities.

Keywords: Sexual dissatisfaction, communication breakdown, spirituality, marital roles, divorce, Islamic counselling

Multi-Target anticancer activity of *Moringa oleifera*: Targeting EGFR, COX-2 and Caspase-3

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ABSTRACT

Introduction: Abnormal cellular signaling associated with cancer discovery and development is also common in many cases. Whereas, the epidermal growth factor receptor (EGFR), cyclooxygenase-2 (COX-2) and Caspase-3 demonstrate prevalent, defective forms during solid tumor initiation, allowing uncontrolled proliferation and chronic inflammation followed by altered apoptosis. Directed therapies directed to select targeted pathways show promise, but compensatory signaling responses and initiation of other pathways have hampered their effects. Therefore, multi-target therapies have become more and more popular now. In this respect, also interest has increased in the modulation of natural compounds by the multisystem target-based therapeutic action. The medicinal plant, *Moringa oleifera* is known to have bioactive phytochemicals that have been found to be anticancer. Three compounds from *M. oleifera* were molecular docking studied against EGFR, COX-2 and Caspase-3 in the present work. **Materials and Methods:** Quercetin, kaempferol and niazimicin were chosen due to high anticancer activity and high content in *M. oleifera*. To extract three-dimensional structures of EGFR, COX-2 and Caspase-3 from the Protein Data Bank, they were analyzed using standard approach followed with the removal of water and reduction of energy input cost. The binding affinity and active sites at target protein sites having satisfactory interaction were then calculated by molecular docking. Binding strength docking scores were calculated, with smaller numbers yielding tighter binding. **Results:** COX-2 had maximum binding with niazimicin (-221.86) of target candidate and stable co-site interaction were proved that COX-2 could function as an immunofunctional regulator of inflammation-related processes involved in cancer cell fate. Strongly binding quercetin is also supportive of inhibition of proliferation signalling and promotion of apoptotic signaling pathways and EGFR (-140.01) and Caspase-3 (-182.09) were determined as the most active targets. Kaempferol presented a mild binding to the three targets (docking scores -134.78 to -172.28) and thus presented a diversified interaction profile. So, these compounds exhibit their relative target preference, indicating that compounds can have an impact synergistically. **Conclusion:** This conclusion indicates that in *M. oleifera* phytochemical extracts that have been extracted have a multi-target activity against cancer-progressive protein. Niazimicin is very sensitive to COX-2 and quercetin is highly bound to EGFR and Caspase-3 as well. Based on the results of the tests, Kaempferol works consistently on all targets examined. Accordingly, these compounds appear to have exertive effects via various tumorigenesis, inflammation, tumor growth and apoptosis resistance mechanisms. These results further confirm the promise of *M. oleifera* derived candidates for multistage anticancer therapies. However, additional cellular assays, molecular dynamics methodologies and animal studies could be undertaken to validate them and to characterize the therapeutic ability.

Keywords: *Moringa oleifera*, EGFR, COX-2, Caspase-3, cancer signaling, phytochemicals, multi-target therapy

Understanding the impact of elder financial abuse: A qualitative study from Northern Malaysia

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ABSTRACT

Introduction: Elder financial abuse refers to the illegal or improper use of an older person's money, property, or assets by another individual (Setterlund et al., 2007). Older adults are particularly vulnerable to this type of abuse due to factors such as declining health, physical or cognitive impairments, dependence on others, social isolation, and a lack of financial literacy. In Malaysia, financial abuse is one of the most frequently reported forms of elder mistreatment, with family members identified as the primary perpetrators, followed by acquaintances and strangers. Elder financial abuse is another serious public health issue that is associated with adverse outcomes, including hospitalisation, mental illness, and even mortality. **Materials and Methods:** This qualitative study examined the experiences of four elders aged 60 and above in Kedah and Perlis, Malaysia. Utilising a semi-structured interview format, the research aimed to understand the implications of financial abuse. The data were analysed through thematic analysis using ATLAS.ti software for systematic coding and interpretation. **Results:** Participants were initially unfamiliar with the term "financial abuse" until it was explained during interviews. Once understood, they shared experiences that highlighted the diverse harms associated with this type of abuse, revealing several key themes. *Financial Impact:* Victims lost access to their savings, pensions, or property. As a result, they struggled to afford basic necessities such as food, housing, and healthcare. Some became financially dependent on others or required public assistance. *Emotional and Mental Health:* Many victims reported feelings of shame, guilt, and helplessness, which resulted in depression, anxiety, and emotional withdrawal. Some individuals avoided seeking help, allowing the abuse to persist. In terms of physical health, financial strain caused victims to cut back on spending for medication, medical visits, and nutrition, exacerbating pre-existing health conditions. Additionally, the stress contributed to high blood pressure and other illnesses. *Social Isolation:* Victims often became withdrawn from social activities due to embarrassment or fear. This isolation made them more vulnerable to further abuse, as they lacked support networks and trusted individuals to confide in. *Impact on Family Relationships:* Abuse by close family members, such as children or spouses, leads to broken trust, emotional distress, and conflict within families. Disputes over money or caregiving roles often result in fractured relationships. *Legal and Community Impact:* The increasing occurrence of financial abuse among the elderly puts additional pressure on social services, legal systems and healthcare professionals. Emphasise the urgent need for stronger laws, enhanced professional training, and coordinated community support systems to effectively detect, prevent, and respond to such abuse. **Conclusion:** This study emphasises the complex and extensive consequences of elder financial abuse. It urges increased awareness, early intervention, and collaboration across different sectors to safeguard older adults. Financial planners, healthcare providers and legal professionals have a vital role in prevention and must be equipped with the skills and ethical responsibility to recognise and respond to signs of financial exploitation.

Keywords: Elder financial abuse, financial exploitation, financial abuse impact, elder care, aging population

When protection comes with a risk: Unveiling thrombosis cases following AstraZeneca ® vaccination

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ABSTRACT

Introduction: COVID-19 cases have brought to the development of various vaccines. Among those, various studies show that some of the vaccines carry the risk of thromboembolism, particularly vaccine-induced immune thrombotic thrombocytopenia (VITT) and Cerebral Venous Sinus Thrombosis (CVST). VITT following AstraZeneca® COVID-19 vaccination is more common in younger individuals, particularly women, and after the first vaccine dose. However, other factors leading to VITT is inconclusive and obscured by the many types of studies describing risks of VITT with AstraZeneca® vaccination for COVID-19. This study aims to explore various factors contributing to thrombotic events, long-term health outcomes associated with thrombosis following AstraZeneca® vaccination and comparison of event of thrombosis between different COVID-19 vaccination. **Materials and Methods:** A systematic review was conducted using online databases, including Google Scholar, PubMed, NCBI, Elsevier, and ResearchGate, to identify relevant journal articles published between 2020 and 2025. The search focused on studies related to thrombosis or thromboembolism in connection with the AstraZeneca COVID-19 vaccine and its outcomes. Keywords: Thrombosis/thromboembolism, AstraZeneca®, vaccine, COVID-19. From these keywords and topic relevance, a total of 40 articles were found and other references were found within the articles reviewed. **Results:** Studies investigating long-term outcomes following thrombosis associated with the AstraZeneca® COVID-19 vaccine indicate that patients with vaccine-induced immune thrombotic thrombocytopenia (VITT) and cerebral venous sinus thrombosis (CVST) frequently experience neurological impairments, with some developing permanent disabilities. The reported mortality rate among these patients is approximately 32%. Persistent mental health issues and reduced work capacity were also observed in a subset of cases. Treatment regimens involving anticoagulants, corticosteroids, intravenous immunoglobulin (IVIG), and eculizumab demonstrated effectiveness in managing VITT. Comparative analyses of thrombotic events across different COVID-19 vaccines revealed that adenoviral vector vaccines exhibited higher event rates than mRNA vaccines, with AstraZeneca® (0.58%) and Johnson & Johnson being more commonly associated with thrombosis in younger females. In contrast, thrombotic events following mRNA vaccines—Moderna (0.41%) and Pfizer (0.35%)—were more prevalent among older individuals, particularly males. **Conclusion:** In conclusion, future studies should explore additional sociodemographic factors and their impact on vaccine-related thrombosis, while ongoing research and public health efforts are essential for improving risk detection, treatment, and communication to ensure safe and effective vaccination programs.

Keywords: Cerebral venous sinus thrombosis, AstraZeneca®, Vaccine-induced immune thrombotic thrombocytopenia, COVID-19

Understanding the landscape of adult ADHD in Malaysia: Prevalence, challenges, and future directions

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ABSTRACT

Introduction: Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity, often underdiagnosed in adulthood. ADHD in adults remains an underexplored area in Malaysia, despite its significant impact on daily functioning and mental health. This study aims to examine the prevalence of adult ADHD in Malaysia by reviewing existing epidemiological studies. Additionally, it explores cultural, social, and systemic factors influencing diagnosis and management. The study further identifies gaps in research and proposes future directions for studying adult ADHD in Malaysia. **Materials and Methods:** This study employs a scoping review approach, systematically searching databases including Google Scholar, PubMed, Medscape, and Scopus. Keywords like "Attention Deficit-Hyperactivity Disorder," "ADHD", "adult", "prevalence", "challenges" and "Malaysia", were used in the search to find relevant publications. The evaluation only included English-language publications and concentrated on all published research between 2015 and 2025. **Results:** Six journal articles were chosen out of 29 journal articles for further review. The prevalence of adult ADHD in Malaysia varies widely, with figure ranging between 15.8% to 47.2% depending on specific population studied. Findings suggest that lack of clinical knowledge and understanding among healthcare professionals, cultural stigma, high prevalence of psychiatric comorbidities and media representation and legal implications contribute to underdiagnosis and undertreatment. To address these challenges, this study recommends improving clinical training for healthcare providers, integrating ADHD screening into mental health assessments, increasing public awareness campaign to reduce stigma and workplace accommodations and policy changes in working settings. Future research should focus on large scale epidemiological studies, explore culturally sensitive diagnostic and treatment approaches including integration of Islamic psychology in ADHD management. **Conclusion:** The findings indicate that adult ADHD is a significant yet underrecognized issue in Malaysia, with higher prevalence rates compared to global averages. Cultural, social, and systemic factors, including stigma, lack of awareness, and limited healthcare resources, contribute to the underdiagnosis and undertreatment of adult ADHD. Addressing gaps is crucial for better recognition and management of adult ADHD in Malaysia, ultimately enhancing the quality of life for affected individuals.

Keywords: ADHD, adult, stress, Malaysia, prevalence

Safeguarding public health through SOP Compliance: Business lessons from COVID-19 in Sabah

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ABSTRACT

Introduction: The COVID-19 pandemic underscored the critical role of adhering to Standard Operating Procedures (SOPs) in mitigating health risks and ensuring operational continuity for business premises. This study focuses on identifying the lessons learned by business premises in five districts of Sabah—Kota Kinabalu, Ranau, Sandakan, Lahad Datu, and Tawau, specifically emphasising the importance of implementing COVID-19 preventive measures. **Materials and Methods:** The study utilised a mixed-method approach to gather data, including surveys conducted among business owners and employees, laboratory testing to evaluate the efficacy of hygiene practices such as the use of hand sanitisers and infrared thermometers, and statistical analysis to identify trends and correlations. The surveys captured insights into how businesses implemented SOPs, the challenges faced, and the overall impact on operations and employee well-being. Lab testing provided objective data on the effectiveness of preventive measures, while statistical analysis helped to quantify compliance levels and their correlation with operational outcomes. **Results:** Findings highlight that strict adherence to SOPs, such as social distancing, mask usage, temperature screenings, and hygiene practices, not only protected public health but also fostered customer confidence and business sustainability. Businesses that consistently complied with SOPs experienced fewer operational disruptions and were better prepared for the evolving challenges of the pandemic. The study further emphasises that compliance with SOPs is not only a regulatory requirement but a cornerstone of resilience and community trust during crises. **Conclusion:** This research provides a foundation for developing policies and best practices, ensuring that businesses in Sabah are better equipped to navigate future health-related disruptions while safeguarding public health and economic stability.

Keywords: COVID-19, Standard Operating Procedure (SOPs), lesson learned, business premises, public health

Post-pandemic distribution of out-of-pocket health expenditure in households with elderly in Negeri Sembilan, Malaysia

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ABSTRACT

Introduction: The COVID-19 pandemic affected Malaysian households financially, including healthcare-related expenditures. Healthcare spending in the form of out-of-pocket expenditure places households at risk of financial catastrophe. During the pandemic, households with specific age groups, such as those with elderly members, were at greater risk of incurring high OOPHE. This study aimed to assess the distribution of OOPHE post-pandemic among households with elderly members in Negeri Sembilan, Malaysia. **Materials and Methods:** A cross-sectional survey was conducted among households in Negeri Sembilan between February and August 2024. A total of 168 households with elderly members participated via proportionate stratified sampling. Face-to-face interviews were conducted with respondents using a questionnaire adapted from the National Health and Morbidity Survey (2020), with some modifications. Descriptive analysis was performed to determine the mean and median monthly OOPHE (in MYR) according to household sociodemographic characteristics and type of healthcare services or items. **Results:** The mean (SD) and median (IQR) OOPHE among elderly households in Negeri Sembilan (n=168) were MYR197.95 (466.44) and MYR 64.70 (159.39), respectively. A higher distribution of OOPHE by sociodemographic characteristics was observed among households with a younger age group (18–39), male household heads, Malay ethnicity, in Rembau district, in rural localities, those who were not married, those with higher educational levels, government workers, and those in the high-income group. The distribution of OOPHE by type of healthcare services was highest for pharmaceuticals (MYR 105.52), followed by hospital-based services (MYR 40.61), outpatient-based services (clinic) (MYR 21.01), medical products and appliances (MYR 18.06), outpatient-based (dental) (MYR 8.34), and outpatient-based services (others) (MYR 4.41). The mean and median OOPHE among households with elderly members were much higher compared to national figures before the pandemic. The distribution of OOPHE by healthcare service types was comparable and aligned with previous findings. Higher OOPHE among households with elderly members may be attributed to greater healthcare demand among the elderly, including a higher prevalence of chronic diseases, frequent utilization of healthcare services, and higher specialized care costs. **Conclusion:** The post-pandemic OOPHE among households with elderly members in Negeri Sembilan was high compared to previous figures. Findings from this study warrant regular monitoring and the implementation of targeted financial protection strategies for the elderly population, in line with the projection of Malaysia becoming an ageing nation.

Keywords: Out-of-pocket health expenditure (OOPHE), elderly households, post-pandemic, financial protection, Malaysia

Smartphones and cognitive function among older adults – A proposed cross-sectional study in Malaysia

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ABSTRACT

Introduction: Malaysia is experiencing a rapid increase in its ageing population, leading to growing public health concerns surrounding age-related cognitive decline, particularly mild cognitive impairment (MCI). Smartphones are increasingly used by older adults and may offer cognitive stimulation and social connectivity. However, excessive or passive use may contribute to cognitive overload. Despite their widespread adoption, there is lack of local evidence examining how smartphone usage patterns influence cognitive function among older Malaysians. We are proposing a study among Malaysian older adults aged 60 years and above to examine the association between smartphone usage patterns and their cognitive function. **Materials and Methods:** A cross-sectional study will be conducted involving 216 older adults, selected through random sampling at Klinik Kesihatan Nilai, Negeri Sembilan. Participants will complete structured questionnaires capturing sociodemographic background, clinical history, and detailed patterns of smartphone use, including weekly screen time and types of applications used. Cognitive function will be assessed using the Montreal Cognitive Assessment (MoCA). Data will be analysed using SPSS, applying descriptive and inferential statistics (t-tests and logistic regression) to determine significant associations. **Results:** The proposed study is expected to identify predominant smartphone usage patterns among older adults and assess their relationship with cognitive performance. It will explore whether specific usage behaviours — such as prolonged screen time or app type — are associated with lower MoCA scores. Findings will also help identify sociodemographic or clinical predictors of cognitive decline. **Conclusion:** The results of this study are expected to provide preliminary evidence to inform public health strategies and support the development of digital health interventions aimed at preserving cognitive function among older adults in Malaysia.

Keywords: Smartphone usage, Cognitive function, Older adults, Mild cognitive impairment (MCI), Montreal Cognitive Assessment (MoCA)

Machine learning-based detection of ischemic stroke in older adults using CT brain

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ABSTRACT

Introduction: Ischemic stroke is a leading cause of morbidity and mortality among older adults. This study proposes a machine learning (ML)-driven approach to assist in the early detection of ischemic stroke using non-contrast computed tomography (CT) brain images. The optimized model aims to assist radiologists in diagnosing ischemic strokes more accurately, thereby reducing misdiagnosis and treatment delays, and ultimately improving patient outcomes. **Materials and Methods:** CT brain images from 184 patients aged between 18 to 60 years old were studied retrospectively. Data consist of 25 normal (N) CT brain scans from Hospital Pakar USM and 159 ischemic strokes (IS) from the Acute Ischemic Stroke Detection (AISD) dataset. All data were manually verified by a consultant radiologist and annotated as either ischemic or non-ischemic. The images were anonymised and organised into class-specific folders for batch processing during model training (90% of the dataset: 22 N & 143 IS) and testing (10% of the dataset: 3 N & 16 IS). Initial preprocessing steps includes intensity normalisation, denoising, and resolution adjustment were done after standardising to MNI space via SPM12. Radiomic features related to texture, shape, and intensity were extracted using the PyRadiomics to distinguish between ischemic and healthy brain tissue. The region of interest (ROI) for each image was identified using Otsu's thresholding, followed by morphological operations applied to refine the brain mask. Gray-Level Co-occurrence Matrix (GLCM) and Local Binary Patterns (LBP) were used to enhance the performance of stroke detection models. Three supervised ML classifiers: Support Vector Machine (SVM), K-Nearest Neighbors (KNN), and Random Forest (RF) were compared based on their proven effectiveness in medical image classification. Model performance was assessed using 10-fold cross-validation and evaluated based on accuracy, precision, recall, F1-score, and area under the receiver operating characteristic curve (AUC). **Results:** Random Forest achieved the highest diagnostic accuracy (accuracy = 93.75%, AUC = 0.973) with a training time of 0.208 seconds, followed by KNN (accuracy = 94.6%, AUC = 0.94, training time = 0.011 seconds) and SVM (accuracy = 87.5%, AUC = 0.984, training time = 0.015 seconds). The Friedman test confirmed statistically significant differences in classification performance among the models ($\chi^2 = 10.75$, $p = 0.00463$, $\alpha = 0.05$). Post-hoc Wilcoxon signed-rank tests with Bonferroni correction showed a significant difference between SVM and KNN ($p = 0.0156$), indicating KNN significantly outperformed SVM. However, the differences between SVM and RF ($p = 0.0313$) and between KNN and RF ($p = 0.75$) were not statistically significant, indicating comparable performance between KNN and RF. These findings align with existing literature, where KNN and RF have demonstrated similar performance in stroke detection tasks (Wang et al., 2023). Statistical validation from 10-fold cross-validation showed that KNN (mean accuracy = 93.93%) and RF (mean accuracy = 92.76%) exhibited high and comparable performance, outperforming SVM (mean accuracy = 87.87%). **Conclusion:** These promising results demonstrated that ML models can produce consistent outcomes across varied presentations of ischemic lesions. This suggests strong potential for automated stroke detection in geriatric medicine primary care and emergency settings.

Keywords: Ischemic stroke, computed tomography, machine learning, geriatric medicine

Study of anticoagulant properties in Camellia sinensis (green tea)

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ABSTRACT

Introduction: Tea is a historically familiar substance that is the second most consumed beverage after water. Camellia sinensis (L.) O. Kuntze (green tea) is a non-fermented type of tea that has been found to have higher catechin compared to other types of tea. Green tea is thought to bear various health benefits, one of which is its potential effect on haemostasis and thrombosis. Among its polyphenols, epigallocatechin gallate (EGCG) and epicatechin (EC) have been studied on their effect towards blood coagulation. **Materials and Methods:** This study employed a narrative literature review to investigate the anticoagulant properties of Camellia sinensis (green tea). Relevant research articles were identified through comprehensive searches in electronic databases, including PubMed, Google Scholar, ScienceDirect, and Scopus. Keywords such as "Camellia sinensis," "green tea," and "anticoagulant" were used to retrieve studies published in English. Only studies that were experimental, clinical, or review articles examining the effects of Camellia sinensis or its active compounds — specifically epicatechin (EC) and epigallocatechin gallate (EGCG) — on haemostasis, platelet function, and coagulation parameters were included, while studies involving other types of tea, and sources lacking proper references or supporting links were excluded. **Results:** Anticoagulant potential of compounds in Camellia sinensis is found particularly in its epicatechin (EC) and epigallocatechin gallate (EGCG) compounds. EGCG demonstrated significant antiplatelet effects by reducing platelet aggregation via inhibition of ADP, P-selectin, phospholipase C, and thromboxane A2, though it did not significantly affect coagulation times such as PT or aPTT. In contrast, EC showed both antiplatelet and anticoagulant properties, significantly reducing platelet aggregation, thrombin potential, and clotting times, while also enhancing fibrinolysis. **Conclusion:** Camellia sinensis contains natural compounds that may help prevent blood clots. One compound, EGCG, helps stop platelets from clumping together but does not affect blood clotting time. Another compound, epicatechin (EC), has both antiplatelet and anticoagulant effects — it can reduce clot formation and help break down clots. This shows that green tea, especially EC, may be useful for heart health. However, more studies are needed to confirm how effective and safe it is before using it as a treatment.

Keywords: Camellia sinensis, green tea, anticoagulant

Treatment efficacy on melanoma patients through biomarkers: A systematic review

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ABSTRACT

Introduction: One of the most aggressive and resistant skin tumours to therapy is advanced melanoma. Numerous haematological, molecular, and immunological biomarkers have surfaced in recent years as possible indicators of treatment effectiveness, especially in patients receiving targeted treatments and immunotherapy. However, the design, demographics, and techniques of various research frequently differ, which restricts how broadly the results may be applied. **Materials and Methods:** In accordance with PRISMA recommendations, a thorough literature search was carried out in PubMed, EBSCOhost, and Scopus using Medical Subject Headings (MeSH) phrases associated with "skin neoplasm," "treatments," and "biomarkers." The titles, abstract, and full-text reviews of studies published up until 19 November 2024 were used for screening. **Results:** A total of 5597 studies were retrieved, and only studies with clinical trials that reported biomarker profiles and used blood samples. Seven studies with a range of sample sizes and demographics (n = 2–258) were examined. High T-cell receptor (TCR) diversity, low neutrophil-to-eosinophil ratio (NER), and normal lactate dehydrogenase (LDH) levels were important indicators linked to positive treatment results. Actionable targets included molecular indicators like BRAFV600, KIT mutations, and microRNA-27b (miR-27b). Notably, better illness control and survival were substantially correlated with ICOSLG expression, especially in cetirizine-treated patients. PD-L1 expression, tumour mutational burden (TMB), and interferon-gamma (IFN-γ) profiles all indicated improved results with a combination of targeted and immunological therapy in patients with BRAFV600 mutations. **Conclusion:** The increasing importance of biomarker-driven strategies in the treatment of metastatic melanoma is supported by this systematic review. Although the results are encouraging, the majority of the research was retrospective and varied, which emphasizes the necessity of prospective studies to confirm the prognostic power of these biomarkers and allow for their incorporation into standard clinical procedures.

Keywords: Advanced melanoma, biomarkers, immunotherapy, targeted therapy

Navigating the empty nest: A qualitative exploration of coping strategies among Muslim mothers

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ABSTRACT

Introduction: A major life transition for ageing mothers is the period when adult children leave the parental home; or also known as the empty nest stage. This stage is often marked by significant psychological, social, and family adjustments. On one hand, it can provide increased personal freedom but on the other hand, it has also been associated with heightened risks of loneliness, depressive symptoms, and reduced sense of purpose. In Malaysia, where the ageing population is expanding rapidly, understanding these dynamics has important implications for mental health and family wellbeing. Therefore, the purpose of this study was to explore the lived experiences of Muslim mothers in Kedah, focusing on their coping strategies during the empty nest stage. **Materials and Methods:** A qualitative methodology was utilized to provide a deeper understanding of the phenomenon. Four Muslim mothers ages between 58 to 71 years old were recruited through purposive sampling, ensuring that all participants had direct personal experience of the empty nest stage. The data were collected using semi-structured interviews exploring the coping strategies utilized by mothers in navigating the empty nest. The data was analysed using thematic analysis. The Family Life Cycle Framework and Role Theory were two theories used to better understand the aspects and dimensions of the mothers' experiences. **Results:** Three major themes that emerged from this study are: (1) engagement in daily activities and hobbies, (2) spiritual practices, and (3) maintaining social connections. Participants' continued engagement in daily activities and hobbies offered the participants continuity and structure which helps them redefine roles and have a sense of purpose. Besides that, spiritual and religious practices such as praying, Quranic recitations provide a sense of peace and foster emotional resilience. This theme emerged as a critical coping strategy for the participants. Another strategy is maintaining social connections through extended family, community groups, and peer interactions. All this reduced loneliness and enhanced their wellbeing. This underscores the importance of meaningful interactions in later life. As a whole, the results show an interplay between cultural identity, spirituality, and social networks in shaping mothers' adaptation during this stage of life transition. **Conclusion:** In conclusion, the study highlights the importance of spiritual and cultural aspects in addressing mental health and wellbeing of ageing women during the empty nest stage. The findings suggest that interventions should emphasize role redefinition, promote faith-based coping strategies, and strengthen social connections. These insights can inform health care providers, mental health practitioners, and those in the helping professions in developing a culturally sensitive and holistic approach in supporting aging women in the empty nest stage in Malaysia. The study contributes to the discourse on ageing and wellbeing, highlighting the need for a more integrative care models that consider not only the physical, but also the psychosocial and spiritual needs of women.

Keywords: Ageing, empty nest, wellbeing, Muslim, coping

A rapid review on surgical approaches for diabetes reversal and remission

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ABSTRACT

Introduction: Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder characterized by hyperglycaemia due to insulin resistance and/or impaired insulin secretion. Diabetes remission refers to glycaemic levels below diagnostic thresholds (HbA1c <6.5% and fasting plasma glucose <7.0 mmol/L) for at least three months without pharmacological therapy as proposed by Riddle et al. and updated by the American Diabetes Association. Diabetes reversal is a broader term, often used interchangeably with remission, but may include partial improvements or temporary discontinuation of medication with sustained normoglycemia. Various bariatric and metabolic surgical procedures such as Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), and one-anastomosis gastric bypass (OAGB) have shown potential in inducing remission or reversal of T2DM. This rapid review aims to evaluate current evidence regarding the effectiveness of surgical interventions in promoting diabetes remission or reversal, and their impact on physiological, functional, and quality-of-life outcomes. **Materials and Methods:** A literature search was conducted using PubMed with the keywords such as diabetes, surgery, reverse, cure and remission. Inclusion criteria were i) studies evaluating diabetes remission or reversal, ii) clinical trials, observational studies, systematic reviews, and narrative reviews and iii) outcomes related to functional, physiological, or quality-of-life or ageing related improvements. Animal-only studies, case reports, or editorials not reporting remission outcomes were among the exclusion criteria. Three researchers: NFAF, GK and BV discussed and apprehended the suitable papers. **Results:** Among the articles, the most studied procedures were Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), and one-anastomosis gastric bypass (OAGB). Indications were primarily targeted toward individuals with obesity (BMI ≥35 kg/m²) and inadequately controlled Type 2 diabetes despite optimal medical therapy. However, emerging evidence suggests that surgery may benefit patients with BMI <35 kg/m² as well. Remission rates varied by procedure, with RYGB and OAGB consistently demonstrating higher rates of short-term remission in select populations, while SG showed more moderate outcomes. Common complications reported included nutritional deficiencies, surgical site infections, and gastrointestinal symptoms; serious morbidity and mortality were rare. Proposed mechanisms for diabetes remission include increased secretion of gut hormones such as GLP-1 and PYY, improved insulin sensitivity, decreased hepatic glucose production, and modulation of the gut microbiota. Procedures bypassing the proximal small intestine were particularly associated with rapid metabolic improvements independent of weight loss. When compared to medical therapy, surgery resulted in superior glycaemic control, higher remission rates, and greater reductions in medication use and quality of life. Several studies demonstrated that bariatric surgery was significantly more effective compared to lifestyle intervention or pharmacologic therapy. **Conclusion:** Surgical interventions, particularly RYGB and OAGB, are highly effective strategies for achieving remission or reversal of T2DM, especially in obese patients. These procedures offer significant physiological, functional, quality-of-life improvements with growing evidence of positive impacts on aging trajectories. While surgery carries inherent risks, its benefits over medical management in selected patients is well-supported by current evidence. Future research should aim to personalize surgical indications, refine prediction models, and optimize outcomes for aging populations.

Keywords: Diabetes surgery, bariatric surgery, reverse diabetes, diabetes remission, cure diabetes

Scoping review on role of pharmacists in promoting healthy ageing

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ABSTRACT

Introduction: Ageing population is becoming a major global issue, with the number of people aged 65 and above expected to double from 703 million in 2019 to 1.5 billion by 2050. Malaysia is also experiencing this demographic change and is projected to reach ageing nation status by 2030. This shift brings serious challenges to the public healthcare system, particularly due to the rise in chronic illnesses and increasing functional dependence among older adults. In response, the concept of healthy ageing has gained attention as a key strategy to enhance quality of life and reduce the pressure on healthcare services. Many parties, including the government, non-governmental organisations (NGOs), the community, and healthcare professionals, have well-documented roles in promoting healthy ageing through physical, mental, social, and environmental support. However, the role of pharmacists in this area is still underexplored. While some studies have shown that pharmacist interventions can lead to better medication use and fewer hospital admissions, most research has focused on disease management rather than their broader role in promoting healthy ageing. Pharmacists have strong potential to contribute to healthy ageing, as they are in a strategic position due to their regular contact with patients, especially in community pharmacies and outpatient settings. Their responsibilities may include managing medications, providing health education, supporting treatment adherence, and addressing issues such as polypharmacy. This review aims to explore and summarise existing studies on the role of pharmacists in healthy ageing, focusing on the types of interventions, healthcare settings involved, and the challenges faced by pharmacists in implementing healthy ageing. **Materials and Methods:** This scoping review will follow the Joanna Briggs Institute (JBI) methodological framework. A systematic search will be conducted across major databases, but not limited to PubMed, Web of Science, and Google Scholar, also complemented by grey literature. Studies will be selected based on predefined inclusion criteria which involve adults aged 18 years and above. Studies must also describe pharmacist-led activities that support healthy ageing in relevant settings including but not limited to community pharmacies, hospitals, long-term care facilities, primary care, and home visits. Study selection will be performed independently by two reviewers, with discrepancies resolved through discussion. Search terms will be derived from Medical Subject Headings (MeSH) related to pharmacists and healthy ageing. A standardised data extraction form will capture study details, pharmacist roles, settings, outcomes related to healthy ageing, and implementation challenges. Results will be summarised using PRISMA flow diagrams, tables, visual maps, and narrative synthesis. **Results:** The review is expected to identify and map the various ways in which pharmacists contribute to healthy ageing, including but not limited to medication safety, community-based health promotion, and interprofessional collaboration. It will also highlight existing knowledge gaps, where evidence is still scarce. **Conclusion:** Findings from this review will serve as a foundation for policy development, research direction, and future intervention models involving pharmacists in healthy ageing promotion.

Keywords: Healthy ageing, pharmacists, health promotion

Gene expression profiling of cumulus cells in polycystic ovarian syndrome patients: A systematic review and integrated bioinformatic analysis

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ABSTRACT

Introduction: Polycystic Ovarian Syndrome (PCOS) is a hormonal disorder affecting reproductive function, which often emerges in the early menstrual cycles or develops later throughout the reproductive years. PCOS common symptoms include irregular menstrual cycles, hyperandrogenism, as well as polycystic ovaries, albeit the symptoms may vary among individuals due to underlying genetic and environmental influences. Impaired reproductive functions, including hormonal regulation in PCOS, are often linked to altered gene expression within the cumulus cells that surround the oocyte, potentially leading to anovulation, where ovulation fails to occur, thus compromising fertility. Hence, this study aims to identify genes that are differentially expressed in the cumulus cells among infertile women with PCOS and the pathways involved. **Materials and Methods:** An extensive literature search was conducted employing EBSCOhost, PubMed, ScienceDirect, and Scopus databases to systematically identify gene expression profiles in cumulus cells and elucidate the molecular pathways implicated in the pathogenesis of PCOS. Terms including ("Infertile women" OR Infertility OR Subfertility OR Sterility) AND (PCOS OR "Polycystic ovarian syndrome" OR "Polycystic ovary syndrome") AND ("Cumulus cells" OR "Cumulus granulosa cells" OR "Granulosa cells" OR Cumulus) AND ("Gene expression" OR Profiling OR Transcriptome OR Transcriptomic) were used as the keywords in abstract field. Bioinformatics methodologies used were Venn diagram to identify overlapping DEGs, STRING to elucidate protein–protein interaction networks, and DAVID for comprehensive functional annotation and pathway enrichment analysis. **Results:** Two hundred and twenty-six studies were retrieved, and all studies were screened according to the inclusion and exclusion criteria. After the screening, fourteen studies were selected, and eleven differentially expressed genes (DEGs) reported by at least two papers were extracted from the studies. The integrated bioinformatic analysis using DAVID and STRING revealed a protein-protein interaction (PPI) network with two intermolecular interaction clusters. Based on the Gene Ontology (GO), most DEGs were localised in the extracellular space (GO:0005615), suggesting the involvement of these genes in modulating intercellular signalling of cumulus cells for oocyte maturation prior to fertilisation. The genes GDF9, TGFB1, INHBB, BMPR1A, and BMP15 participated in the cytokine-cytokine receptor activity (hsa04060), while GDF9, TGFB1, INHBB, and BMP15 were involved in the growth factor activity (GO:0008083). Correspondingly, TGFB1 and BMPR1A were also involved in the positive regulation of epithelial cell proliferation (GO:0050679) alongside RUNX2, proposing their role in promoting cell proliferation during follicular development. Another cluster consists of LHCGR, CYP11A1, and CYP1B1, which participated in the ovarian steroidogenesis (hsa04913) as well as in the cellular response to luteinizing hormone stimulus (GO:0071373), implying their role in regulating sterol metabolic process (GO:0016125) required in hormonal homeostasis, which is critical for proper reproductive functions. **Conclusion:** This systematic review identified key DEGs, including GDF9, TGFB1, INHBB, BMPR1A, BMP15, RUNX2, LHCGR, CYP11A1, and CYP1B1, that are critically involved in folliculogenesis, steroidogenesis, and signalling pathways essential for oocyte maturation. The dysregulation of these genes' expression underscores a disrupted follicular microenvironment, unravelling the compromised reproductive mechanisms. Hence, these findings enlighten a focused molecular framework for therapeutic strategies aimed at improving reproductive outcomes in PCOS patients.

Keywords: Infertility, In vitro fertilisation, gene expression, PCOS

Thinking critically, acting ethically: The role of critical thinking in mitigating plagiarism among medical undergraduates in Malaysia

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ABSTRACT

Introduction: Academic integrity is fundamental in shaping future medical professionals who adhere to ethical standards in both academic and clinical settings. A key aspect of integrity is the ability to recognize and avoid plagiarism, which compromises personal and professional ethics. Although plagiarism has received increasing attention in higher education, its relationship with critical thinking remains underexplored, particularly within the context of Malaysian undergraduate medical education. This study addresses this gap by examining how plagiarism knowledge and critical thinking ability interact to influence students' engagement in plagiarism-related practices. **Materials and Methods:** A cross-sectional quantitative study will be conducted among Malaysian undergraduate medical students, who will be selected through simple random sampling from two public universities. Data will be collected using a structured questionnaire encompassing three core constructs: plagiarism knowledge, plagiarism practice, and critical thinking ability. The instrument integrates adapted items from validated sources, organized into sub-sections assessing students' understanding of plagiarism, their engagement in related practices, and their critical thinking disposition and skills. Data analysis will be performed using Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate both direct and moderating relationships among the constructs. **Results:** The study is expected to underscore the critical thinking ability in shaping ethical academic behavior. Students with stronger critical thinking abilities are anticipated to exhibit greater ethical discernment, making them less likely to engage in plagiarism even when their knowledge of plagiarism is similar to others. This suggests that critical thinking influences the relationship between plagiarism knowledge and practice, amplifying the negative association between the two. The findings will provide empirical support for the role of critical thinking in fostering ethical academic conduct by mitigating plagiarism. Integrating critical thinking development into medical curricula is therefore essential as a strategic approach to reinforcing academic integrity. **Conclusion:** This research contributes a context-specific foundation for promoting professionalism and ethical conduct among Malaysian medical undergraduates. It emphasizes the importance of embedding critical thinking into both academic and clinical training to uphold academic integrity and reduce unethical practices.

Keywords: Plagiarism, academic misconduct, academic integrity, critical thinking, medical students

Pilates for obese patients: Does it promote weight loss and overall well-being?

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ABSTRACT

Introduction: Pilates, an increasingly popular exercise, is a low-impact, core-based physical activity that emphasises strength, flexibility, breathing control, and body awareness. This study aims to provide an overview of the benefits of Pilates in promoting weight loss and overall well-being among obese individuals. **Materials and Methods:** A literature review was done from four databases such as PubMed, ScienceDirect, Google Scholar, and Scopus. The keywords used were "Pilates AND obesity," "Pilates AND weight loss," "Pilates AND cardiovascular endurance," "Pilates AND psychological benefits," "Pilates AND core strength," "Pilates vs aerobic exercise," and "Pilates AND long-term weight management." A total of 20 articles were chosen between January 2009 and January 2023 which focus on overweight or obese adults with BMI ≥ 27.5. **Results:** A few themes emerged from the literature review: (1) the health benefits of Pilates, (2) how effective it is for weight loss, and (3) safety precautions for the exercise. Studies have shown that regular Pilates exercise, performed two to three times a week for 45 to 60 minutes per session, has been proven to enhance core muscle tone, reduce body fat and improve flexibility. The reduction in body weight or body fat depends on the frequency and duration of the Pilates exercise performed. This aligns with many obesity recommendations, which suggest a minimum of 300 minutes of moderate-intensity physical activity per week for an individual to achieve significant weight loss benefits. In addition, Pilates emphasises controlled breathing and mindful movement, contributing to reduced stress and improved self-confidence, which is an important factor for sustainable weight loss. **Conclusion:** Pilates is beneficial for obese individuals as it increases flexibility, muscle strength, and stress regulation. It is also effective in weight loss and body fat reduction, and, due to its low-impact nature, it has been proven to be sustainable in a weight loss journey. It is also a safe exercise, with few safety precautions to consider, such as for individuals with spine injuries, pregnancy, and osteoporosis.

Keywords: Pilates, pilates exercise, obesity

Delivery mode and its determinants in Jordan: A cross-sectional study from two educational hospitals

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ABSTRACT

Introduction: The global rise in caesarean section (CS) rates has sparked concerns regarding potential overuse, particularly in middle-income countries. While CS can be a life-saving intervention when clinically indicated, its unnecessary use poses increased risks to both maternal and neonatal health. In Jordan, the CS rate has reportedly surpassed international recommendations set by the World Health Organization (WHO), yet limited recent evidence exists to quantify this burden and examine its underlying drivers in educational care settings. **Materials and Methods:** This cross-sectional study included 922 postpartum women who delivered at two major educational hospitals in Jordan: Jordan University Hospital (JUH) and King Abdullah University Hospital (KAUH). Data were collected through structured medical record reviews and patient interviews. The primary outcome was mode of delivery, categorized as elective caesarean, emergency caesarean, vaginal, or instrumental delivery. Independent variables included maternal sociodemographic and clinical characteristics such as age, BMI, parity, prior CS, gestational age, hospital of delivery, and fetal presentation. Descriptive statistics were used to report delivery distributions. Binary logistic regression was performed to identify predictors of caesarean section versus non-caesarean delivery (vaginal/instrumental). **Results:** Among all deliveries, 73.2% were performed by caesarean section — of which 52.7% were emergency CS and 20.5% were elective CS. Vaginal births accounted for only 8.7% and instrumental deliveries for 18.1%. Obesity was prevalent in 23.6% of the sample, and 63.9% of women had a history of prior caesarean delivery. Binary logistic regression identified delivery at JUH as a statistically significant predictor of caesarean section (OR = 1.87, 95% CI: 1.39–2.52, $p < 0.001$), while maternal age >35 years, obesity, and previous CS did not reach statistical significance. The higher rate of CS at JUH may be influenced by contextual factors, such as full cost coverage for CS procedures in public hospitals, as well as regional lifestyle differences. Women in Irbid (KAUH) are more likely to engage in physical activity and maintain traditional attitudes favouring vaginal delivery, in contrast to the more urbanized population in Amman. **Conclusion:** The caesarean section rate observed in this study far exceeds WHO recommendations, with a particularly high proportion of emergency procedures. Variations in hospital location, service coverage, and regional behaviours may help explain this trend beyond clinical need alone. These findings underscore the importance of enhancing public health education, strengthening adherence to delivery guidelines, and encouraging vaginal birth after caesarean (VBAC) when appropriate. A comprehensive strategy that integrates antenatal counselling, provider training, and patient-centred care is critical to reducing unnecessary caesareans and improving maternal outcomes in Jordan.

Keywords: Caesarean section, vaginal delivery, Jordan, maternal health

Breaking barriers to guideline-directed medical therapy (GDMT) optimization in heart failure: The roles of multidisciplinary care team

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ABSTRACT

Introduction: Heart failure is a condition that develops when the heart does not pump enough blood for the body's needs. According to the Department of Statistics Malaysia, ischaemic heart disease was the leading cause of death in 2023. By 2024, it continued to rank among the top three causes of mortality in Malaysia despite becoming the second leading cause. Therefore, our main concern is to reduce the rate of mortality and readmission among heart failure patients in Malaysia by optimizing Guideline-Directed Medical Therapy (GDMT). However, its implementation in Malaysia remains suboptimal. **Materials and Methods:** The main objective of this review is to discuss the challenges in optimizing GDMT up-titration and exploring the roles of Multidisciplinary Team. The review was done with the following electronic databases: ResearchGate, PubMed, Wiley Online Library, JAPSC Clinical Key, AHA Journals and Scopus. Several search terms were used, including Guideline-Directed Medical Therapy (GDMT) and Multidisciplinary Team (MDT). Restriction was applied on the date of publication as all the sources were published from 2020 onwards. **Results:** In 2019, National Institute of Heart, Malaysia has successfully set up the Multidisciplinary Team for Heart Failure (MDT-HF) Clinic. However, there are several barriers to the effective up-titration which include patient-related issues, provider-related challenges and system-level limitations. Therefore, there is an urgent need to improve the delivery and titration of GDMT through multidisciplinary collaboration across the healthcare system. Through the last three decades of evidence, it has been known that the establishment of MDT-HF clinic can enhance the up-titration of GDMT by having multiple healthcare professionals managing heart failure patients. **Conclusion:** Optimizing heart failure management in Malaysia requires systematic improvements in the delivery of GDMT. MDT-HF Clinics provide a structured framework for timely GDMT initiation, up-titration, and holistic patient care. Addressing patient, provider, and system barriers through MDT collaboration is essential to reduce readmission, lower mortality, and enhance the long-term outcomes of heart failure patients nationwide.

Keywords: Guideline-Directed Medical Therapy, multidisciplinary team, heart failure

Managing retirement plan for healthy wellbeing: A case study among teaching professionals

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ABSTRACT

Introduction: The issue of mental health among the ageing population is becoming increasingly critical in 2025, with several concerning trends emerging globally and particularly in Malaysia. The transition into the late adulthood stage, mainly leading to retirement, requires readiness to face psychological, emotional, and social changes and challenges. The study aimed at understanding the experiences and strategies used among teaching professionals aged 50 years and above in planning and preparing for their retirement plan. **Materials and Methods:** A case study approach among nine teaching professionals aged between 50 and 59 years old was conducted in understanding their retirement plan and preparation. All the informants were female teachers based in Terengganu Darul Iman; a state located on the east coast of Peninsular Malaysia. The location was chosen since Terengganu has made notable achievements in education in recent years. Using thematic analysis, several recurring themes emerged across multiple interview-based case studies. **Results:** Key themes involve career satisfaction and accomplishments, vision and meaning of retirement, holistic retirement planning, anticipated challenges and coping mechanisms. The underlying Continuity theory and biopsychosocial model supported the dynamic process of intentional transition for an active and successful retirement life resulting in optimum mental health and wellbeing. **Conclusion:** Important lessons learned based on the sharing of the informants are reflected. Several recommendations are outlined for relevant authority such as Ministry of Women, Family and Community Development and NGOs should join in a concerted effort to continue establishing programs and activities that can foster healthy ageing via well-structured policymaking.

Keywords: Retirement, challenges, mental health, teaching professionals, case study

Introduction to 3D bioprinting: Mechanism, application, and ethical considerations in artificial tissue fabrication: A scoping review

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ABSTRACT

Introduction: Three-dimensional (3D) bioprinting is an innovative technology that integrates engineering, biology, and medicine to create artificial tissues and organs. It offers solutions to pressing healthcare challenges such as organ shortages and the demand for personalized treatment. Despite its potential, clinical application raises ethical, regulatory, and religious concerns. This scoping review explores the mechanisms of 3D bioprinting, its biomedical applications, and associated ethical implications. **Materials and Methods:** A scoping review was conducted following PRISMA guidelines. Eight peer-reviewed articles published between 2020 and 2025 were analyzed. Studies that addressed bioprinting mechanisms, tissue applications, and ethical or legal considerations were included, while abstract-only and irrelevant papers were excluded. **Results:** 3D bioprinting involves a structured process that begins with digital modeling followed by deposition techniques such as extrusion-based, inkjet, and laser-assisted printing. Bioinks, composed of natural, synthetic, hybrid, or stimuli-responsive polymers, are critical for cell viability and structural integrity. Applications include tissue regeneration (skin, cartilage, bone), organoid modeling, and pharmaceutical testing. Ethical challenges include organ ownership, informed consent, fair access, and regulatory oversight. From an Islamic perspective, bioprinting is permissible if aligned with Maqasid al-Shariah and uses halal sources, although concerns remain regarding human dignity and enhancement. **Conclusion:** 3D bioprinting holds transformative potential for regenerative medicine and personalized healthcare. However, its successful integration into clinical practice depends on addressing technical limitations, regulatory frameworks, and ethical issues. Collaboration across disciplines and efforts to improve affordability are essential to ensure fair access worldwide.

KEYWORDS: 3D bioprinting; tissue engineering; bioink; ethics; regenerative medicine

Beyond glycaemic index: The role of insulin index in elderly dietary management

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ABSTRACT

Introduction: Food provides carbohydrates and energy essential for daily activities and sustaining life. Glucose molecules are the building blocks of carbohydrates, and the increase in blood glucose two hours after consuming the same amount of carbohydrates from different foods is known as the glycaemic index (GI). It is widely accepted that a low-GI diet benefits health, especially in individuals with metabolic diseases such as diabetes mellitus, hypertension, and hyperlipidaemia. In contrast, the insulin index (II) measures the rise in blood insulin levels two hours after food consumption. Although II has been overlooked in favour of GI, recent evidence suggests that II should be considered in dietary planning, as many low-GI foods have high II values. A meta-analysis of 54 randomized controlled trials by Zafar et al. found that low-GI foods alone were insufficient to reduce fasting insulin, insulin resistance, and insulin requirements in diabetics. This is particularly relevant in Malaysia, which has the highest diabetes rate in the Western Pacific region. This review explores the importance of understanding the interplay between GI and II in the elderly. **Materials and Methods:** A scoping review was conducted to explore the question: "What is the evidence regarding the impact of GI and II on the elderly?" Literature was searched using PubMed, Cochrane, ResearchGate, Web of Science, Google Scholar, Scopus, and the Malaysian Diabetes Clinical Practice Guidelines (CPG). Search terms related to GI, II, insulin resistance and hyperinsulinemia were applied accordingly. The current GI chart from the Malaysian Ministry of Health website was also referenced. **Results:** Seven relevant articles were included, comprising studies, reviews, and collectanea of food insulin indices. An infographic by the Malaysian Health Ministry categorizes common foods into low, moderate, and high GI. Some low-GI foods (≤55) have high II values when crosschecked with II values from a recent compilation from Hendricks et al. These II were 64, 84, and 140, for yam, watermelon, and skimmed milk respectively. This indicates that GI alone is insufficient to assess metabolic impact. Low-GI foods may still cause significant insulin spikes, insulin response and poor insulin clearance due to their carbohydrate and insulinotropic protein content, increasing insulin resistance and adipogenesis related risk. These risks are deduced to be more pronounced in the elderly. Literature shows that ignoring II and insulin response leads to poor diabetes control and that II is strongly associated with metabolic conditions. **Conclusion:** The belief that low-GI foods are essential for health should be revised to include II values to prevent hyperinsulinemia. GI may underestimate the metabolic effects of certain foods when viewed from the low GI-hyperinsulinemia paradox. Consuming high-II foods over time may raise the risk of insulin resistance, obesity, diabetes, and cardiovascular diseases, particularly in older adults Incorporating II into dietary planning and public health infographics is a non-invasive, cost-effective strategy. Additionally, there is a lack of local, elderly-focused studies on the II in clinical nutrition and ageing, highlighting the need for further research.

Keywords: Glycaemic index, insulin index, elderly, insulin resistance, hyperinsulinemia

Predicting food insulin index: Enhancing nutritional strategies for ageing populations

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ABSTRACT

Introduction: With the global rise in ageing populations, the prevalence of insulin resistance and type 2 diabetes mellitus (T2DM) among older adults has become a major public health concern. Dietary interventions remain a cornerstone of metabolic management, yet traditional tools such as the Glycaemic Index (GI) have shown inconsistent results in predicting insulin responses, particularly in elderly individuals with altered glucose metabolism. The Food Insulin Index (II), which quantifies the insulin response to food rather than glucose alone, offers a more direct and physiologically relevant measure. However, the cost of conducting an II study is relatively expensive when compared to GI studies. Additionally, the global II database remains limited, with fewer than 800 entries, necessitating predictive models to estimate II for untested foods. This study aimed to develop and validate predictive algorithms for estimating II using expanded datasets from Malaysia, with a focus on improving dietary planning for older adults. **Materials and Methods:** GI, II and macronutrient data including carbohydrate, protein, fat, sugar, and fibre were extracted and updated from original manuscripts and a recent II compilation. The integrity of the dataset was checked by the research team prior to analysis. Three established II prediction algorithms were evaluated: Bell's, Bjork's, and Wolever's. The II predicted values were evaluated for performance using Lin's Concordance Correlation Coefficient (CCC), precision, accuracy, Root Mean Square Error (RMSE), and Bland-Altman analysis for bias and limit of agreement (LOA). **Results:** A dataset of over 700 food items was compiled and analysed. Bell's model uses multiple regression equations based on available macronutrient inputs, while Bjork's and Bell's model applies linear transformation and quadratic equations respectively. Bell's algorithm demonstrated the highest predictive accuracy, with a CCC of 0.592, RMSE of 16.619, and Bland-Altman mean bias of -5.297 and a upper LOA of 25.5 and a lower LOA of -36.3. Bjork's and Wolever's models showed lower concordance (CCC < 0.35) and higher RMSE (>28), indicating reduced reliability. These findings suggest that Bell's model is currently the most suitable for estimating II, especially for foods lacking direct measurements. In the context of ageing, accurate prediction of insulin responses is critical especially in Malaysia where the II entries are lesser than 10 foods. Older adults often exhibit reduced insulin sensitivity and altered hormonal regulation, increasing their susceptibility to postprandial hyperinsulinemia and its complications. Predictive II models can support clinicians, caregivers, and food manufacturers in designing age-appropriate diets that minimize insulin spikes and promote metabolic stability. Moreover, such models can be integrated into digital health platforms and wearable technologies to enable personalized nutrition for elderly individuals. This can serve as a temporary bridge until an extensive global and Malaysian II database is updated. **Conclusion:** This study highlights the importance of expanding II databases, developing or refining current predictive algorithms to accommodate the unique metabolic profiles of older adults. Future research should explore machine learning approaches and incorporate age-specific physiological parameters to enhance model precision. By improving the accuracy of II prediction, we can better support dietary interventions that reduce the burden of insulin-related disorders.

Keywords: Insulin index, glycaemic index, insulin response, personalized nutrition, insulin prediction

Prevalence and sociodemographic factors of depression among adults attending primary care clinics in Northern Selangor

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ABSTRACT

Introduction: Depression is a leading contributor to the global burden of disease, with substantial social and economic consequences. According to the World Health Organization (WHO), 2019, approximately one in eight individuals globally are affected by mental disorders, with depressive and anxiety disorders being the most common. The National Health and Morbidity Survey (NHMS) 2023 revealed a doubling in the prevalence of depressive symptoms among Malaysians aged 16 and above from 2.3% in 2019 to 4.6% in 2023, with higher rates observed among females and younger age groups, highlighting a concerning upward trend. Depression often goes undetected and untreated, especially in primary care settings. Early identification through routine screening is critical to improving mental health outcomes. This study aimed to determine the prevalence of depression and examine associated sociodemographic characteristics among adults attending government primary care clinics in Northern Selangor. **Materials and Methods:** A cross-sectional study was conducted from January to December 2024 involving nine government primary health care clinics in Northern Selangor. A total of 88 adult participants aged 18 years and above were selected using simple random sampling. Depression was screened using the Whooley questions and confirmed using the Patient Health Questionnaire-9 (PHQ-9). Descriptive statistics were calculated using Microsoft Excel. **Results:** Of the 88 participants, the highest percentage or 74 (84.1%) were female and 80 (90.9%) were Malay, with a mean age of 35.2 years (SD = 10.4). Most were married, 57 (64.8%) and had either tertiary (48.9%) or secondary education (48.9%). More than half (58.0%) were employed. Chronic illnesses were reported in 22.7%, while 16.0% had comorbid mental health conditions such as Generalized Anxiety Disorder (8.0%), Psychosis (2.0%), and PTSD (1.0%). The most commonly reported psychosocial stressors were workplace issues 34 (38.6%), followed by marital and family conflicts (28.4% each). Although 86.4% reported having support systems, 13.6% lacked any emotional or social support. **Conclusion:** This study highlights a notable prevalence of depression among women and working-age adults attending primary care clinics. Depression was found to be influenced by a combination of psychosocial stressors, employment status, chronic illnesses, and lack of social support. These findings underscore the critical role of primary health care in screening and managing depression. Integrating mental health assessments into routine primary health care visits, especially for high-risk populations, along with strengthening psychosocial interventions and community support networks, is vital for effective mental health care delivery in Malaysia.

Keywords: Depression, primary care, mental health, sociodemographic factors, Selangor

Warm cells, cool science: Brown adipose tissue and longevity

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ABSTRACT

Introduction: Brown adipose tissue (BAT) has gained increasing attention for its role in thermogenesis and its potential implications in aging and metabolic health. Unlike white adipose tissue (WAT), which primarily stores energy. BAT structurally consists of higher mitochondrial content and rather than a singular large vesicle it has many small lipid vesicles. This underpins BAT's ability to generate heat via uncoupling protein 1 (UCP1) and non-shivering thermogenesis (NST). A narrative review was conducted to consolidate current knowledge and explore future opportunities regarding the regenerative properties of BAT in relation to longevity. **Materials and Methods:** A literature search was carried out using PubMed, Cochrane and ResearchGate, appropriate wordings for the search strategies were applied accordingly for BAT, beige fat, UCP1, NST, ageing, longevity. Findings from selected reviews, clinical studies, and experimental models related to BAT were evaluated. Sources were selected based on their relevance to BAT structure, function, age-related changes, environmental and dietary influences, imaging techniques, and regenerative applications. **Results:** The location of BAT differs in neonates and adults. Neonates have interscapular, perirenal, and cervical BAT depots, while adults retain supraclavicular and paravertebral stores as the most metabolically active regions. Over time, aging markedly reduces BAT volume and activity. Research have found that preserved BAT activity in older adults is linked to improved metabolic processes. Environmental and dietary influences also shape BAT's lifespan. People living in hot climates often show reduced or undetectable BAT on imaging, largely due to the lack of cold-induced thermogenesis. Diet plays a role in which certain diets suppress BAT thermogenesis and increase visceral fat deposition. Because of this, strategies to maintain BAT into older age have become a focus. Regular cold exposure is still considered the most reliable trigger via sympathetic activation. There is also numerous "browning cocktail" in the form of food and nutraceuticals that may form and activate BAT. Beyond metabolism, BAT is being studied for regenerative medicine. It is packed with stem cells which can differentiate into any type of cells, which opens possibilities for tissue repair. In animal studies, BAT transplantation has shown to improve metabolism, liver function and glucose levels which gives rise to a potential future treatment to conditions such as diabetes, heart disease and peripheral artery disease. However, assessing BAT in humans is still technically difficult. PET-CT remains the most sensitive and specific method. Thermal imaging and other emerging, low-cost and radiation-free alternatives are gaining traction as quantitative methods measure BAT activity. **Conclusion:** In summary, BAT represents the "warm cell" with "cool" implications for longevity. With its unusual combination of metabolic and regenerative capacity, BAT has been described as an "elusive regenerative therapy" that deserves far more attention in the context of human aging. Preserving BAT function could offer a practical, non-pharmacological way to extend health span by connecting thermogenesis, metabolism, and regenerative medicine.

Keywords: Brown adipose tissue, longevity, mitochondria, UCP1, thermogenesis

Evaluating the role of insulin index in inducing nutritional ketosis for elderly health: A narrative review

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ABSTRACT

Introduction: The Insulin Index (II) measures how the body's insulin responds to various macronutrients over time-carbohydrates, proteins, and fats providing a wider view than the traditional glycaemic index (GI), which only shows how carbohydrates affect blood sugar. Chronic hyperinsulinemia has been linked to dyslipidaemia, non-alcoholic fatty liver disease, diabetes, heart disease, and other conditions related to aging. By inducing ketosis, insulin release is tapered down, leading to adipolysis. Nutritional ketosis by fasting or carbohydrates restriction is known to exert anti-ageing effects on the body. While the connections between the II and ketosis are not fully explored in clinical medicine, this review aims to highlight the current research update, the gaps and point out areas for future study. We hypothesize that food that secrete low insulin would induce ketosis. **Materials and Methods:** A literature search was carried out using PubMed, Cochrane and ResearchGate, Appropriate wordings for the search strategies were applied for II, ketogenic diets, and/or nutritional ketosis. The focus was on studies involving people aged 60 and older. Eligible study designs were randomized controlled trials, cohort studies, cross-sectional studies, systematic reviews and other reviews. **Results:** No existing studies that have evaluated usage of insulin index to induce ketosis. The usual state of nutritional ketosis is marked by a high glucose ketone index (GKI) and a moderate level of ketones in the serum. In diabetic, insulin and glucose responses often diverge. Meals with low II values were linked to a smaller insulin incremental area under the curve (iAUC), feeling of satiety and less hunger. High II values were associated with metabolic syndrome, insulin resistance, and type 2 diabetes. It was also a stronger predictor of post-meal insulin than counting carbohydrates. In older adults, nutritional ketosis has shown promise in enhancing cognitive and neurodegenerative health like Alzheimer's or Parkinson's. It also improves glycaemic control, lowers inflammation, improves liver and renal profiles, and prevents sarcopenia. Ketone bodies benefit heart failure patients by improving cardiac energy and reducing inflammation. In Malaysia, cancer is one of the major causes of premature mortality among elderly in Malaysia (16.6%), ketogenic diets may support cancer treatments by slowing tumour growth and improving the effectiveness and tolerability of chemotherapy. The anti-ageing or longevity effects of ketone bodies are attributed to the activation of AMP-activated protein kinase (AMPK) and sirtuins (SIRTs), along with the inhibition of the nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB) and NOD-like receptor family pyrin domain containing 3 (NLRP3) inflammasome pathways, which collectively support antioxidant and anti-inflammatory effects. The role of the insulin/insulin-like growth factor 1 (IGF-1) signalling pathway during caloric restriction remains debated. Ketones also boost autophagy, mitohormesis, and telomere lengthening, improving lifespan and slowing aging. **Conclusion:** The nutritional ketosis seems to be useful dietary strategies for healthy aging. Current findings show no evidence of II inducing ketosis as we hypothesized. Hence, research on II inducing ketosis in general is warranted. These could help in sustaining ketosis related interventions, being an alternative therapy to fasting and ketogenic diets and to improve metabolic outcomes, cognitive function, and quality of life.

Keywords: Insulin index, nutritional ketosis, ketogenic diet, metabolism, cognitive function

Ageing in reverse: Twin cycle hypothesis and 3Rs as catalysts for transformative longevity

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ABSTRACT

Introduction: Malaysia's shift toward an ageing nation status, expected to exceed 15% of the population aged 60 and above by 2030, demands a strategic shift from reactive healthcare to anticipatory, person-centred models. Healthy ageing requires a multidisciplinary involvement of biomedical innovation, digital solutions, and culturally grounded wellness practices to combat the rising burden of metabolic syndromes. Research indicates that visceral fat contributes to systemic inflammation, insulin resistance, and dyslipidaemia, which can lead to hypertension and diabetes. At the core of this review lies the Twin Cycle Hypothesis, which highlights the central role of hepatic and pancreatic fat in the potentially reversible pathogenesis of Type 2 Diabetes. When reinterpreted through the lens of the 3Rs - Rehabilitation, Reversal, and pRolonging age (health span extension), this biological model evolves into a conceptual framework for advancing metabolic resilience in older people. While such integrative approaches have been implemented in Newcastle University and the National Health Service (United Kingdom), they are yet to be established in Malaysia. We propose reviewing and adapting this model to local ageing frameworks to target visceral fat reduction and metabolic recovery. **Materials and Methods:** This review employed a narrative synthesis of peer-reviewed articles, policy documents, and international reports published from inception till 2025. The literature search was conducted using PubMed with the following keywords: ("twin-cycle" OR "twin cycle") AND ("Diabetes Mellitus"[MeSH] OR "type 2 diabetes" OR "non-insulin dependent diabetes" OR "diabetes" OR "prediabetes" OR "T2DM" OR "DMT2"). All relevant papers were pooled accordingly for data extraction. **Results:** A total of 13 articles were pooled, predominantly originating from the United Kingdom (UK), with Professor Roy Taylor emerging as the most prominent contributor. The Twin Cycle Hypothesis, first introduced in 2008, posits that excessive caloric intake leads to triacylglycerol accumulation in the liver and pancreas, triggering insulin resistance and β-cell dysfunction. This hypothesis was also confirmed via magnetic resonance spectroscopy. In healthy individuals, triglycerides are safely stored in subcutaneous tissue; however, in disease states, ectopic fat and lipid intermediates accumulate in visceral organs, disrupting metabolic regulation. Rehabilitation and reversal typically involve a structured low-calorie diet (~800 kcal/day), sustained weight loss of 10–15 kg, and behavioural reprogramming to restore hepatic insulin sensitivity and reduce pancreatic fat. Clinical trials in the UK have also affirm the plausibility of diabetes remission via intensive weight loss and low-calorie diet. These interventions have been shown to prolong health span by restoring metabolic function, reducing medication burden, and improving quality-adjusted life years. While Malaysia lacks an official remission pathway, we propose adapting the UK's Newcastle–NHS model by embedding motivational interviewing, culturally adapted dietary guidance, alongside digital health integration. **Conclusion:** Reframing and integrating the Twin Cycle Hypothesis with the 3Rs promotes well-being among the ageing population in Malaysia. Rather than solely controlling glycaemic levels, lifestyle interventions such as weight loss and a low calorie-diet should be prioritised and personalised for patient-centred care into primary and secondary care.

Keywords: Twin Cycle Hypothesis, fatty liver, fatty pancreas, diabetes reversal, longevity

Artificial intelligence robotic as future surgeon in the aging society

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ABSTRACT

Introduction: A major change in surgical profession has been brought by the combination of surgical robots with the advancing artificial intelligence (AI) technology. Robotic surgery offers greater precision, smaller incisions, faster recovery, and improved visualization, enhancing both patient outcomes and surgeon performance. This sparks interest in patient care and skilled surgeons as we are approaching aging society with the demand of working beyond the age of expected retirement. This study aims to review the advantages and disadvantages of AI Robotic as surgeon and role in the aging society. **Materials and Methods:** A scoping review approach was conducted using literature from scientific databases including PubMed, Google Scholar and Science Direct. Thirty-one research papers for the purpose of defining an AI robotic surgeon in medical fields as well as its advantages and disadvantages were screened based on the keywords over the last 20 years. Only 16 papers were suitable and selected for analysis. **Results:** The da Vinci Surgical System is a prominent example of an AI-powered robotic surgeon. It comprises three main components: a surgeon's console, a surgical cart with robotic arms and end-effectors, and a vision cart. The system is operated by a real surgeon who controls the robot through manipulators, enhancing the surgeon's dexterity, hand-eye coordination, posture, and visual precision. This technology streamlines surgical procedures, reduces operation time, and minimizes the patient's exposure to anesthesia. As a result, it promotes faster recovery, reduced postoperative pain, and fewer complications due to its high accuracy. Despite its benefits, the system is not fully autonomous and still requires a skilled human operator. Surgeons must undergo specific training to safely and effectively use the robotic interface, which can pose challenges, especially due to resistance from those accustomed to traditional surgical techniques. Additionally, ongoing development and integration of AI in surgical systems lead to higher costs, making it financially challenging for many healthcare institutions. Nevertheless, AI-assisted robotic surgery offers a promising future. It enhances surgical accuracy, safety, and overall productivity while improving patient outcomes such as reduced hospital stays, minimal blood loss, and fewer surgical incisions. AI can also assist in instrument positioning and precise manipulation, which reduces physical strain on the surgeon and supports better surgical performance. Importantly, for an aging surgical workforce, AI robotic systems provide valuable assistance. By reducing physical fatigue and enhancing cognitive support, these systems allow older surgeons — especially those over 60 — to safely continue practicing and maintain high standards of care. However, for full utilization, surgeons must understand AI fundamentals and how to integrate this technology into clinical practice. **Conclusion:** In summary, while not without limitations, AI-powered robotic surgery represents a major advancement in surgical care. Its ability to assist human surgeons, especially in complex procedures and among older practitioners, is revolutionizing surgical outcomes and expanding the future of minimally invasive surgery.

Keywords: Artificial intelligence, robotic, surgeon, ageing

Public interest in external counterpulsation (ECP) therapy among the elderly in Malaysia: An infodemiology study using Google trends

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ABSTRACT

Introduction: External Counterpulsation (ECP) is a non-invasive regenerative biomedical therapy. The ECP increases coronary perfusion through diastolic augmentation and reduces angina and improves functionality in heart failure. ECP may sometimes be referred as enhanced ECP (EECP). As Malaysia's population ages, the burden of cardiovascular disease (CVD) is expected to rise. Despite its clinical promise, the government utilization of the device is limited. Anecdotal experience from our group found that the awareness and interest from the public towards ECP is high but scholarly notation on these remain limited. Infodemiology, the science of distribution and determinants of information on the internet, is increasingly used to monitor health information-seeking behaviour and public awareness. This offers a novel lens to assess public engagement with emerging therapies. This study uses Google Trends to evaluate public interest in ECP therapy in Malaysia from 2004 to 2025, with a focus on elderly-related search behaviour and regional disparities. **Materials and Methods:** This infodemiological study utilized Google Trends. Data were extracted from https://trends.google.com. Data were in the form of normalized search volume indices (SVIs) for specific keywords over time and across geographic regions. SVIs range from 0 to 100, representing the relative popularity of a search term. The search timeframe was from January 2004 to July 2025. The primary keywords included "external counterpulsation," "ECP therapy," "EECP therapy," and "non-invasive heart treatment." When focusing on the elderly populations, proxy terms such as "heart treatment for elderly," "old age heart therapy," and "non-surgical heart treatment" were also analyzed. Data were collected under the "all" category and restricted to web searches within Malaysia. Time series analysis was conducted to identify trends and peaks, while geographic analysis assessed regional variations. Event overlays were used to correlate search spikes with clinical trials, media coverage, or commercial promotions. **Results:** Search interest in ECP therapy was negligible before 2012, with intermittent spikes in 2012, 2015–2016, and a sustained upward trend beginning in 2018, peaking in mid-2023. The term "external counterpulsation" peaked in March 2016, likely due to commercial promotion by ECP Malaysia. "EECP therapy" showed isolated spikes in 2009, 2017, and 2021, but lacked sustained engagement. Proxy terms targeting elderly populations showed minimal activity, with only brief surges in 2007 and 2009, indicating low public awareness of age-specific cardiac therapies. Geographically, the highest interest was observed in Negeri Sembilan, Selangor, Penang, and Johor. From an ageing perspective, the lack of sustained interest in elderly-specific terms suggests a gap in targeted health communication. Despite the elderly being the primary beneficiaries of ECP, their representation in online search behaviour appears limited, possibly due to digital literacy barriers or lack of targeted outreach. **Conclusion:** Public interest in ECP therapy in Malaysia has grown over the past decade but remains episodic and regionally concentrated. This highlights the need for targeted awareness campaigns, improved digital health literacy among older adults, and broader integration of ECP into national cardiac care strategies. Infodemiology proves to be a valuable tool in identifying public awareness gaps and guiding health communication and policy planning.

Keywords: External counterpulsation, enhanced external counterpulsation, regenerative cardiology, counterpulsation, cardiac device, cardiac rehabilitation

Crisis unveiled: Diagnosing myasthenia gravis amidst resource constraints

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ABSTRACT

Introduction: Myasthenia Gravis (MG) is a chronic autoimmune neuromuscular disorder marked by fluctuating muscle weakness, often starting with ocular symptoms such as ptosis or diplopia. A myasthenic crisis, characterised by respiratory muscle failure requiring ventilatory support, is life-threatening. Early diagnosis and treatment are vital, especially in areas with limited diagnostic resources. **Case Description:** We describe a 46-year-old woman with bronchial asthma who arrived at a district hospital complaining of generalized weakness, lethargy, and increasing shortness of breath. She was initially misdiagnosed and discharged but returned with worsening symptoms, including bilateral ptosis, ophthalmoplegia, and respiratory distress. A fatigability test was positive on reassessment. Although the ice pack test was inconclusive, clinical suspicion for MG remained high. She was admitted to the ICU and started on intravenous immunoglobulin (IVIG), corticosteroids, and pyridostigmine. A neostigmine challenge later confirmed the diagnosis. After therapy, she showed notable improvement in muscle strength and respiratory function. **Discussion:** This case highlights the diagnostic and therapeutic challenges in managing MG, especially in non-tertiary hospitals where advanced neurodiagnostic tests such as anti-AChR antibodies or electromyography may not be readily available. The importance of clinical acumen and bedside tests like the ice pack test and neostigmine (Tensilon) test becomes crucial. A delay in diagnosis could have resulted in fatal complications, emphasising the need for awareness of neuromuscular conditions in emergency settings. Furthermore, the positive response to empirical treatment supports the value of prompt therapy based on clinical judgement, even without confirmatory investigations. **Conclusion:** MG can present with vague symptoms, and early signs such as ptosis or generalised fatigue might be overlooked in busy clinical environments. This case underscores the importance of high clinical suspicion and the utility of simple bedside tests in diagnosing MG, especially during a myasthenic crisis in resource-limited settings. Prompt supportive care and immunotherapy significantly reduce morbidity and mortality. From an Islamic ethical perspective, this case reinforces the importance of Tawakkul (reliance on Allah) combined with proactive medical intervention, aligning with the Maqasid al-Shariah to preserve life (Hifz al-Nafs). The Prophet Muhammad (peace be upon him) said, "Seek treatment, for Allah has created a cure for every disease" (Sunan Ibn Majah). This guidance supports timely, evidence-based treatment even when a definitive diagnosis is pending, particularly in critical conditions like myasthenic crisis.

Keywords: Myasthenia Gravis, Myasthenic Crisis, diagnostic delay, district hospital, Islamic Bioethics

The role of nutritional ketosis in the cognitive function of aging populations: A narrative review

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ABSTRACT

Introduction: Cognitive decline is a hallmark of aging and a major contributor to conditions such as Alzheimer's disease (AD) and Parkinson's disease (PD). These disorders share common pathological features, including neuroinflammation, oxidative stress, and mitochondrial dysfunction. Nutritional ketosis, a metabolic state characterized by elevated ketone bodies, most commonly serum β-hydroxybutyrate (BHB), induced by a ketogenic diet, is typically defined by concentrations ranging from 0.5 to 9.0 mmol/L without acidosis, distinguishing it from pathological ketoacidosis. Ketone bodies serve as alternative energy substrates to glucose and exhibit anti-inflammatory and neuroprotective effects. This narrative review evaluates current evidence on the role of nutritional ketosis in mitigating cognitive dysfunction in elderly individuals, focusing on a range of neurodegenerative and cognitive disorders. **Materials and Methods:** A literature search was conducted using PubMed, Cochrane, and ResearchGate databases. Search strategies used appropriate terminology related to cognitive function, aging populations and nutritional ketosis. The review focused on studies involving participants aged 60 years and older. Eligible study designs included randomized controlled trials, cohort studies, cross-sectional studies, systematic reviews, and narrative reviews. **Results:** Ketone bodies such as BHB provide an efficient energy substrate to the aging brain, particularly when glucose metabolism is compromised, as seen in epilepsy, AD and PD. In AD and dementias, research demonstrates that cerebral glucose metabolism deteriorates early in disease progression, while ketone uptake remains intact. Ketogenic interventions may therefore compensate for this diminished glucose metabolism, potentially improving cognitive performance by supporting neuronal ATP production. Clinical trials have shown that both ketogenic diets and exogenous ketone supplementation enhance memory and executive function in older adults with mild cognitive impairment and early-stage AD. In PD, mitochondrial dysfunction, oxidative stress, and neuroinflammation leads to the degeneration of dopaminergic neurons. BHB has been shown to enhance mitochondrial respiration, reduce reactive oxygen species, and modulate the NOD-like receptor protein 3 (NLRP3) inflammasome, potentially protecting neurons in PD. Through improved mitochondrial bioenergetics, modulation of excitatory and inhibitory neurotransmitters, activation of ATP-sensitive potassium channels, reduction of neuroinflammation and oxidative stress, and variation of the gut microbiota, the ketogenic diet has also been shown to have anti-seizure effects on drug-resistant epilepsy in adults. In addition to AD and PD, animal models show that ketone metabolism enhances neurotrophic signalling, decreases amyloid and tau pathology by preventing mitochondrial dysfunction, stimulating autophagy-degrading hyperphosphorylated tau and reducing kinase activity. Histone deacetylase (HDAC) inhibition is one of BHB's effects that may improve cognitive function and neuroprotection. Additionally, usage of exogenous ketone esters can temporarily raise BHB levels and provide only short-term benefits. Current challenges in include diet adherence, gastrointestinal effects, and safety in frail elderly patients. **Conclusion:** Nutritional ketosis holds potential as a non-pharmacological intervention to enhance cognitive function and slow neurodegeneration in elderly individuals. Its ability to bypass impaired glucose metabolism, reduce inflammation, and support mitochondrial health positions it as a potential adjunct therapy in AD, PD, and other forms of dementia. Future research should focus on randomized controlled trials to confirm effectiveness, examine long-term safety, and create tailored protocols for older individuals with cognitive dysfunction.

Keywords: Nutritional ketosis, cognitive function, Alzheimer's disease, Parkinson's disease, aging population

Integrating graphical networks with expert knowledge to identify determinants of undiagnosed hypertension among adolescents in Malaysia

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ABSTRACT

Introduction: Based on the National Health and Morbidity Survey (NHMS) report in Malaysia, it has persistently shown that hypertension is a silent killer and led to significant public health concern. Besides, hypertension has been identified as a strong risk factor for total mortality and cardiovascular disease (CVD). Hence, identifying the determinants of undiagnosed hypertension is essential to curb the prevalence of overall hypertension in Malaysia. **Materials and Methods:** This study employed secondary data from the National Health and Morbidity Survey (NHMS) 2015 which was a cross-sectional study that utilized a two-stage stratified random sampling. There were 803 adolescents interviewed, but only 772 completed the survey. χ^2 test and Bayesian networks modelling were performed in accordance with experts' knowledge to identify the determinants of undiagnosed hypertension. **Results:** χ^2 test and experts' knowledge identified three significant determinants of undiagnosed hypertension among Malaysian adolescents – body mass index (BMI), gender, and strata. Analysis of Bayesian network shows that the highest conditional probability of developing undiagnosed hypertension is led by obese individual given they stay in rural area (pr = 0.0877), followed by individual with normal BMI given they stay in rural area (pr = 0.0865), obese individual given they are male (pr = 0.0860), and general population of rural area (pr = 0.0855). Male respondents (pr = 0.0846) were found to have almost double the probability of having undiagnosed hypertension compared to female (pr = 0.0405). **Conclusion:** By identifying the relationship between determinants, it can give a better perception to the government on how to effectively set up intervention on the high prevalence of undiagnosed hypertension before it contributes to the increment of prevalence of overall hypertension among adolescents in Malaysia.

Keywords: Undiagnosed hypertension, adolescents, determinants

Post traumatic facial nerve decompression: Open surgical vs endoscopic approach

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ABSTRACT

Introduction: Post-traumatic facial nerve palsy (FNP) can lead to significant morbidities leading to long-term functional and psychosocial impairment. The most common cause is temporal bone fracture. It remains the subject of debate regarding the best management of nerve decompression, particularly in severe cases. To study the incidence, prognosis, current management strategies, and surgical approaches for post-traumatic facial nerve palsy, with a focus on the surgical decompression versus emerging endoscopic-assisted techniques. **Materials and Methods:** A scoping review was conducted using PubMed, SageJournal, ScienceDirect and Google Scholar, analyzing studies on the timing, indications, and outcomes of facial nerve decompression in post-traumatic cases. Several English articles and journals were included in this review based on the year of publication from 2005 to 2025. Idiopathic, traumatic injury to the extratemporal facial nerve and non-trauma related facial nerve palsies were excluded. **Results:** Early nerve decompression significantly improves functional recovery in cases with >90% degeneration on electrophysiology or radiological evidence of nerve entrapment. Previously, traditional microscopic open decompression via the transmastoid or middle cranial fossa approach was usually being practiced but recent research highlights the endoscopic-assisted techniques. It is a minimally invasive alternative with enhanced visualization and reduced morbidity. However, challenges remain regarding standardized surgical indications, timing thresholds, and long-term comparative outcomes between techniques. **Conclusion:** Early identification and appropriate patient selection are crucial in optimizing the outcomes of post-traumatic FNP. While endoscopic-assisted decompression shows promise, further prospective studies are needed to define its long-term efficacy and establish standardized treatment guidelines.

Keywords: Facial nerve palsy, post-traumatic nerve injury, decompression surgery, endoscopic-assisted decompression, Temporal bone fracture

Assessment of liver stiffness in liver iron overload among transfusion-dependent thalassaemia patient using shear wave elastography: A prospective study in a large haematology centre

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ABSTRACT

Introduction: Thalassaemia is a major health concern in Southeast Asia, with liver iron overload from chronic blood transfusions being a common and devastating complication. While MRI T2* has become the gold standard for non-invasive assessment of hepatic iron, its use is limited by high cost, limited accessibility, long waiting times, and risk of claustrophobia. This study aimed to evaluate the diagnostic performance of shear wave elastography (SWE), a novel ultrasound-based tool, as an alternative method for assessing liver iron overload besides MRI, and to explore its correlation with serum ferritin and other clinical parameters. **Materials and Methods:** This was a single-centre, prospective study conducted over one year involving transfusion-dependent thalassaemia patients undergoing routine MRI T2* assessment. Alongside MRI-derived T2* values and the corresponding liver iron concentration (LIC), ultrasound examination of the liver for SWE was performed on the same day to measure liver stiffness (in kPa). Statistical analyses were conducted to assess correlations between SWE, MRI T2*, serum ferritin, and other clinical variables. **Results:** Sixty patients were enrolled, with HbE-Beta Thalassaemia being the most prevalent subtype (60%). Half of the cohort had severe liver iron overload, and the mean serum ferritin level was 2,760 ng/mL. A significant moderate negative correlation was observed between serum ferritin and MRI T2* values (Rs = -0.388, p = 0.002), indicating that higher ferritin levels were associated with lower T2* values and greater hepatic iron deposition. A moderate positive correlation was found between liver iron concentration and SWE values (Rs = 0.361, p = 0.005), suggesting increased liver stiffness with higher iron levels. SWE demonstrated fair diagnostic performance for detecting severe liver iron overload, with an optimal cutoff of 6.75 kPa, yielding a sensitivity of 0.76 and specificity of 0.60. The area under the ROC curve (AUC) was 0.729 (95% CI: 0.602–0.856, p < 0.001). **Conclusion:** SWE shows potential as a reliable, non-invasive tool for evaluating severe liver iron overload, especially in the early changes in parenchymal stiffness. Nevertheless, MRI T2* remains the gold standard for hepatic iron assessment. Larger study is needed to explore the clinical utilities and reliability of SWE in the whole spectrum of liver iron overload in thalassaemia patients.

Keywords: MRI T2*, shear wave elastography, Thalassaemia, liver, iron

Current treatment for human papilloma virus (HPV)-related oropharyngeal squamous cell carcinoma (OPSCC)

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ABSTRACT

Introduction: The incidence of oropharyngeal squamous cell carcinoma (OPSCC), particularly those associated with human papillomavirus (HPV), has been steadily increasing worldwide, with a noticeable impact on younger populations. This review aims to explore current treatment options for HPV-related OPSCC by identifying the most effective approaches, evaluating the potential risks and benefits, and discuss their influence on patient outcomes and quality of life (QOL). **Materials and Methods:** Thorough literature search was carried out by using databases like PubMed, Scopus, ScienceDirect, Web of Science, and Google Scholar. The keywords used were "HPV-positive oropharyngeal cancer", "HPV-related oropharyngeal cancer", "treatment", "therapy". Boolean operators (like AND and OR) were also used to help in narrowing the searching scope and finding relevant studies. **Results:** A total of 21 articles were included in this review. We found that cisplatin-based concurrent chemoradiotherapy (CRT) is a current preferred treatment for HPV-related OPSCC where most of the articles have stated it to be the best treatment in handling this disease especially in advanced stage of disease. This treatment resulted in higher 2-year progression free survival (PFS) and overall survival which are 92% and 95% respectively. Transoral Robotic Surgery (TORS) with radiotherapy is also labelled as the preferred method in treating HPV-related OPSCC specifically in early stage of the disease. Studies showed favourable oncologic outcomes in 2-year PFS, overall survival (80% and 86% respectively), disease specific survival and locoregional control. Other than that, the interest in reducing the toxicity from the commonly used treatment have led to the de-escalation strategy where it mainly focuses on minimizing the treatment intensity while preserving the effectiveness. This have been shown where 2-year locoregional control of 96.2%, progression-free survival of 91.1%, overall survival of 98.7%, with toxicity dropping from 2.5% to 0% were able to be achieved by using this technique. **Conclusion:** This review reveals that cisplatin-based concurrent chemoradiotherapy (CRT) remains the primary treatment method for advanced-stage while transoral robotic surgery (TORS) with radiotherapy have proven highly effective for early-stage HPV related OPSCC. Other than that, de-escalation therapy also contributes in minimizing long-term side effects while maintaining therapeutic effectiveness.

Keywords: Oropharyngeal neoplasm, Human papilloma virus, treatment, therapy

The impact of obstructive sleep apnea on cognitive function: A narrative review

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ABSTRACT

Introduction: Obstructive Sleep Apnoea (OSA) is a common sleep disorder marked by recurrent upper airway obstruction during sleep, resulting in intermittent hypoxia and disrupted sleep architecture. Beyond its well-known impact on respiratory health, OSA is increasingly recognized for its substantial effects on cognitive functioning. The purpose of this study is to explore how does the cognitive function affected due to OSA. It specifically focuses on identifying the risk factors contributing to cognitive impairment, the cognitive domains most affected, and the underlying pathophysiological mechanisms linking OSA to cognitive decline. **Materials and Methods:** A narrative review was carried out utilizing databases including PubMed, Google Scholar, and ResearchGate. Search terms included "obstructive sleep apnoea," "cognitive function," "risk factors," and "neurocognition." From an initial pool of 50 articles, 8 studies were selected based on predefined inclusion criteria: original research, publication in English, and direct relevance to cognitive impairment associated with OSA. **Results:** The review highlighted several risk factors associated with cognitive decline in individuals with OSA, including advanced age, obesity, elevated hsCRP levels, and lower educational attainment. Attention and memory were the most frequently affected cognitive domains. The underlying mechanisms contributing to this impairment include intermittent hypoxia, systemic inflammation, oxidative stress, and structural brain changes particularly in the hippocampus and prefrontal cortex. Hence, these factors lead to deficits in executive functioning, attention, and memory. **Conclusion:** OSA plays a significantly role in cognitive decline particularly attention and memory being the most affected. The presence of modifiable risk factors emphasizes the need for early diagnosis and prompt intervention. Gaining insight into these underlying mechanisms can inform clinical strategies aimed at reducing cognitive impairment in OSA patients and enhancing their long-term quality of life.

Keywords: Obstructive sleep apnoea, review, sleep

Multi-level surgery in obstructive sleep apnoea: Advantages and disadvantages

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ABSTRACT

Introduction: It is estimated that approximately 14% of adults around the world are affected with obstructive sleep apnoea (OSA). It is a common condition that has the potential to considerably impair quality of life and cause morbidity. Recently, a promising therapy option for OSA is multilevel surgery, which addresses several locations of upper airway obstruction. Materials and Methods: The articles searches have been done using the following databases: PubMed, Google Scholar, UpToDate, Medscape and Science Direct. Keywords that were used were obstructive sleep apnoea, surgical procedures, multilevel surgery, advantages and complications. Results: In the treatment of obstructive sleep apnoea (OSA), the most common types of multilevel surgery include the combination of uvulopalatopharyngoplasty (UPPP) with maxillomandibular advancement (MMA) and nasal surgery (such as septoplasty). Multilevel surgery can be performed in either single or multiple stages, depending on the patient's factors, level of obstruction, and surgeon preference. Patients selection for multilevel surgery are usually those who fail or are not compliant with continuous positive airway pressure (CPAP), patients with moderate to severe Apnoea-Hypopnea Index (AHI) and patients who have major structural airway abnormalities. The advantages of multilevel surgery in OSA patients are significant improvement in AHI, long-term improvements in sleep quality and daytime functioning, reduced dependence on CPAP and comprehensive treatment. However, there are some disadvantages such as increased risk of intra and postoperative complications such as bleeding, inconsistent outcomes that depend on the patient's and surgeon's factors, post-operative morbidity and recovery, as well as high cost. Accessibility for multilevel surgery is also still limited and not well practised in rural areas. Conclusion: There are significant advantages and disadvantages associated with the utilisation of multilevel surgery as a treatment for obstructive sleep apnoea (OSA). The limitations of this procedure are that not all centres practice this procedure, and the surgeon is still not familiar with the procedure. The surgical team's continual education and training can be crucial for upholding the highest quality of care and adjusting to new methods and technologies.

Keywords: Obstructive sleep apnoea, surgical procedures, operative, complications

Perceptions and attitudes of senior versus junior academicians on the use of interactive mannequins for medical training: A scoping review

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ABSTRACT

Introduction: Interactive mannequins are widely used in clinical skills training to enhance experiential learning in medical education. However, the adoption of this technology often results in different reactions among teaching staff, especially across various levels of academic experience. Understanding how perceptions and attitudes vary between senior and junior medical educators is crucial for successful implementation. This scoping review aims to explore and compare the perceptions and attitudes of senior and junior medical educators toward using interactive mannequins in clinical training. **Materials and Methods:** A scoping review was conducted following the PRISMA-ScR guidelines. Five electronic databases — PubMed, ScienceDirect, Cochrane Library, ERIC, and WorldCat — were systematically searched for articles published between 2013 and 2024. Studies were included if they addressed perceptions or attitudes of academic staff (senior and junior) toward interactive mannequin-based training. Six articles met the inclusion criteria and were analyzed thematically. Keywords used are Interactive mannequins, Medical Educators, Perceptions, Attitude, Medical Education. **Results:** The review identified consistent generational differences. Junior educators generally demonstrated more positive attitudes and openness toward simulation technology, highlighting its benefits for student engagement and clinical preparedness. Senior educators, while often more cautious, expressed concerns about realism, instructional time, and curriculum alignment. Nevertheless, exposure to simulation and participation in training workshops increased acceptance among senior staff. Key themes included perceived educational value, technological readiness, and institutional support. **Conclusion:** Variations in perceptions between senior and junior medical educators underscore the need for targeted faculty development and collaborative strategies for integration. These insights can help institutions optimize the implementation of interactive mannequins in medical education.

Keywords: Interactive Mannequins, medical educators, perceptions, attitude, medical education

The aging mother and gestational age: The determinants affecting foetal fraction in a district hospital

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ABSTRACT

Introduction: Fetal fraction, the proportion of cell-free fetal DNA in maternal plasma, are known to influence the accuracy of non-invasive prenatal screening (NIPS). Although it is widely used for prenatal screening for fetal aneuploidies, the uptake is slow with the local population due to lack of awareness, expensive cost as well as cultural stigma. Nevertheless, there are maternal factors that may influence fetal fraction and thus may interfere with the interpretation of NIPS results hence the genetic counseling. The aim of this study was to look for the distribution of the fetal fraction and the correlation between maternal age and gestational age. **Materials and Methods:** Retrospective results of pregnant patients who underwent non-invasive prenatal screening (NIPS) in foetal maternal medicine clinic in Ampang Hospital over a duration of one year were analyzed for descriptive analysis and the correlation of foetal fraction with maternal age and gestational age. Data were analyzed using Excel in Microsoft 365. Patients above the age of 18 years with singleton pregnancies with complete documentation were included in the study. Patients' data remains anonymous. **Results:** Sixty-seven patients fulfilled the study criteria. The majority were between the age of 30 to 34 years mostly in the second trimester between 15 weeks to 24 weeks of gestation. Moderate positive correlation was seen gestation vs fetal fraction ($r \approx 0.25$), thus as gestational age increases, the fetal fraction tends to increase. This is similar to other published studies. However, weak negative correlation (-0.09) was shown between qge and fetal fraction. There was almost no relationship between the age with the gestation (-0.037) as it was a very weak negative correlation. Both seem to contradict against the other studies and this may be due to the small sample size. **Conclusion:** There are maternal factors that seem to have influenced the fetal fraction analysis and these need to be considered during assessment prior to offering the NIPS test to patients. This is because it may affect the result and interpretation leading to unnecessary distress to the patients.

Keywords: Cell-free fetal DNA, fetal fraction, gestational age, maternal age

Medication-related problems among elderly in Malaysia: A narrative review of epidemiology, risk factors, and mitigation strategies

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ABSTRACT

Introduction: Malaysia's ageing population, projected to reach 14.5% by 2040, faces an increasing burden of chronic non-communicable diseases that demand complex and prolonged medication regimens. Combined with age-related physiological changes, this has amplified the risk of medication-related problems (MRPs), defined as drug therapy events that interfere with intended health outcomes and are linked to preventable hospitalisations, functional decline, mortality, and substantial healthcare costs. Although MRPs are well studied in high-income countries, Malaysian data remain fragmented. This review aimed to synthesise recent evidence on the prevalence, risk factors, and outcomes of MRPs among the elderly, examine current mitigation strategies, and propose directions for future improvement. **Materials and Methods:** A narrative review was conducted of studies published between January 2020 and June 2025 using PubMed, Scopus, and Malaysian academic databases. Eligible studies included participants aged ≥60 years and reported prevalence, risk factors, outcomes, or interventions for MRPs. **Results:** The prevalence of MRPs in Malaysian studies ranged from 37% to 65% across healthcare settings. Wide variation reflected heterogeneous criteria and study populations, highlighting the need for standardised definitions and assessment methods. Frequently reported MRPs included polypharmacy, potentially inappropriate medications (PIMs), non-adherence, and medication-related falls. MRPs were frequently associated with advanced age, multimorbidity with complex regimens, and low health literacy. PIMs were common, particularly involving diuretics, beta-blockers, proton pump inhibitors, and NSAIDs. Clinical consequences of MRPs included adverse drug reactions, falls, and increased morbidity, although associations with hospital readmissions were inconsistent. Self-medication and the use of alternative medicine were widespread, though their effect on adherence was inconclusive. Economic evaluations indicated significant healthcare costs attributable to MRPs, while pharmacist-led interventions demonstrated both cost savings and improved medication appropriateness. Over the past five years, pharmacists have played an increasingly central role through medication reconciliation and deprescribing in hospital and primary care. Locally adapted screening tools, such as MALPIP, have improved the detection of MRPs and facilitated stronger pharmacist–physician collaboration. Advances in digital health, including telemedicine and smart adherence applications, show promise in enhancing medication optimisation, especially in home and community care. Caregivers also play a critical role, underscoring the importance of caregiver support and structured training. Community-based strategies, including home medication reviews and nurse-led interventions, appear effective in reducing hospital admissions and improving quality of life. **Conclusion:** MRPs remain a major challenge in Malaysia's aging population, with high prevalence and significant clinical and economic consequences. Although efforts have been conducted to mitigate the problem, current evidence is limited by small, single-centre studies, heterogeneous criteria, and inconsistent outcome reporting. These gaps constrain accurate assessment of the national burden and limit the generalisability of interventions. Future works should establish national MRPs surveillance, using standard validated tools, and incorporating cost-effectiveness analyses. Greater attention is also needed to educate and train the patient as well as the caregiver and integrate related community-based programs into national health strategies. These strategies are essential to optimise medication use, reduce preventable harm, and improve the quality of life of elderly population whilst at the same time ensuring sustainable economic growth.

Keywords: Medication-related problems, elderly, Malaysia, geriatric

LC-MS profiling of *Moringa oleifera* identifies structurally unreported metabolites of potential pharmacological interest

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ABSTRACT

Introduction: Natural products have played an essential role as therapeutic agents for many years and are the foundation of modern drug discovery. Due to its diverse chemical constituents and its reported pharmacological properties, *Moringa oleifera* is a medicinal plant of considerable interest. Phytochemicals have been identified from its leaves but existing studies mainly described familiar compounds, with the plant's chemical composition insufficiently explored. As a result, metabolites that are found in low abundance or have unusual structural characteristics may not be detected. Comprehensive chemical profiling is therefore required to expand our knowledge of the phytochemical diversity of *M. oleifera* by using biochemical profiling to identify compounds that may have been overlooked in previous investigations. To evaluate the chemical composition of aqueous *M. oleifera* leaf extract and to determine known and potentially unreported metabolites, high-resolution LC-MS was employed. **Materials and Methods:** Shade-dried *M. oleifera* leaves were powdered and extracted in distilled water under ambient conditions, then filtered and lyophilized. The dried extract was reconstituted in HPLC-grade water and analyzed by high-resolution LC-MS/TOF-MS in positive ion mode. Injection volumes of 100 µL and 1000 µL were tested to optimize sensitivity and reproducibility. Chromatographic separation was performed on a reverse-phase C18 column using a linear acetonitrile water gradient with 0.1% formic acid. Molecular features were detected through automated peak-picking, refined by manual verification and identified using accurate mass, isotopic distribution, retention time and comparison with spectral databases and published reports. Compounds not previously described in *M. oleifera* LC-MS datasets were flagged as novel or underreported. **Results:** The dual-volume LC-MS approach yielded 83 reproducible molecular features spanning flavonoids, alkaloids, triterpenoids, coumarins, anthraquinones, glycosides and phenolic acids. Chromatographic peaks appeared between 0.5 and 11 minutes of retention time, with most detected in the 2-9 minutes range. Flavonoids dominated the profile with high-intensity peaks for quercetin, kaempferol derivatives and rutin as well as several structurally distinct flavonoid acetates. Alkaloids and triterpenoids formed the second-largest groups which are rarely reported in the *M. oleifera* literature. Two high-abundance constituents were identified for the first time in this species: Picrasidine S which is an indole alkaloid and Epigallocatechin hexaacetate which is an acetylated flavonoid. Both appeared among the top ten LC-MS peaks. Their absence from earlier phytochemical reports shows the value of high-resolution profiling for detecting structurally uncommon metabolites. Other important identifications were Lucidenic acid A, Scopolin, Emodin-8-O-sophoroside and Kuwanon A which expand the known chemical diversity of *M. oleifera.* Retention times and peak intensities were reproducible across injection volumes which confirmed the stability of the extract composition and the robustness of the method. **Conclusion:** This study provides one of the most detailed LC-MS-based phytochemical profiles of *M. oleifera* to date, capturing both abundant and trace-level metabolites with high analytical confidence. The discovery of previously unreported compounds including Picrasidine S which is an indole alkaloid and Epigallocatechin hexaacetate which is an acetylated flavonoid that also enriches the chemotaxonomic understanding of the species and shows the value of high-resolution mass spectrometry in natural product research. These findings establish a validated reference dataset for future pharmacological, metabolomic and quality-control studies on *M. oleifera*.

Keywords: *Moringa oleifera*, LC-MS profiling, Phytochemistry, secondary metabolites, novel compounds

PP1

Neurotrophin-3 and the degenerating brain: Lessons from the fish tank

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ABSTRACT

Introduction: Ageing has been posed as one of the highest risk factors for neurodegeneration in the population, which results in cognitive and motor decline, such as Parkinson's Disease (PD). It has been reported that the prevalence of PD in the population of more than 60 years old increased exponentially, with more than 50% of PD cases being undiagnosed. Neurotrophin-3 (NT3), a neuroprotective growth factor, supports specific neuronal populations' development, maintenance, and survival. Evidence suggests that neurotrophin levels, including NT3, fluctuate with age, potentially contributing to neuronal vulnerability. This study aimed to assess the effects of NT3 levels in MPTP-induced neurodegeneration in the zebrafish animal model. **Materials and Methods:** To evaluate neurodegeneration, PD neurodegenerative changes were induced by injecting 100µg/g of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) intraperitoneally in zebrafish to induce neurodegenerative changes via mitochondrial dysfunction within 24 hours that mimics the pathogenesis of age-related PD. The fish were assessed at 24-hour, 72-hour and 96-hour post-injection. Locomotor assessment was conducted to confirm the clinical features of PD in the zebrafish model. Immunohistochemical (IHC) analysis of dopaminergic neuron degeneration was conducted to confirm neurodegenerative changes induced by MPTP. The ntf3 gene expression was analysed using quantitative polymerase chain reaction (qPCR), protein expression for NT3 and oxidative stress markers were assessed using Enzyme-Linked Immunosorbent Assay (ELISA), and brain sections were analysed based on NT3-targeted IHC analysis. **Results:** In the PD model, there was a significant reduction in mean speed (3.95 ± 0.24; $p<0.001$) and distance (1175.32 ± 72.64; $p<0.001$) in the PD model group compared to the vehicle. The dopaminergic neuron analysis showed a significant reduction in positive cells in the area of the ventral thalamus and posterior tuberculum, further confirming that neurodegenerative changes have taken place following MPTP injection. ntf3 gene expression was significantly downregulated (20-fold) following MPTP injection, with the lowest expression noted in the 72-hour post-injection group compared to vehicle (0.05 ± 0.004; $p=0.005$). The pattern of NT3 follows the ntf3 trend with the deepest pit of drop in the protein level at 72-hour of assessment following MPTP injection, where there was an 8% drop (ELISA: 3295.32 ± 186.11; $p=0.022$) with increment of caspase-3 (CASP3) level of 4.2 times higher than the vehicle group (302.40 ± 11.00; $p<0.05$). Immunohistochemistry analysis showed there was a global reduction of NT3 staining in all brain sections, not specific to PD-sensitive areas. The intensity of NT3 chromogenic stains was gravely reduced from diffuse deep intensity (+++) in the vehicle group to mild staining intensity (+) in the PD model brain. These findings reflect a marked depletion of neurotrophic support in the events of neurodegeneration. **Conclusion:** NT3 is actively expressed in the adult zebrafish brain, with significant reductions observed in a neurodegenerative brain. These findings suggest a potential role for NT3 in maintaining neuronal integrity during oxidative stress and raise the possibility of NT3-based strategies to mitigate neurodegeneration.

Keywords: Neurodegeneration, neurotrophin-3, Parkinson's Disease, ageing

Evaluating the awareness of breast and cervical cancer screening among women in Negeri Sembilan

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ABSTRACT

Introduction: Breast and cervical cancers represent significant health concerns for women globally, with early detection playing a crucial role in improving survival rates. In Malaysia, despite the availability of screening programs, uptake remains suboptimal particularly in semi-urban areas like Negeri Sembilan. Understanding awareness levels and barriers to screening among local women is essential for developing targeted interventions. This study aimed to evaluate breast and cervical cancer screening awareness among women in Negeri Sembilan, Malaysia and identify sociodemographic factors associated with awareness levels. **Materials and Methods:** This cross-sectional study involved 30 women from Negeri Sembilan, recruited through convenience sampling during a health carnival held at the city mosque. Data collection utilized a structured questionnaire covering sociodemographic characteristics, knowledge of breast and cervical cancer symptoms, risk factors, screening practices and barriers to seeking medical help. Awareness levels were categorized as weak, average or good based on composite scores of knowledge indicators. Chi-square tests were performed to determine associations between sociodemographic factors and awareness levels, with statistical significance set at $p<0.05$. **Results:** All participants are Muslim (100%) with most being married (73.3%) and having tertiary education (76.7%). Overall, 50% demonstrated average awareness of both breast and cervical cancers, while 36.7% showed weak awareness of breast cancer and 43.3% of cervical cancer. Only 13.3% and 6.7% demonstrated good awareness levels for breast and cervical cancers, respectively. The most recognized breast cancer symptoms were painless breast lump (76.7%), nipple discharge (70%), breast lump (70%), skin thickening (70%) and breast size changes (70%), while the least recognized were nipple-related changes (43.3%). Although 90% reported confidence in recognizing breast changes, 66.7% would not seek medical attention for such changes. For cervical cancer, 90% were aware of its existence and Pap smear tests, but only 53.3% knew HPV was a risk factor. Main barriers to seeking medical help included worries about findings (56.7%), shyness (40%), fear (36.7%) and time constraints (36.7%). Occupation type showed a significant association with breast cancer awareness ($p=0.01$), with professional job holders demonstrating better awareness. Married women (43.3%) demonstrated greater average awareness of cervical cancer compared to single ladies; however, this was not statistically significant. Monthly income significantly associated with cervical cancer awareness ($p=0.03$), where lower income individuals had lack of awareness. **Conclusion:** This study reveals substantial gaps in breast and cervical cancer awareness among women in Negeri Sembilan, despite relatively high education levels. The disconnect between symptom recognition and willingness to seek medical help highlights the complex interplay of knowledge, attitudes and practices. Socioeconomic factors, particularly occupation and income levels significantly influence awareness, suggesting that targeted educational interventions should consider these determinants. Future research should explore culturally sensitive approaches to improve screening uptake in this predominantly Malay Muslim population and comparison with other ethnicities.

Keywords: Breast cancer, cervical cancer, awareness, screening, Malaysia

A systematic review on the efficacy of animal-assisted therapy (AAT) as an intervention in autism spectrum disorder (ASD)

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ABSTRACT

Introduction: Autism spectrum disorder (ASD) affects social communication, behaviour, and emotional regulation. Animal-Assisted Therapy (AAT) has emerged as a complementary intervention, but evidence of its effectiveness remains limited and inconsistent. This review aims to systematically review the implementation and outcomes of AAT in individuals with ASD, focusing on demographic factors, types of animals used, and therapeutic impacts on social, emotional, and communication skills. **Materials and Methods:** Following PRISMA guidelines, a literature search was conducted across PubMed, Scopus, and EBSCOhost for studies published between 2019 and 2024. Medical subject headings (MeSH) terms such as "animal-assisted therapy" and "autism spectrum disorder" were used as keywords in all fields. Studies included were participants diagnosed with ASD, articles published in English between 2019 and 2024, and comprised of various study designs, including randomized controlled trials and qualitative studies. **Results:** A total of 15 studies were retrieved, with six studies met the inclusion criteria involving 127 participants. The Joanna Briggs Institute appraisal tools were used to critically appraise the studies. Study quality varied, and common limitations included small sample sizes and inconsistent outcome measures. Most participants were male and from urban areas, and their ages ranged from early childhood to adulthood. The results indicated that AAT, primarily using dogs and horses, was associated with improvements in social behaviour, communication, and emotional regulation. Additionally, AAT contributed to anxiety and aggression. **Conclusion:** AAT shows promise as a supportive intervention for individuals with ASD. However, this review highlights limitations such as small sizes, gender imbalances and the need for more standardised outcome measures. Wider implementation, especially in Southeast Asia, requires cultural adaptation and further research with larger, more diverse populations.

Keywords: Animal-assisted therapy; animal-facilitated therapy; pet-assisted therapy; autism spectrum disorder; autistic spectrum disorder

The role of *Ficus carica* in regulating bone-related gene expressions in postmenopausal osteoporotic rat models

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ABSTRACT

Introduction: Osteoporosis results in millions of fracture cases globally every year with the vast majority involving postmenopausal women. Postmenopausal women are exposed to 20% lifetime risk of hip fracture and 50% risk of any osteoporotic fracture, which may decrease quality of life. The pharmacological treatments of postmenopausal osteoporosis are estrogen replacement therapy (ERT), bisphosphonates, denosumab and teriparatide. While effective, long-term use of these agents is associated with various adverse effects, prompting the search for alternative therapies with fewer adverse effects. Ficus carica (FC), commonly known locally as fig or 'buah tin', is rich in bioactive compounds and essential minerals such as calcium, magnesium, and strontium, all of which are important for bone health. This study aimed to evaluate the bone-protective effects of FC by analyzing the expression of bone-related genes in a postmenopausal osteoporotic rat model. **Materials and Methods:** Forty female Sprague Dawley rats were divided into five groups. Group I consisted of sham-operated rats, while Groups II–V were ovariectomized. Groups I and II received distilled water (0.2 ml/100 g), Group III received ERT (64.5 µg/kg), and Groups IV and V received dried and raw fig extracts, respectively (1000 mg/kg). All treatments were administered daily via oral gavage for 10 weeks. **Results:** Treatment with fig significantly increased the expression of bone resorption genes (RANKL, OPG, and CSF1) and showed an upward trend in the expression of bone formation genes (Alp1, Col1a1, and Runx2). This bone-protective potential is due to the anti-inflammatory, antioxidative and phytoestrogenic properties of FC. **Conclusion:** In conclusion, both raw and dried fig at a dose of 1000 mg/kg demonstrated potential bone-protective effects in the treatment of postmenopausal osteoporosis. Further studies are warranted to confirm these findings.

Keywords: Post-menopausal osteoporosis, Ficus carica, fig, bone formation, bone resorption, gene

Effect of FOMO on teenagers' mental health

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ABSTRACT

Introduction: The rapid advancement of technology and widespread social media usage have contributed to a significant rise in mental health issues globally, particularly among adolescents. In Malaysia, depression prevalence has doubled since 2019, with teenagers aged 16-19 being major contributors (34.7%) to mental health disorders. Fear of Missing Out (FoMO), characterized by persistent apprehension of being excluded from rewarding social experiences, has emerged as a key psychological factor linked to this trend, with 60% of users reported to experience FoMO. **Materials and Methods:** This literature review utilized databases including NCBI, Google Scholar, ResearchGate, and PubMed, covering publications from 2019 to 2025. Keywords used were FoMO, mental health, teenagers, anxiety, depression, social media, and digital addiction. Twenty articles were identified through keyword searches, with additional references found within reviewed articles. A qualitative methodology was employed to understand the relationship between social media usage patterns and emotional well-being among adolescents. **Results:** Studies consistently demonstrate strong positive correlations between the time spent on social media and the experience of FoMO. Social media platforms utilize features like real-time notifications, streaks, and disappearing content that create cycles of anxiety about missing out. FoMO manifests as cognitive distortions, behavioural compulsions, and potential digital addiction, leading to heightened stress, anxiety, depression, social withdrawal, and academic performance decline. Effective interventions include Cognitive Behavioural Therapy (CBT), digital detox programs, mindfulness practices, and limiting daily social media use to 30-60 minutes. **Conclusion:** FoMO significantly impacts teenagers' mental health through excessive social media engagement. The constant connectivity can create feelings of inadequacy, foster social comparison, and lead to disconnection from real-life interactions. Preventive strategies including CBT, mindfulness meditation, and structured social media limitations show promising results in reducing FoMO-induced mental health issues. Greater awareness and targeted interventions are essential to support vulnerable adolescent populations in developing healthier digital habits.

Keywords: FOMO, mental health, social media, teenagers, digital addiction

The effectiveness of ginger in managing dysmenorrhea: A scoping review

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ABSTRACT

Introduction: Painful menstruation or medically termed as dysmenorrhea, affects a significant percentage of women during reproductive age and is a leading cause of reduced quality of life including absenteeism. Conventional treatments like painkillers and hormonal therapy are not always preferred or well-tolerated, therefore, the use of herbal remedies as an alternative therapy, such as ginger, has gained attention for its potential analgesic properties. Gingerols and shogaols, the main active compounds in ginger, may offer a promising alternative by inhibiting prostaglandin synthesis and reducing oxidative stress. This scoping review aims to critically examine the role of ginger in managing dysmenorrhea, focusing on its mechanisms of action and clinical effectiveness. **Materials and Methods:** A comprehensive literature search was conducted using online databases to identify relevant articles published between 2019 and 2024. The selection focused exclusively on experimental studies investigating the role of ginger in the management of dysmenorrhea. In addition to clinical outcomes, the review also explored the biochemical mechanisms underlying ginger's anti-inflammatory and analgesic effects. The initial search identified more than 2000 articles. However, after applying strict inclusion and exclusion criteria, only eight studies met the eligibility requirements for both criteria. **Results:** Most of the studies reported that ginger is effective in reducing pain severity and shortening pain duration in women experiencing dysmenorrhea, often demonstrating results that are comparable to or superior to other oral treatments. While pain intensity and duration were the most assessed outcomes, several studies also included additional indicators such as menstrual symptom questionnaires and biochemical markers like prostaglandin F2α (PGF2α), which further reinforced ginger's potential in managing dysmenorrhea. The primary mechanism behind its effectiveness is believed to be its anti-inflammatory properties, particularly its ability to inhibit prostaglandin synthesis, which plays a key role in menstrual pain. Despite variations in dosage, species, and preparation methods, the findings across studies consistently support ginger's role as an effective remedy for dysmenorrhea. **Conclusion:** Ginger shows potential as a natural, safe and effective option for dysmenorrhea. Its anti-inflammatory properties make it a promising option for improving women's quality of life and reducing the socioeconomic burden linked to dysmenorrhea. While current research supports its benefits, further higher-quality, wider-scale studies are warranted particularly to investigate whether variations in ginger species, dosage, or formulation may influence its therapeutic outcomes.

Keywords: Ginger, dysmenorrhea, pain management, herbal remedies, prostaglandin inhibition

Unsafe abortion in women's health

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ABSTRACT

Introduction: According to the World Health Organization (WHO), unsafe abortion can be defined as a procedure of ending the pregnancy by the unskilled person or abortion is done in the environment which is not suitable for treatment or both. WHO stated that approximately 45% of all abortions are considered unsafe, equating to 25 million unsafe abortions annually. 97% occur in developing countries. Asia constitutes more than 50% of unsafe abortion. Various methods of doing unsafe abortion such as using herbs in traditional method and instrumental procedure like catheter. **Materials and Methods:** A literature review approach was conducted to explore relevant electronic databases such as PubMed, Google Scholar, e-books and websites. The search was conducted between January and April 2025 using keywords such as "unsafe abortion", "women's health", "relationship" or "correlational" or "impacts" or "effects" and "unsafe abortion" and "women's health". All published articles written in English. **Results:** A total of thirty articles were identified and selected for review. There are listed factors that can lead to unsafe abortion like low contraceptive rate use, unmarried women having unwanted pregnancies, rape, low economic status and employment contract. About 25% of married women refuse to take the contraceptive as be scared of negative effects of modern contraceptive methods, resulting low contraceptive rate use. Based on the United Nation Population Fund, 60% of unintended pregnancies cause abortion where it is influenced by many reasons. Besides, one study stated that suicidal ideation can be reduced among rape victims if they able to commit abortion. Low economic status put women to commit risky behaviour as a survival strategy resort to unsafe abortion. Then, employment contract can cause lose job, the pregnancies became unwanted and result in abortion. It is undeniable that unsafe abortion can cause impacts like uterine and bowel perforation, septic abortion and secondary infertility. The unsafe abortion that carried out by untrained personnel, contribute the myometrium wall vulnerable to the lesions by sharp instruments, causing uterine and bowel perforation. Moreover, about 88% of septic abortion are induced abortion, highlighting the link between unsafe procedures and septic complications. Unsafe abortion can bring to secondary infertility and eventually maternal mortality. Hence, the preventions of unsafe abortion must be implemented like education of sex, family planning to bring the awareness among society, counselling to bring support for affected women and finally, strengthening healthcare provider's capacity for safe abortion to ensure the clinical staff equipped with knowledge and skills. **Conclusion:** In conclusion, the factors like low contraceptive rate use, unwanted pregnancies, rape, low economic status and employment contract can contribute to the unsafe abortion. This unsafe abortion also poses the risk to women health including uterine and bowel perforation, septic abortion, and secondary fertility. Thus, it can be prevented with education, counselling and strengthening the healthcare in order to deter the unsafe abortion.

Keywords: Unsafe abortion, women's health, maternal mortality

The influence of religiosity and spirituality on quality of life of elderly

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ABSTRACT

Introduction: Malaysia is undergoing a demographic shift towards an aging population, with individuals aged 60 and above projected to exceed 17% by 2040. Maintaining and improving quality of life is crucial as aging related with increased physical disease and mental disorders which can negatively impact quality of life. Quality of life (QoL) can be impacted via several factors including physical, mental, and social. However, this paper will only focus on social factors specifically religiosity and spirituality (R/S). As Islam is the main religion in Malaysia, this paper will primarily focus on Islamic components in the discussion of religiosity and spirituality. This study aims to review existing research in Malaysia on how religiosity and spirituality influence the QoL among the elderly, identify the key components of R/S examined, and assess their effects on various QoL domains. **Materials and Methods:** This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive literature search was conducted using various databases, including PubMed, Science Direct, EBSCOhost, and MyCite, to identify relevant studies. The search was performed using keywords such as "religiosity", "spirituality", "elderly", "quality of life" and "Malaysia". Extracted data were categorized into quantitative and qualitative findings, and a descriptive analysis was performed to summarize the results. Ethical approval was not required as this review was based on previously published studies. **Results:** A total of 53 studies were screened initially, however only 14 studies met the inclusion criteria. 11 studies reported positive association between religiosity and spirituality with QoL of elderly. Different studies used different religiosity and spirituality components and different QoL domains. Components were accessed in these studies included belief in a higher power, religious activity, intrinsic and extrinsic religiosity, personal and social religiosity, and spiritual elements. QoL domains often focused on psychological well-being, physical well-being, social well-being, life satisfaction, and healthy aging. Despite the variations, the findings largely indicated positive associations between religiosity and QoL. **Conclusion:** Most studies suggested that religiosity and spirituality were positively associated with QoL of the elderly. Elderly with excellent religiosity and spirituality domains have better QoL. Therefore, incorporating religiosity and spirituality elements in elderly is important to improve their overall well-being and life quality towards the end of their age. Further research is needed to explore on specific religiosity and spirituality measurement and religion variations. As this review diverts more towards Islam, future research should also explore on other religion as Malaysia is a multicultural country with various religion.

Keywords: Religiosity, spirituality, quality of life, elderly, Malaysia

Skin ageing: The effects of oral collagen supplementation

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ABSTRACT

Introduction: Skin ageing is a degenerative process caused by a decrease in physiological function of the skin that affects the formation of collagen, elastin, proteoglycans, and glycosaminoglycan. Majority of the skin mass is contributed by the collagen, which responsible for skin structure, mechanical integrity and elasticity. With ageing, compounded by environmental stressors that accelerate collagen breakdown, there may be a diminished collagen levels, disrupted organization, and reduced mechanical strength of the extracellular matrix, which in turn contributes to the visible signs of skin aging. Oral collagen supplements have widely used as intervention in improving the ageing effects. The present review discusses the effects of oral collagen peptide supplementation on skin ageing. **Materials and Methods:** The information in the review was obtained from selected papers, published in 2015 to 2025 from several databases such as PubMed and Google Scholar using keywords related to "collagen peptides", "collagen hydrolysates", "skin ageing" and "skin elasticity". **Results:** An overview of existing literature revealed consistent evidence that collagen peptides are designed to provide bioactive peptides that can be readily absorbed and utilized by the body. These collagen peptides are believed to enhance fibroblast activity in the dermis and promote extracellular matrix regeneration, contributing to the improvement of skin elasticity, hydration, and dermal collagen density. Furthermore, the collagen peptides consumption showed improvement in skin texture, wrinkle reduction with thicker and healthier skin. Both oral and topical collagen supplements play a role in delaying skin aging, but oral supplementation seems to be more effectively absorbed and utilized by the body. Apart from that, the consumption of collagen peptides may enhance the synthesis of filaggrin, which is an essential component in re-establishing the skin's barrier function. Several studies have reported that oral collagen supplements are safe and beneficial for skin aging, with no adverse effects or issues with tolerability during usage and beyond. **Conclusion:** In conclusion, oral collagen supplementation appears to be a safe and effective intervention for improving visible signs of skin ageing and supporting overall skin health.

Keywords: Skin ageing, collagen peptides, oral supplement

Transient acute diplopia and bilateral exotropia following coronary angioplasty: A rare neurological complication

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ABSTRACT

Introduction: Coronary artery disease (CAD) is frequently managed with percutaneous coronary intervention (PCI), including balloon angioplasty. While common complications of PCI are well-documented, rare neurological manifestations such as transient diplopia and ocular motility disturbances are seldom reported. **Case description:** We report the case of a 75-year-old Malay male with a longstanding history of CAD and multiple prior percutaneous angioplasty procedures. The patient presented with acute onset binocular diplopia and bilateral lateral exotropia within hours following a routine balloon angioplasty. He was haemodynamically stable with no focal neurological deficits. Urgent brain computed tomography (CT) and magnetic resonance imaging (MRI) ruled out cerebral infarction or haemorrhage. Comprehensive ophthalmological evaluation revealed no intrinsic ocular pathology. The patient experienced spontaneous complete resolution of symptoms within 48 hours without any medical intervention. **Discussion:** This rare presentation raises the possibility of transient microembolic events — potentially calcium or atheromatous debris — affecting the ocular motor centers of the brainstem during angioplasty. While embolic strokes are recognized complications of PCI, isolated, reversible diplopia and ocular deviation without radiographic findings are exceedingly rare. **Conclusion:** Transient diplopia with bilateral exotropia may represent an unusual and underrecognized complication of coronary angioplasty. Awareness of this phenomenon is important to avoid unnecessary interventions and to reassure both patients and clinicians of its typically benign and self-limiting course.

Keywords: Coronary angioplasty, diplopia, exotropia, microembolism, neurological complication

The impact of social stigma towards type 2 diabetes mellitus (T2DM) patients

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ABSTRACT

Introduction: One of the greatest barriers to the treatment of T2DM is non-adherence which can be due to stigmatization. There is a need for a comprehensive overview of all factors and effects of societal stigma towards T2DM patients. The aim of this study is to identify the social stigma faced by the individual with T2DM, explore the factors contributing to stigmatization towards T2DM and to identify the effects of social stigma on T2DM management. **Materials and Methods:** A scoping review was conducted in accordance with the PRISMA flow diagram. A systematic search was performed in ProQuest, Scopus and Science Direct. **Results:** A total of 32 studies were included in the scoping review. The synthesis revealed the ways, factors and effect of stigmatization. People with T2DM face stigma linked to weight loss, lifestyle blame, and insulin use. Discrimination occurs in healthcare, social, and workplace settings, leading to internalized shame, low self-esteem, and treatment avoidance. Contributing factors include cultural beliefs, misconceptions, lack of awareness, and sociodemographic vulnerabilities, especially among women and single individuals. Stigma affects disease management by reducing treatment adherence, worsening mental health, and increasing complications. Suggested measures include public education, targeted interventions, psychosocial support, and policy changes to reduce stigma and improve outcomes. **Conclusion:** The most prominent way of stigmatization is public stigma. Misconception of T2DM was identified as the most prominent contributing factors and the greatest effect of stigma is non-adherence to treatment. Targeted measures must be taken to curb social stigma. The findings indicate a need for further research to continue achieving further progress on this issue, for tackling the barriers that people with T2DM encounter.

Keywords: Social stigma, stigmatization, Type 2 Diabetes Mellitus, T2DM

Homeopathic medicine: Real or placebo? A narrative review

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ABSTRACT

Introduction: Homeopathy, founded in the late 18th century, is based on the principles of "like cures like" and extreme dilution. Despite its long-standing use, it remains highly controversial: scientific reviews consistently show no efficacy beyond placebo, yet public support persists. This raises ethical concerns when patients delay evidence-based care. In Islamic contexts, opinions differ regarding its legitimacy and the permissibility of alcohol-based dilutions. This review evaluates homeopathy from scientific, ethical, and Islamic perspectives to address these unresolved debates. **Materials and Methods:** This narrative review was conducted using a structured literature search guided by the PRISMA approach. Scientific databases including PubMed, Cochrane Library, Google Scholar, and ScienceDirect were searched for peer-reviewed articles related to homeopathy, scientific validity, placebo effects, and Islamic medical ethics. Focus was given to studies published in English from 2000 onward, particularly systematic reviews, randomized controlled trials, meta-analyses and scholarly discussions on religious and ethical implications. The initial search identified more than 150 articles. However, due to limitations in scope and relevance to the final write-up, only 29 of these articles were selected and used as references in this paper. **Results:** Early evidence, such as the study by Linde et al. (1997), suggested that homeopathy might provide benefits greater than placebo. However, these findings were later challenged by systematic reviews and meta-analyses, including the NHMRC report (2015) and Shang et al. (2005), which found no consistent evidence supporting homeopathy's efficacy beyond placebo. Reported benefits were often associated with subjective conditions such as pain, fatigue, and anxiety, where belief, patient–physician interaction, and empathetic consultation may have enhanced placebo responses. A Cochrane review concluded that there is no conclusive evidence for homeopathy in the treatment of acute respiratory infections. Similarly, Hamre et al. (2023) reported that five out of six meta-analyses showed positive effects, but all had a high risk of bias. Smaller randomized controlled trials (RCTs) have also reported mild benefits in chronic conditions; however, these results lacked replication and consistency. Overall, perceived improvements were largely linked to placebo effects and patient–physician interaction. Ethically, critics argue that promoting homeopathy risks delaying effective treatment and undermining evidence-based care. From an Islamic perspective, treatment is encouraged when it is effective, safe, and Shariah-compliant. The permissibility of alcohol-based dilutions depends on the source, quantity, and necessity, with most scholars advising caution due to unclear efficacy. **Conclusion:** Current scientific evidence does not support homeopathy as an effective pharmacological treatment. Despite this, its popularity persists, driven by cultural beliefs, patient-reported benefits, and perceived psychological comfort. From an Islamic perspective, homeopathy may be considered permissible if it is not harmful; however, scholarly opinions remain divided due to the lack of scientific validation and concerns about alcohol content in some remedies. Although generally regarded as low-risk, homeopathy should not replace evidence-based treatments for serious conditions. Increased awareness and further research are essential, particularly within Muslim communities, to promote ethical and informed healthcare decisions.

Keywords: Homeopathy, alternative medicine, evidence-based medicine, clinical

Psychological effects of kidney disease: Risks and related factors

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ABSTRACT

Introduction: Kidney disease is influenced not only by physical health factors but also by psychological factors. However, the specific psychological risk factors contributing to kidney disease and the mechanisms by which various psychological states can impact kidney function anatomically and physiologically remain insufficiently understood. This literature review aims to identify common psychological illnesses that may exacerbate or predispose individuals to kidney disease, determining what physiological mechanisms are involved in that process and how are they inter-related. This information will help to identify gaps of mental health problem detection among this vulnerable population, while enhancing awareness among healthcare personnels in managing such cases. **Materials and Methods:** This literature review was accomplished using the electronic databases like Google Scholar, PubMed and EBSCOhost and the keywords used included combinations "depression", "anxiety", "kidney deterioration", "inflammation" and "mental health intervention". Inclusion criteria were applied which are only papers available only in English language and available for free in full text and limited to articles published within the last five years. 15 papers were included after meeting final inclusion criteria. **Results:** Psychological factors such as depression, anxiety and stress are not only prevalent among individuals with kidney disease but may also contribute to disease progression and reduced quality of life. A recent study reported that as much as 37.7% of CKD patients experienced moderate to severe depression symptoms. Evidence suggests that psychological states can influence kidney function through various physiological mechanisms including neuroendocrine and inflammatory pathways. Key inflammatory cytokines such as interleukin-1 beta (IL-1β), IL-3 and IL-9 are inter-connected in the pathophysiology of depression and may serve as a biological link to renal deterioration. Psychological distress may disrupt kidney function through dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, increased sympathetic activity and heightened systemic inflammation, leading to pro-inflammatory status of the body. Depressive and anxiety disorders are frequently overlooked in clinical settings often due to a focus on physical symptoms and a lack of integrated psychosocial care. It is also estimated that 23–29% of patients with ESKD are more likely to have depressive symptoms than those with CKD and patients experiencing depressed symptoms are 1.5 times more likely to die compared to those who are having ESKD without depressed symptoms. Despite growing awareness, mental health concerns in this population remain underrecognized and undertreated. **Conclusion:** Comprehensive management of kidney disease should extend beyond physical treatment to include psychological evaluation and support. This study only identified the relationship between kidney conditions with psychological illnesses and related physiological pathways that are involved. It further highlights the gaps in screening and interventions to mitigate the issue. Future research and clinical practice can prioritize the development of accessible, multidisciplinary screening and interventions that address both the mental and physical health needs of this vulnerable population.

Keywords: Depression; anxiety; kidney disease; inflammation; mental health intervention

Awareness, acceptance and willingness to pay for dengue vaccine among elderly adults in a semi-urban town in Malaysia

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ABSTRACT

Introduction: Dengue remains a major public health concern in Malaysia. In June 2024, the Ministry of Health Malaysia introduced Qdenga®, the first dengue vaccine publicly available in the country. Administered in two doses three months apart, the vaccine is approved for individuals aged four years and above and is currently available through selected private medical practitioners. Given the persistent burden of dengue and the importance of vaccination in high-risk populations, this study aimed to determine the levels of awareness, acceptance, and willingness to pay (WTP) for the dengue vaccine among elderly adults in a semi-urban Malaysian town. **Materials and Methods:** A cross-sectional study was conducted in among adults residing in a town in southern state of Peninsular Malaysia, in April 2025. The questionnaire consisted of seven sections: demographic profile, knowledge on dengue fever, attitude towards vaccination, knowledge on dengue vaccine, dengue prevention practice, dengue vaccine acceptance and dengue vaccine WTP. All the scales' scores were converted to 100%, for ease of comparison, except for the knowledge of dengue vaccine, which had a maximum score of 5. **Results:** 380 adults participated in the survey. Among those, 31.3% were young adults (aged 18 to 39), 37.4% were middle-aged (aged 40 to 59) and 31.3% were elderly (aged 60 or above). The elder respondents demonstrated moderate level of knowledge on dengue fever (mean, SD = 58.5, 21.4), good level of attitude towards vaccine (median, IQR = 80.0, 26.7), very poor awareness on dengue vaccine (Median, IQR = 0.0, 3.0), good level of acceptance towards dengue vaccine (Median, IQR = 91.4, 20.0) and good level on WTP (72.3%). Among those who were willing to pay, 55.8% of the elderly were willing to pay less than MYR100, 27.9% for MYR100 to less than MYR300, and 16.3% were willing to pay MYR300 or more. Except for knowledge on dengue fever, there was no significant difference among the elderly and the two other younger age groups, for all the variables studied ($p \geq 0.05$). **Conclusion:** Despite very low awareness of the dengue vaccine, elderly adults in this semi-urban Malaysian town showed high acceptance when informed, and most were willing to pay for vaccination. Strengthening dengue vaccine awareness for all adults, alongside age-sensitive outreach to elderly populations, may help ensure equitable access and uptake in semi-urban communities.

Keywords: Dengue vaccine, elderly, older adults, Malaysia, willingness to pay

Integrating cellular therapies, biomaterials, and mechanical cues in cartilage tissue engineering: A systematic review

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ABSTRACT

Introduction: Articular cartilage injury poses a major clinical challenge due to its limited intrinsic healing capacity. Recent advances in tissue engineering have introduced various regenerative strategies aimed at restoring cartilage function. This systematic review synthesizes findings from studies employing a combination of cellular therapies, biomaterial scaffolds, biochemical stimuli, mechanical conditioning, and translational applications to enhance cartilage repair outcomes. **Materials and Methods:** This systematic review adhered to the PRISMA guidelines. A comprehensive literature search was carried out across PubMed, Scopus, and Web of Science, targeting peer-reviewed publications from 2014 to 2024. Eligible studies included original research focused on cartilage tissue engineering strategies involving therapeutic cells, biomaterials, biochemical or mechanical cues, and preclinical or clinical applications. Data extraction and classification were independently conducted by multiple reviewers. The selected studies were then organized into five primary categories: therapeutic cell sources, biomaterial and scaffold systems, growth factors and biochemical stimuli, biophysical and mechanical conditioning, and clinical/preclinical translation. **Results:** Among the cellular strategies, epiphyseal chondroprogenitor cells (ECPs), mesenchymal stromal cells (MSCs) and human mesenchymal stem cells (hMSCs) have been the most widely explored. ECPs exhibit strong chondrogenic differentiation potential. MSCs derived from bone marrow, adipose tissue, and synovium promote regeneration through both differentiation and paracrine effects. hMSCs are notable for their accessibility and ability to form hyaline-like cartilage. However, limited cell retention and inconsistent integration remain key challenges. Biomaterial scaffolds provide structural support and mimic the native extracellular matrix (ECM) environment. Hydrogels, 3D-printed scaffolds, and ECM-derived matrices have been used to facilitate chondrogenesis and enhance mechanical properties. Innovations in material design have improved biocompatibility, bioactivity, and degradation profiles. Growth factors such as TGF-β, IGF-I, and novel peptides like TP8 have shown efficacy in enhancing chondrocyte activity and ECM synthesis. Delivery systems such as growth factor-loaded scaffolds or controlled-release platforms are being developed to optimize spatial and temporal bioavailability. Mechanical and biophysical stimulation including dynamic loading and hydrostatic pressure has demonstrated the ability to promote chondrogenic gene expression and improve tissue functionality in vitro. These approaches replicate native joint mechanics and support matrix maturation. Translational studies, including animal models and early-phase clinical trials, report encouraging outcomes for combinations of cell-based therapies and scaffold-guided regeneration. Cartilage tissue engineering has evolved into a multimodal field where the integration of cellular therapies, advanced biomaterials, biochemical cues, and mechanical stimuli is essential for achieving functional regeneration. **Conclusion:** The findings of this review underscore the potential of combining these strategies to overcome current limitations and move closer to clinically viable, patient-specific treatments for cartilage repair.

Keywords: Cartilage regeneration, tissue engineering, mesenchymal stem cells (MSCs), biomaterial scaffolds, Chondrogenesis

Interprofessional collaboration in the supportive care of dementia patients in oncology and hematology: A review

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ABSTRACT

Introduction: Dementia is a condition characterized by a decline in cognitive abilities, including memory, thinking, behaviour, and physical functioning. The dual burden of cancer and dementia in aging populations presents significant complexities in clinical care. Patients with cognitive impairment often require individualized treatment approaches and more attention in clinical care. Interprofessional collaboration between nurses, oncologists, haematologists and allied health professionals is critical to ensure delivery of safe and effective patient care. However, the dynamics and impact of collaborative practices among healthcare professionals remain insufficiently studied in this high-risk population. **Materials and Methods:** A review was conducted by examining peer-reviewed articles published between 2014 and 2024, retrieved from databases such as PubMed, EBSCO and Scopus. The search utilized keywords including "dementia," "oncology," "haematology," "interprofessional collaboration," "nursing care" and "supportive care." Studies were included focusing on adult patients with dementia receiving cancer or haematology-related care and addressed aspects of interprofessional or interdisciplinary collaboration. The review excluded studies that are not published in English and did not pertain to clinical practice and studies that are not associated to dementia related care or elderly. The selected articles were subjected to thematic analysis to identify principal aspect, challenges and practical implications for enhancing interprofessional collaboration in the supportive care in oncology and haematology patients with dementia. **Results:** Our review identified the interprofessional collaboration in the supportive care of oncology and haematology patients with dementia. It is characterized by three key themes: (1) the value of sustained relationships between healthcare providers and patients; (2) the integration of complementary clinical and psychosocial perspectives among team members; and (3) the alignment of care around a shared goal of delivering patient-centred, support. **Conclusion:** This review underscores the critical role of interdisciplinary collaboration in managing the complex needs of dementia patients undergoing cancer or haematology treatment. Such collaboration enhances the team's ability to address issues through a shared communication framework. The integration of diverse professional perspectives supports more comprehensive care planning and allows patient and caregiver values, preferences and goals to be incorporated meaningfully into clinical decision-making. Future initiatives should prioritize interprofessional education, standardized care protocols, and collaborative decision-making frameworks tailored to the needs of these patients.

Keywords: Interprofessional collaboration, dementia, Oncology Nursing, caregiver involvement

The potential of *Phyllanthus niruri* as an antibacterial agent: A systematic review

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ABSTRACT

Introduction: The rise of antimicrobial resistance has prompted the search for alternative therapies, including plant-based antimicrobials. *Phyllanthus niruri* (PN), also known locally as "Dukung Anak," is traditionally used for various ailments and has shown promising antibacterial properties. This systematic review explores the antibacterial potential of PN and its bioactive compounds. **Materials and Methods:** A systematic search was conducted using Medline, PubMed, and Google Scholar databases with keywords related to PN, antibacterial activity, and bioactive compounds. Inclusion criteria focused on in vitro, in vivo, and phytochemical studies assessing PN's antimicrobial effects. Data extraction and reporting followed PRISMA guidelines. **Results:** The database search identified 12,749 titles of potentially relevant articles. Out of these only thirteen studies were included. PN's leaves or whole plant were used in most of the studies. Methanolic extracts of PN consistently demonstrated the highest antibacterial activity, particularly against Gram-positive bacteria such as Staphylococcus aureus and Bacillus cereus, with inhibition zones ranging from 12–15 mm and Minimum Inhibitory Concentration (MIC) values between 6–58 µg/mL. Gram-negative bacteria showed higher resistance. Key bioactive compounds identified include phyllanthin, flavonoids, tannins, alkaloids, and saponins. Nanoparticle formulations using PN extract enhanced antibacterial efficacy, especially at a 5% concentration, confirmed through particle size analysis (PSA) and scanning electron microscopy (SEM). Synergistic effects were observed when PN was combined with Kelulut honey or conventional antibiotics, reducing MIC values and improving bacterial inhibition. Extraction methods significantly influenced efficacy, with methanol and ethanol yielding the most potent results. PN was tested against a wide range of organisms including *E. coli, P. aeruginosa, K. pneumoniae, and Candida albicans,* showing broad-spectrum activity. Some studies also reported antiviral properties against HBV and HIV. **Conclusion:** *Phyllanthus niruri* exhibits strong antibacterial activity, particularly against Gram-positive pathogens, due to its rich phytochemical profile. Its synergistic potential with other natural products and antibiotics highlights its promise as a natural alternative or adjunct in antimicrobial therapy. Further clinical trials are needed to validate its efficacy and safety in human applications.

Keywords: Phyllanthus niruri, antibacterial activity, bioactive compounds, natural antibiotics, antimicrobial resistance

Assessing capability, opportunity, motivation and behaviour (COM-B) in a gamified peer-led education module for fall prevention among low-literacy older community adults in Sarawak

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ABSTRACT

Introduction: Sarawak has been reported as one of the eight districts known as an ageing district. Falls are unintentional falls because of slipping, tripping, stumbling or unplanned descent to a floor or place lower than your body, and they are a common implication of old age, often associated with existing comorbidities that lead to multiple health consequences. Telehealth or mHealth for fall prevention education reduces the burden and obstacles, such as transportation factors, caregivers' availability, or expenses, which can prevent most older individuals from visiting a hospital. However, poor digital literacy or low literacy is a challenge when utilising these benefits. Peer-led fall prevention education has been shown to be effective for older populations with low educational levels, empowering them to engage in preventive behaviours. The COM-B model (Capability, Opportunity, Motivation, and Behaviour) has limited exploration when assessing patients' capability, opportunity, motivation, and behaviour. Furthermore, the efficacy and improvement in engagement of preventive behaviour among low-literacy, high-risk older community adults in Sarawak have yet to be investigated through gamified peer-led fall prevention education. Therefore, this study aims to evaluate a gamified peer-led fall prevention education module to promote Capability, Opportunity, Motivation, and Behaviour (COM-B) among low-literacy older adults in the community for fall prevention. **Materials and Methods:** A multistage random sampling approach will be employed to identify older people aged 55 and above residing in the community from any of the three divisions (Kapit, Samarahan, and Serian), with eight districts in Sarawak, thereby representing all ethnicities of Sarawak. A Delphi method will be adapted to explore a gamified peer-led fall prevention education module, and content will be gathered from expert opinions across various disciplines, utilising the principles of the COM-B model. The gamification process will adopt a framework by Hunicke et al. (2004), utilising the Mechanics-Dynamics-Aesthetics (MDA) framework. A focus group discussion will also be conducted among older people to evaluate their perceptions of fall risks and prevention. The study is estimated to be conducted from June 2026 until May 2029. The required sample size is estimated to be between 300 and 400 for the instrument's validation and focus group discussion interviews. SPSS software version 27.0 will be used to analyse the instrument's EFA and test-retest reliability, and SmartPLS 4.0 will be used for the instrument's CFA. Meanwhile, Microsoft Excel will be used to present the thematic analysis and findings. **Results:** The COM-B model will guide the content identification and development of the research instrument and peer-led fall prevention education module for low-literacy older communities, which can be shared later with other healthcare disciplines, communities or health sciences students. The gameful experience of older adults using a gamified peer-led fall prevention education will be evaluated to assess the extent to which this gamification helps improve engagement in fall preventive behaviour among low-literacy older communities. In addition, this study may also serve as a fall prevention education module to be used and trained among peer educators delivering education to low-literacy older adults in the community. **Conclusion:** This study is expected to provide an evidence-based, theory-informed, and culturally appropriate gamified peer-led fall prevention education module tailored to older adults with a lower-literacy in Sarawak.

Keywords: COM-B model, older adults, falls, peer-led fall prevention education, preventive behaviour

Nurturing healthy ageing: A community-based multidisciplinary model for elderly wellbeing in Malaysia

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ABSTRACT

Introduction: The Holistic Well-being Program for Older Adults: Empowered Seniors, Prosperous Nation is a multidisciplinary community health initiative supported by the Ministry of Finance Malaysia. It was developed to address the growing healthcare needs of the ageing Malaysian population, which is expected to reach 2.4 million individuals aged 65 and above by 2030. Implemented in Negeri Sembilan, the project integrates key components of physical, mental, oral, and spiritual health through community-based interventions. **Materials and Methods:** The program comprises four pillars: Afiyah Ageing (physical health literacy and screening), Oral Wellness and the innovative Denture Express service (dental care), Quran Buddies (spiritual enrichment and companionship), and targeted mental health activities. A highlight of the initiative was the Karnival Sihat Madani, a one-day health carnival hosted at Universiti Sains Islam Malaysia (USIM), featuring healthcare screenings, expert consultations, and exhibitions. Industry partners provided support across sectors such as mobility, nutrition, education, and digital services. Physical screening was conducted using time up and go test among the participants. **Results:** The project reached 600 older adults, with significant impact: 41 individuals received free dentures, 58 participated in the 3-day Quran Buddies workshop, 71 received dental screening and minor treatment, and 60 were screened for physical function. The carnival welcomed 230 attendees including caregivers and families. A total of 41 patients received dentures from the dental team and 60 people received a three day course in improving spiritual health. The physical screening revealed that 45.3% of older adults have time up and go test less than 10 seconds, while 52.8% have a result between 10-20 seconds. Time up and go test times highly correlate with frailty. People with times more than 12 seconds predict future frailty. It is concerning that half of the older adults are predicted to be frail in future. This requires widespread intervention and awareness to improve physical fitness of older adults in the community. The older adults provided positive feedback throughout the programme and have requested for more activities to be conducted in the future. **Conclusion:** This initiative is aligned with Sustainable Development Goal 3 (SDG 3), promoting good health and wellbeing among older adults. It combined multidisciplinary expert to provide a holistic intervention programme for older adults in the community. The approach to ageing must be holistic with multidisciplinary involvement as a health of an individual is not isolated to just the physical but include, mental, social, emotional, spiritual and financial. Universities have a role in engaging with the communities to improve well-being of the population. This programme demonstrates the effectiveness of a faith-integrated, university-led model to support healthy ageing, reduce dependency, and foster social resilience in Malaysia.foster social resilience in Malaysia.

Keywords: Ageing, older adults, community-based, wellbeing, community engagement

Quality improvement for early detection and management of insulin resistance for healthy aging in older adults with type 2 diabetes in primary care

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ABSTRACT

Introduction: Insulin resistance (IR) is the essential underlying mechanism of type 2 diabetes mellitus (T2DM) and significantly contributes to metabolic decline in aging population. In Malaysia, the burden of T2DM is rising among adults over 60, often progressing silently. Insulin resistance in this group is linked to cardiovascular disease, cognitive decline, and frailty. Yet, early detection and targeted interventions, including comprehensive geriatric assessment (CGA), remain limited in many healthcare settings. Proactive measures at the primary care level could slow disease progression while promoting healthy aging. This project proposes a quality improvement (QI) initiative to enhance early detection and management of insulin resistance among older adults (≥60 years) with or at risk of T2DM in primary care. The goal is to promote healthy aging by integrating structured screening, lifestyle intervention, and education into primary care. **Materials and Methods:** This QI initiative should adopt the Plan-Do-Study-Act (PDSA) cycle as a framework. Suggested steps include: (1) Training healthcare professionals and staffs on IR, its markers, its link to aging-related diseases and CGA which covers on physical, psychological, functional and social domains among older persons, (2) Developing a better screening checklist for IR using practical indicators like clinical features of IR including acanthosis nigricans, triglyceride-glucose (TyG) index ratio, family history of diabetes, along with microvascular and macrovascular complications of diabetes in addition to current parameters checklist in the non-communicable diseases (NCD) book which has already included vital signs, waist circumference, body mass index (BMI), HbA1C and foot examination. (3) Incorporating lifestyle counselling protocols using the 5As model (Assess, Advise, Agree, Assist and Arrange) tailored for older persons. (4) Providing patient education materials in Malay and English to improve understanding of IR, healthy diet, and physical activity. The intervention was initially piloted in one primary care clinic among four patients with underlying of various comorbidities where the outcome indicators such as increased documentation of IR markers, improved counselling rates, and patient-reported lifestyle changes. **Acknowledgement:** This spin-off proposal was conceptualised by the authors and supported in part by resources and data from the Dietary Intake, Insulin Resistance, and Glycaemic Control of Adults with Type 2 Diabetes Mellitus in Malaysia, with a Comparison to Healthy Volunteers – A Pilot DIRG Study funded by NUMed Internal Research Grant 2024 Code: 226900-IG19. **Results:** The project is expected to raise awareness and improve early detection of IR, enhance patient engagement through lifestyle counselling and CGA, support metabolic improvements, and empower patients to practice healthy ageing. If successful, the model can be scaled up to other primary care settings including Klinik Kesihatan and potentially integrated into existing NCD management protocols under the Family Doctor Concept (FDC) in Malaysia. **Conclusion:** This quality improvement proposal highlights a practical and scalable approach to managing insulin resistance in older adults. By focusing on early detection and lifestyle modification, it aligns with national priorities to combat NCD and promote healthy aging. This initiative can bridge the gap between clinical diabetes management and preventive geriatric care, ultimately improving quality of life and reducing long-term healthcare burden.

Keywords: Insulin resistance, older persons, Triglyceride-Glucose Index Ratio, comprehensive geriatric assessment

Topical hypochlorous acid gel in management of symptomatic dermographism: A case report

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ABSTRACT

Introduction: Symptomatic dermographism (SD) also known as urticaria factitia, is the most common subtype of chronic inducible urticaria (CIndU) mainly affecting young adults with the mean duration of six years and can be difficult to treat. It is characterized by the development of itchy wheals induced by mild stroking, rubbing or scratching of the skin at the site of exposure. Typically, wheals occur within seconds to minutes after skin provocation and lasts for half an hour to two hours. **Case description:** A 31-year-old lady who came for a history of 6 months of severe itchiness and wheal in context of usual activities at home (dressing, tight clothes, some physical activities). Some of the episodes were also spontaneous without an obvious trigger and the patient described a negative impact on her quality of life. There was no significant past medical or family history. Her workup including differential blood count, ESR or CRP and diagnostic workup for autoimmune disorders, were normal. The diagnosis of SD was supported by the history and the positive provocation test (itchy palpable wheals within 10 min after light stroking pressure with a wooden spatula on the volar forearm). She was put on high dose cetirizine 20mg daily but refused to add a second line systemic agent despite poor control of her symptoms due to fear of side effects. Trial of topical application of EZyma™ Hydrogel 2 times daily was added as an adjunct treatment and at the beginning of the treatment, her Dermatology Life Quality Index (DLQI) was 25, and the urticaria activity score (UAS7) was 35. Her symptom improved as early as day 5 and was sustainable until week 6 of usage with UAS7 score and DLQI was 10 and 8 respectively. **Discussion:** The goal of treatment in SD is complete symptom control. However, for most patients with physical urticaria, the standard antihistamines dose is usually not sufficient to achieve this goal and up dosing of antihistamines is often needed. Despite up-dosing, there are some patients who still suffer from severe symptoms and for these patients, systemic therapies such as cyclosporine A, dapsone or omalizumab therapy can be recommended. Unfortunately, there is limited option for patients who were ineligible for systemic therapy due to unavailability, cost or side effects. Topical hypochlorous acid (HOCl) has been proposed as a treatment of pruritus of various dermatoses, particularly in atopic dermatitis. The postulated mechanisms were its microbicidal actions to cutaneous pathogens, anti-inflammatory properties and its ability to reduce the activities of histamine, leukotriene B4, and interleukin-2. Despite no prior studies on its usage on chronic urticaria, previous in vitro study has shown that it has a mast cell membrane stabilizing effect thus preventing subsequent degranulation which makes it a promising treatment option in SD. **Conclusion:** EZyma™ Hydrogel shows promising results as an adjunct topical therapy in SD however further in-depth clinical trials are needed.

Keywords: Symptomatic dermographism, topical hypochlorous, urticaria

Differential gene expression in cumulus cells between reproductive age and advanced maternal age women: A systematic review and bioinformatic pathway analysis

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ABSTRACT

Introduction: Female reproductive potential declines with age, primarily due to reduced oocyte quality. Cumulus cells (CCs), which surround and support the oocyte, mirror its microenvironment and play a critical role in regulating oocyte maturation and competence. Exploring gene expression patterns in CCs offers a noninvasive window into the molecular mechanisms underlying reproductive ageing. This study aimed to identify differentially expressed genes (DEGs) in cumulus cells between reproductive-age and advanced maternal age (AMA) women and to determine the pathways influenced by ageing in cumulus cells. **Materials and Methods:** This systematic review was conducted in accordance with PRISMA guidelines. A comprehensive literature search was performed using EBSCOhost, Science Direct, PubMed, and Scopus for articles published up to 11 July 2025. Search terms were developed using Medical Subject Headings (MeSH) from the Cochrane Library and refined through analysis of relevant articles. The search strategy included the following keywords: ("cumulus cell" OR "granulosa cell" OR cumulus) AND (age OR "advanced maternal age" OR "maternal age" OR ageing) AND ("gene expression" OR profiling OR transcriptome OR transcriptomic). Eligible studies were clinical human studies that compared cumulus cell gene expression between reproductive-age and AMA women. Protein–Protein Interaction (PPI) network analysis, clustering, and visualization were performed using STRING. Gene Ontology (GO) and pathway enrichment analyses were conducted using the DAVID database. **Results:** Out of 186 retrieved articles, seven clinical human studies published between 2010 and 2022 met the inclusion criteria. These studies employed qPCR, microarray, or RNA sequencing to compare gene expression in cumulus cells between younger and AMA women. In total, 32 differentially expressed genes (DEGs) were identified as consistently reported in at least two studies. Bioinformatic clustering analysis of the DEGs revealed four major gene clusters. The first cluster showed enrichment in genes involved in gene expression regulation, cell migration, and apoptosis, with notable links to the diabetic cardiomyopathy pathway. The second cluster highlighted genes involved in the detoxification of reactive oxygen species, suggesting increased oxidative stress in the ageing ovarian environment. These findings support the hypothesis that reproductive ageing is associated with specific gene expression changes in cumulus cells that impact oocyte quality through multiple biological pathways. **Conclusion:** This systematic review and integrated bioinformatic analysis identified consistent gene expression alterations in cumulus cells associated with advanced maternal age. Key affected pathways include oxidative stress response, apoptosis, and cellular signaling, which may contribute to the decline in oocyte quality among older women. The findings suggest that transcriptomic profiling of cumulus cells holds potential for identifying non-invasive biomarkers and therapeutic targets to improve fertility outcomes in ageing women. This study advances our understanding of the molecular mechanisms underlying reproductive ageing and supports the development of integrative approaches for reproductive health in the context of healthy ageing.

Keywords: Ageing, cumulus cells, gene expression, gene ontology

Assessing domains and barriers of healthcare access: A narrative review

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ABSTRACT

Introduction: Healthcare is essential in many facets of life. Consequently, access to healthcare is critical for preserving health quality and enhancing overall quality of life. This study sought to define healthcare access, identify its domains or dimensions, examine barriers to access, and propose solutions for improving healthcare access. **Materials and Methods:** The method was by searching articles from electronic databases: PubMed, Scopus, Science Direct, Springer and other reputable websites. All relevant articles were analyzed. **Results:** Healthcare access is defined as the timely use of health services to achieve optimal health outcomes, encompassing a complex interplay among patients, providers, finances, funders, and the social milieu in which patients live. Moreover, healthcare access encompasses five areas or dimensions, which include approachability, acceptability, availability, accommodation, cost, and appropriateness. The relevant dimensions are the capacity to perceive, the capacity to seek, the capacity to reach, the capacity to pay, and the capacity to participate. The geographical location, cultural and ethnic factors, financial constraints, facilities, and inadequate care are the barriers encompassed under the dimensions. **Conclusion:** The enhancements from the government, medical professionals, and the community are crucial to ensure the continuity of healthcare access for future generations.

Keywords: Healthcare access, domains healthcare accessibility, barrier healthcare access

Validation of Malay versions of salutogenic determinants questionnaires for assessing mental well-being in the elderly: A psychometric study in Sarawak, Malaysia

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ABSTRACT

Introduction: Accurate and culturally appropriate measurement tools are essential for assessing determinants of mental well-being in the elderly. However, widely used salutogenic questionnaires — such as the Brief Sense of Community Scale (BSCS), Santa Clara Strength of Religious Faith Questionnaire–Short Form (SCSORF-5), Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), Social Provisions Scale (SPS-5), and Sense of Coherence-13 (SOC-13) — have not been validated or translated into Malay for older Malaysians. This study aimed to adapt and validate these instruments for elderly use in Sarawak. **Materials and Methods:** Internationally recognized guidelines for cross-cultural adaptation (Beaton et al., 2000; Tsang et al., 2017) were followed through a three-phase validation process. The first phase involved translation and cultural adaptation, with two independent forward translations and expert back-translation to ensure both semantic and conceptual equivalence. In the second phase, thirty elderly subjects from diverse sociodemographic backgrounds participated in pre-testing and cognitive interviews to evaluate clarity, relevance, and cultural appropriateness. Their feedback informed further refinements. The third phase included integrated content and face validation by eight experts from psychiatry, public health, family medicine, and counseling, who rated each item for relevance, clarity, simplicity, and ambiguity. Quantitative metrics such as Item-Level Content Validity Index (I-CVI), Scale-Level Content Validity Index (S-CVI/Ave and S-CVI/UA), and Content Validity Ratio (CVR) were applied. A pilot field test followed, involving 205 elderly community members in Sarawak (mean age = 67.85 years). Construct validity was assessed via Exploratory Factor Analysis (EFA), with robust thresholds (KMO > 0.78; Bartlett's $p < 0.001$), and reliability determined by Cronbach's alpha. **Results:** Content validity analysis confirmed strong item relevance and clarity, with all items achieving I-CVI ≥ 0.75. Except for the Personal Sense of Coherence section, other domains attained a perfect S-CVI/UA for relevance and clarity, and every item's CVR exceeded the acceptable threshold, establishing item essentiality. EFA displayed clear factor structures across all domains. The Social Provision scale (5 items) loaded onto a single factor (eigenvalue = 2.78, TVE = 45.3%, $\alpha = 0.80$); the Sense of Community (8 items) yielded one factor (eigenvalue = 5.26, TVE = 60.9%, $\alpha = 0.93$); the Religiosity scale (5 items) formed a single factor (eigenvalue = 3.65, TVE = 66.4%, $\alpha = 0.91$); the Mental Well-Being scale (7 items) formed a factor (eigenvalue = 3.65, TVE = 52.1%, $\alpha = 0.88$). Sense of Coherence (13 items) generated one factor (eigenvalue = 4.21, TVE = 33.0%, $\alpha = 0.83$), improving to $\alpha = 0.87$ after removing items 1 and 7. All factor loadings were above 0.50 except for SoC1 and SoC7, with SoC7 (<0.10) recommended for removal. Descriptive statistics showed appropriate score variability in all domains. **Conclusion:** The adapted Malay versions of the BSCS, SCSORF-5, SWEMWBS, SPS-5, and SOC-13 scales show strong content validity, internal consistency, and construct validity for assessing salutogenic determinants of elderly mental well-being in Sarawak. These tools are suitable for research and practice in the local context.

Keywords: Scale adaptation, content validity, factor analysis, elderly

Cyberviolence and its psychological effect on adolescent's mental health

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ABSTRACT

Introduction: Cyberviolence, particularly cyberbullying and digital sexual violence (DSV), has emerged as a significant concern among adolescents due to the rapid expansion of digital platforms. This study aims to analyse the psychological effect of cyberviolence on adolescents, focusing on risk factors, coping mechanisms, and potential intervention strategies. Materials and Methods: A literature review was conducted using electronic databases such as PubMed, Scopus, and Google Scholar. All data were collected based on inclusion criteria, which consisted of peer-reviewed articles published within the last 10 years; studies lacking empirical data were excluded. Results: Findings indicate that victims of cyberbullying and DSV experience heightened risks of anxiety, depression, self-harm, and social withdrawal. Additionally, multiple factors such as gender, preexisting mental health conditions, excessive and uncontrolled internet usage, and negative family dynamics contribute to adolescent's vulnerability towards cyberviolence. Intervention strategies, including digital literacy programs, adequate policy regulations, and psychological support systems, are explored to mitigate the harmful effects of cyberviolence. Conclusion: This study underscores the need for comprehensive preventive measures to safeguard adolescent's mental health in the digital era.

Keywords: Cyberbullying, digital sexual violence, psychological effect, adolescent mental health

Emotional challenges and training needs in geriatric care: A scoping review for future healthcare professionals

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ABSTRACT

Introduction: The global rise in the older adult population has intensified the demand for healthcare professionals trained in geriatric care. However, persistent workforce shortages, inadequate training, and emotionally challenging work environments continue to deter healthcare trainees from pursuing this field. This scoping review aims to (1) identify common emotional challenges faced by healthcare professionals working with older adults, (2) explore the influence of emotional preparedness on healthcare students' career intentions in geriatrics, and (3) synthesize evidence-based strategies to support emotional resilience and preparedness among healthcare trainees. **Materials and Methods:** A scoping review guided by the PRISMA-ScR protocol was conducted of peer-reviewed literature (2010–2025) using structured searches in Scopus. Search terms included "geriatric care," "emotional challenge," "training interventions," and "career choice." Studies were included if published in English and involved healthcare professionals or trainees (doctors, nurses, paramedics). Non-English texts and non-empirical articles were excluded. **Results:** Findings highlight that healthcare professionals frequently face moral distress, burnout, ageism, emotional labour, and complex patient interactions in geriatric settings. These challenges are compounded by systemic factors such as inadequate training, poor working conditions, and limited professional recognition. Emotional unpreparedness was found to significantly influence negative attitudes and reluctance among students to specialize in geriatrics. Evidence-based interventions including early clinical exposure, interprofessional education, mentorship, structured debriefing and experiential learning were shown to enhance emotional readiness and increase interest in geriatric careers. **Conclusion:** To build a compassionate and sustainable geriatric workforce, healthcare training programs must integrate targeted emotional preparedness strategies. Addressing the emotional realities of geriatric care through education, support, and systemic reform is essential to foster resilience, reduce burnout, and motivate future professionals to serve aging populations.

Keywords: Geriatric care, emotional challenge, training interventions, student perceptions, career choice

"Pantang" practices among Malaysian women and its overall health effects

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ABSTRACT

Introduction: Confinement care, known as pantang, represents a crucial postpartum period focusing on maternal recovery through traditional practices deeply rooted in the Malaysian culture. In Malaysia, this practice is widely embraced across the multi-ethnic population, including Malays (92.4% adherence), Chinese (96.4% adherence), and Indians (85.6% adherence), highlighting its vital role in postpartum recovery. The practice encompasses various traditional methods including dietary restrictions based on "hot" and "cold" food concepts, massage therapy, body wrapping, herbal remedies, and extended rest periods typically lasting 30-44 days. With over 30% of women and newborns worldwide not receiving adequate postnatal care during critical first days after birth according to WHO, understanding these traditional practices becomes essential for improving maternal healthcare outcomes. **Materials and Methods:** A comprehensive literature review was conducted using electronic databases including Science Direct, PubMed, Google Scholar, NCBI, and Scopus. The search strategy employed specific keywords such as "confinement care", "postpartum care", "pantang", "traditional practices", "modern practices", "maternal health", "health effects", and "Islamic perspective". Approximately 20 relevant articles published between 2020 and 2025 were selected based on inclusion criteria requiring studies published in English within the last five years and directly related to confinement practices and their health effects. Additional studies were identified through reference screening of relevant articles to ensure comprehensive coverage of the topic. **Results:** The review revealed that traditional confinement practices offer significant physical and mental health benefits when properly implemented. Physical health benefits include enhanced blood circulation through massage therapy, improved uterine involution, better abdominal muscle tone recovery, and restoration of body balance through dietary practices emphasizing "warm" foods while avoiding "cold" foods like pineapple and watermelon. Mental health benefits encompass reduced risk of postpartum depression through structured rest periods, family support systems, and professional care in specialized confinement centres. However, challenges arise in balancing cultural customs with evidence-based medical care. Modern approaches encourage moderate activity versus traditional prolonged bed rest, balanced nutrition versus restrictive diets, and professional healthcare guidance versus solely traditional caregivers. The integration of both perspectives shows promise, with contemporary confinement services now incorporating customized meal plans alongside medical guidance. **Conclusion:** Confinement practices remain culturally significant and can positively impact maternal well-being when wisely integrated with modern healthcare approaches. Healthcare providers play a vital role in ensuring safe and effective traditional practices while respecting cultural beliefs. From an Islamic perspective, Maqasid Shariah principles support postpartum care through preservation of life (rest and recovery), religion (spiritual support), intellect (mental health care), family (support systems), and wealth (economic assistance), aligning with comprehensive maternal care objectives. Moving forward, fostering collaboration between traditional and modern healthcare systems through health experts involvement to enhance postpartum care, ensuring new mothers receive comprehensive support that respects both cultural traditions and medical advancements.

Keywords: Confinement care, postpartum care, pantang, traditional practices, maternal health

Impact of artificial intelligence in enhancing diagnostic accuracy and efficiency in radiology: A focus on medical imaging and disease detection

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ABSTRACT

Introduction: Artificial intelligence (AI) has emerged as a transformative tool in radiology, offering significant advancements in diagnostic accuracy and efficiency. With an emphasis on medical imaging and illness detection, this study assesses how AI may improve radiological diagnostics. It specifically evaluates how successfully AI systems diagnose diseases compared to human radiologists, focuses on how AI might minimize diagnostic delays, and analyses the challenges of implementing AI in clinical practice. **Materials and Methods:** The information in this review was obtained from selected papers published between 2017 and 2025, sourced from electronic databases such as PubMed, ScienceDirect, and Google Scholar, using keywords such as "Artificial Intelligence (AI)", "radiology", and "medical diagnosis". **Results:** An overview of existing literature demonstrates that Artificial Intelligence (AI), particularly deep learning-based systems, significantly enhances diagnostic accuracy and efficiency in radiology. AI models such as Convolutional Neural Networks (CNNs) have shown comparable or even superior performance to human radiologists in detecting diseases like lung cancer, breast malignancies, fractures, and intracranial haemorrhages. These AI systems reduce human error, support faster clinical decision-making, and improve sensitivity and specificity in image interpretation. Furthermore, AI integration has contributed to minimizing diagnostic delays, especially in emergency settings, by prioritizing critical cases and reducing average diagnosis time by up to 96%. In addition to clinical benefits, AI has improved radiographic workflow efficiency and reduced radiologists' workload. However, despite its promising impact, challenges such as algorithm bias, ethical concerns, legal barriers, and technological limitations continue to hinder full-scale implementation. Addressing these challenges through multidisciplinary collaboration, rigorous model validation, and integration of AI training in medical education is essential for ensuring effective and safe adoption of AI in radiology. **Conclusion:** AI integration in radiology enhances diagnostic accuracy and efficiency, comparable to human radiologists in disease detection. It streamlines workflows and reduces delays but faces challenges like ethical concerns and limited AI literacy. Continued research and collaboration are key to safe, effective adoption.

Keywords: Artificial Intelligence (AI); radiology; medical diagnosis

The prevalence of frailty and its associated factors among older adults in Klinik Kesihatan Bandar Sungai Petani, Kedah

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ABSTRACT

Introduction: Frailty is a common geriatric syndrome characterized by decreased physiological reserves and increased vulnerability to adverse health outcomes. Understanding its prevalence and associated factors is essential for early identification and targeted interventions, particularly in primary care and community settings. This study aimed to determine the prevalence of frailty and its predictive factors among older patients attending a public primary care clinic. **Materials and Methods:** A cross-sectional study was conducted among patients aged 60 years and above, attending Klinik Kesihatan Bandar Sungai Petani, Kedah, from October 2024 until December 2024. Participants were selected using systematic random sampling from a non-communicable disease (NCD) clinic registry. Data were collected using a structured questionnaire consist of three components assessing sociodemographic characteristics, nutritional status and frailty status in Malay and English version. Mini Nutritional Assessment Short Form (MNA®-SF) was used to assess nutritional status, while frailty was assessed using the Pictorial Fit-Frail Scale (PFFS). The Pictorial Fit-Frail Scale (PFFS) is a multidimensional, image-based tool used to assess frailty across 14 domains. Each domain has three to six pictorial levels for the participant to choose the best image to represent their current situation. A total score of all 14 domains ranges from zero to 43, with higher scores indicate greater frailty. The cut offs for frailty was categorized into 0-3, no frailty; 4-5, at risk of frailty; 6-8, mild frailty; 9-12, moderate frailty; and >13, severe frailty. Descriptive statistics were used for demographic data, prevalence and severity of frailty. Multiple logistic regression was performed to identify associated factors of frailty. **Results:** Out of 272 participants, 121 (44.5%) were identified as frail. More than half were mildly frail (56.0%), while equal value of 22% were moderately and severely frail. Multivariate analysis revealed that primary-level education and below (OR = 2.65, [95% CI 1.49, 4.70], p = 0.001), unemployment (OR = 2.88, 95% [CI 1.20, 6.90], p = 0.018), diabetes mellitus (OR = 2.03, 95% [CI 1.14, 3.61], p = 0.016), heart disease (OR = 2.50, 95% [CI 1.12, 5.59], p = 0.025), fair or poor self-rated health (OR = 3.09, 95% CI [1.78, 5.36], p = 0.001) and those at risk or malnourished (OR = 2.79, 95% CI [1.70, 4.57], p = 0.004) were risk factors significantly associated with frailty. Meanwhile, living alone was a protective factor significantly associated with frailty (OR = 0.35, 95% [CI 0.13, 0.99], p = 0.048). **Conclusion:** Frailty is prevalent among the older patients in this primary care clinic. Key associated factors include education level, unemployment, living arrangement, diabetes mellitus, heart disease, fair or poor self-rated health, and nutritional status. These findings underscore the need for early frailty detection and further research on effective clinical interventions to improve outcomes in older adults.

Keywords: Frailty, older adults, primary care, Malaysia

Exploring ghrelin and leptin signalling in hedonic hunger: Moringa oleifera as a natural intervention for obesity

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ABSTRACT

Introduction: Obesity has become a global epidemic, with rates doubling in adults and quadrupling in adolescents since 1990. One of the major contributors to obesity is hedonic hunger, where individuals eat for pleasure rather than energy balance. This behaviour is driven by the brain's reward system and often involves a preference for highly palatable foods rich in fat and sugar. Therefore, this review examines the potential effects of Moringa oleifera on the regulation of ghrelin, leptin, and hedonic hunger in obesity. **Materials and Methods and Results:** Central to hedonic hunger is ghrelin, a hormone primarily produced in the gastrointestinal tract and known as the "hunger hormone." Ghrelin stimulates appetite by acting on both homeostatic and non-homeostatic pathways through its receptor GHSR1a, which is abundantly expressed in the hypothalamus, ventral tegmental area (VTA), and nucleus accumbens (NAcc). While ghrelin typically rises before meals to stimulate eating, studies have shown that obese individuals often exhibit lower circulating ghrelin levels compared to healthy individuals and those with anorexia nervosa. This paradox suggests a dysregulation of ghrelin signalling in obesity. Furthermore, ghrelin has been positively associated with a preference for palatable and sugary foods, reinforcing its role in hedonic eating. In contrast, leptin, a satiety hormone secreted mainly by adipose tissue, regulates energy balance by promoting satiety and inhibiting ghrelin secretion. Leptin levels are strongly correlated with body fat percentage and are typically elevated in obese individuals. However, chronic elevation can lead to leptin resistance, impairing its effectiveness in regulating appetite and energy expenditure. Together, disruptions in ghrelin and leptin signalling are key features in the pathophysiology of obesity and hedonic hunger. Given the limitations and potential side effects of conventional anti-obesity drugs, there is growing interest in herbal remedies as safer, alternative treatments. Moringa oleifera, a plant native to India and widely cultivated in Southeast Asia including Malaysia, has gained attention for its nutritional and medicinal properties. Rich in vitamins (A, C, E), minerals (calcium, potassium, iron), amino acids, and bioactive compounds such as polyphenols, flavonoids, and glucosinolates, M. oleifera was recognized by the World Health Organization (WHO) in 1998 as a promising natural remedy. Recent studies have highlighted M. oleifera's anti-obesity and antidiabetic effects, including reduction in lipid accumulation in the liver and adipose tissue, improvement in lipid profiles, and enhanced glucose tolerance in high-fat diet-induced obese rats. Although studies directly examining the effects of M. oleifera on ghrelin and hedonic hunger remain limited, early findings suggest that it may increase plasma ghrelin levels, indicating its potential to help restore appetite regulation in individuals with obesity. Additionally, its leaf extract has been shown to downregulate leptin and resistin gene expression, reduce circulating adipokines, and exert potent anti-inflammatory and antioxidant effects. **Conclusion:** In conclusion, Moringa oleifera demonstrates promise as a therapeutic agent for obesity by modulating key appetite-regulating hormones such as ghrelin and leptin, and may offer a natural, safer strategy for addressing hedonic eating and metabolic dysregulation.

Keywords: Ghrelin, Leptin, Moringa oleifera, Hedonic hunger, Obesity

Mediterranean diet and its role in mitigating Alzheimer's disease: A review

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ABSTRACT

Introduction: Diet plays a pivotal role in mitigating the risk and progression of Alzheimer's disease (AD) and early cognitive impairment globally. Increasing evidences support the Mediterranean diet (MeDi) as a protective dietary pattern against neurodegenerative diseases, particularly AD. This review aims to examine the core components of the MeDi that contribute to its neuroprotective effects and to explore the underlying protective mechanisms. Given the rising prevalence of AD in Malaysia, integrating MeDi into national healthcare strategies may offer a viable approach to reduce disease burden. **Materials and Methods:** This review encompasses papers of clinical trials (retrospective cohorts, randomised controlled trials, cross-sectional studies), and meta-analyses around the world. A comprehensive literature search was conducted using various databases, including PubMed, Medline, Science Direct, and Google Scholar. The search utilised specific keywords, such as diet, dietary pattern, Mediterranean (MeDi), Alzheimer's, Alzheimer's disease, cognitive impairment, Beta amyloid, Tau protein, brain atrophy, brain volume and gut-brain axis. This review includes only English-language and human studies. The primary aim of this review is to evaluate the latest past ten years (2015-2025) on main diet components and the protective mechanisms behind practising MeDi. **Results:** The Mediterranean diet (MeDi), has long supported health by preventing non-communicable diseases, including cardiovascular and neurodegenerative diseases. Evidence shows the MeDi can reduce beta-amyloid, linked to Alzheimer's disease (AD), and improve cerebral perfusion, particularly in memory-related brain regions, supporting cognitive functions like memory and attention. However, studies often face limitations such as small sample sizes and short durations, which impact the strength of evidence. While global research supports MeDi's potential in mitigating AD, Malaysian-specific studies remain limited. Implementing MeDi in Malaysia faces challenges due to perceptions of high cost, the prevalence of unhealthy, convenient foods, and Westernized eating patterns. Adherence remains crucial for benefits, necessitating culturally adapted strategies that address cost, accessibility, and education to integrate MeDi as a preventive guideline against Alzheimer's in Malaysia. **Conclusion:** Substantial evidence supports the role of the MeDi in slowing the progression of Alzheimer's disease, particularly among older adults. Olive oil remains the main element differentiating it from other types of health diets out there, such as DASH. Benefits from the MeDi are primarily mediated through the reduction of brain beta-amyloid burden, modulation of the gut-brain axis, and improved cerebral perfusion, which collectively help preserve cognitive function. Future clinical research, especially within the Malaysian context is warranted. With proper adaptation, the Mediterranean diet holds promise as a national dietary intervention to combat Alzheimer's disease and support healthy ageing in Malaysia.

Keywords: Diet, dietary pattern, Mediterranean diet (MeDi), Alzheimer's disease, cognitive impairment, Beta amyloid, Tau protein, brain atrophy, brain volume, gut-brain axis

Comparative analysis of nasal aperture height and width between young and older Malaysian adults for forensic application

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ABSTRACT

Introduction: Nasal aperture of the skull is a key cranial feature that is frequently measured during forensic identification. This structure forms the nasal region of the face, which involves in facial reconstruction. The objective of this study was to evaluate differences in nasal aperture height and width between young and older age groups in Malaysian adult populations. **Materials and Methods:** A total of 210 head and neck computed tomography (CT) scans, which comprised of two different age groups, the young (18-30 years) and older (50-65 years) age group were selected. All subjects were male to ensure the sex factor was eliminated. Landmarks were placed on the anatomical points of the bone using Stratovan Checkpoint software. The linear distance between the most lateral points of the aperture was measured for the width, and the distance between the highest to lowest midline point of the aperture, was measured for the height. Both parameters were exported into SPSS (version 25) software for further analysis. **Results:** The independent t-tests revealed significant differences in both width and height of the aperture between young and older age groups ($p < 0.05$), with the older age group demonstrating larger dimensions in both parameters. These findings were due to bone changes that occur in elderly individuals. Prolonged bone resorption also contributes to a relative expansion of the width of the nasal aperture. Besides, a decrease in soft tissue volume with increasing age in the midfacial region influences the size of the aperture. **Conclusion:** There were significant differences in nasal aperture height and width between young and older age groups of the adult Malaysian population. Nasal aperture age-variations are crucial during forensic identification to ensure accurate age estimation.

Keywords: Nasal aperture, age, computed tomography (CT), Malaysian

Habitual caffeine consumption on cardiovascular health: A comprehensive review of blood pressure, lipid profiles, and glucose metabolism

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ABSTRACT

Introduction: Caffeine stands as the most extensively consumed non-intoxicating psychoactive compound globally, primarily ingested via common beverages such as coffee and tea. Its widespread consumption, observed in approximately 90% of adults on a regular basis, underscores its deep cultural and social integration into daily routines. This literature review aim to investigate the physiological impacts of chronic habitual caffeine consumption on cardiovascular risk factors, specifically blood pressure, lipid profiles, and glucose metabolism. **Materials and Methods:** The literature review involved searching multiple electronic databases, specifically PubMed, Scopus, SpringerLink, Cochrane Library, Elsevier, UpToDate, and Google Scholar, for articles published between 2008 and 2024. Only articles in English were included. The search utilised a combination of keywords: caffeine, cardiovascular disease, hypertension, blood pressure, glucose, sugar, diabetes mellitus, lipid, and cholesterol, which yielded 20 relevant papers for inclusion in this review. **Results:** Evidence suggests that caffeine's physiological effects are dose-dependent. While acute consumption can lead to transient increases in blood pressure due to vasoconstriction and sympathetic activation, habitual intake (up to 400 mg/day) typically results in tolerance, diminishing these acute responses. Indeed, several population-based investigations have revealed either neutral or favourable relationships between moderate caffeine consumption and indicators of arterial stiffness or blood pressure. Pertaining to lipid metabolism, consistent caffeine intake has been associated with higher high-density lipoprotein (HDL) levels and lower triglycerides. Nevertheless, the impact on low-density lipoprotein (LDL) and total cholesterol remains less conclusive. Caffeine's influence on lipid metabolism is partly attributed to its ability to enhance lipolysis through cyclic adenosine monophosphate (cAMP) mediated pathways and increased catecholamine release. Furthermore, in glucose metabolism, specific bioactive compounds found in coffee, such as chlorogenic acid, appear to improve insulin sensitivity and contribute to a reduced risk of type 2 diabetes mellitus. **Conclusion:** The evidence suggests that habitual moderate caffeine intake is not associated with a notable increase in cardiovascular risk and may even offer protective metabolic effects. Nevertheless, intake above approximately 400 mg/day can result in undesirable outcomes, such as palpitations, anxiety, and increased cardiovascular burden. These insights necessitate clear public health awareness regarding the dose-dependent nature of caffeine's impact, particularly in heavy-consuming populations, advocating for moderation in consumption habits. Ultimately, moderate caffeine consumption is largely safe for cardiovascular health and may offer metabolic advantages to habitual users.

Keywords: Caffeine, blood pressure, lipid, glucose, cardiovascular disease

The role of ghrelin and its receptors in colorectal cancer progression

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ABSTRACT

Introduction: Colorectal cancer (CRC) is the third most commonly diagnosed cancer and the second leading cause of cancer-related mortality worldwide. In Malaysia, CRC represents a significant burden, particularly among males. Despite advancements in screening and treatment, late-stage diagnosis remains prevalent, highlighting the need for improved biomarkers for early detection and therapeutic targeting. Ghrelin, a 28-amino-acid peptide hormone predominantly secreted in the stomach, has gained attention for its role in appetite regulation, metabolism and potential involvement in cancer biology, including inflammation, proliferation, and tumour progression. This narrative review aims to explore the role of ghrelin and its receptors i.e. GHSR1a and GHSR1b in the development and progression of CRC and to assess their potential as diagnostic and therapeutic biomarkers. **Materials and Methods and Results:** Ghrelin is encoded by the GHRL gene and synthesized as pre-proghrelin before being processed into acylated ghrelin via the enzyme ghrelin O-acyltransferase (GOAT). The acyl-ghrelin form binds to GHSR1a, a functional receptor widely expressed in the hypothalamus and peripheral tissues including the gastrointestinal tract. GHSR1b, a truncated receptor isoform unable to bind ghrelin is believed to modulate GHSR1a signalling through heterodimerization. Both receptors have been identified in colonic tissues including malignant cells, thus raising questions about their role in CRC progression. Studies on circulating ghrelin levels in CRC patients have shown mixed results. Several investigations reported decreased serum ghrelin levels particularly in more advanced CRC stages, suggesting a potential inverse relationship with tumour progression. Other studies found increased or unchanged levels, reflecting inconsistencies in the literature. Furthermore, tissue-level studies using immunohistochemistry (IHC) and reverse transcription polymerase chain reaction (RT-PCR) have demonstrated variable expression patterns. Some findings indicated increased expression of ghrelin and GHSR1b in high-grade adenomas and well- to moderately-differentiated adenocarcinomas, while GHSR1a expression was reduced or absent in poorly differentiated tumours. **Discussion:** The functional implications of these findings remain unclear. While ghrelin has been shown to activate pathways like PI3K/Akt, promoting cell proliferation and inhibiting apoptosis, other studies suggest that ghrelin might have protective roles particularly in early carcinogenesis or inflammation-associated CRC. The differential expression of GHSR1a and GHSR1b across disease stages suggests they may play distinct or even opposing roles in CRC pathogenesis. In addition to tissue-level expression, several studies have linked GHSR1a downregulation and GHSR1b upregulation with increasing tumour grade, further supporting the idea that the ghrelin system reflects tumour behaviour. However, inconsistencies in study design, sample size, and methodology limit the generalisability of findings. Moreover, while ghrelin-targeted therapies are under consideration in other cancers, their role in CRC remains speculative. **Conclusion:** In conclusion, the ghrelin system shows potential as a biomarker and therapeutic target in colorectal cancer. However, conflicting evidence regarding its expression and function necessitates further investigation using standardised methods and larger cohorts. Clarifying the roles of ghrelin, GHSR1a and GHSR1b may lead to novel strategies for CRC diagnosis, prognosis and treatment.

Keywords: Colorectal cancer, Ghrelin, GHSR1a, GHSR1b, Biomarker, Immunohistochemistry, RT-PCR

The dual impact of social media on intrapersonal skills in medical students: A thematic review of recent literature

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ABSTRACT

Introduction: Social media has become a central part of daily life, particularly among medical undergraduates who frequently use platforms like Facebook, YouTube, WhatsApp, and Twitter for communication, learning, and networking. While these platforms offer opportunities for academic and personal development, concerns have emerged regarding their influence on intrapersonal skills, such as self-awareness, emotional regulation, and creativity. This study aims to explore the relationship between social media usage and the development of intrapersonal skills in medical students. **Materials and Methods:** A literature review methodology was employed by drawing upon databases like PubMed and Google Scholar. The inclusion criteria focused on peer-reviewed, full-text articles published in English within the last ten years. From an initial pool of 17,800 entries, 24 relevant articles were selected. Thematic analysis was conducted through four steps: exploration of constructs, peer review, categorization of data, and conceptualization of a theoretical model. **Results:** Three key constructs were identified: (1) trends in social media usage, (2) frequency of use among medical undergraduates, and (3) the impact of social media on intrapersonal skills. Most medical students spend between 2 to 10+ hours daily on social media, with Facebook being the most preferred platform. Usage patterns vary by region and purpose, including personal communication, academic enrichment, and professional networking. These usage patterns have shown a complex relationship with intrapersonal skill development. On one hand, social media can enhance creativity, academic performance, internal motivation, and a sense of belonging. It also facilitates self-reflection and supports the development of communication skills, which are essential in medical education and practice. On the other hand, excessive use is associated with negative outcomes, such as internet and smartphone addiction, increased anxiety and depression, and exposure to misinformation. These adverse effects can hinder emotional regulation and impair decision-making abilities, both of which are critical for future healthcare professionals. Thus, the influence of social media on intrapersonal skills is multifaceted and shaped by how and how much it is used. **Conclusion:** Medical undergraduates spend significant time on social media, which has both positive and negative impacts on their intrapersonal development. While it fosters creativity, communication, and learning, overuse can lead to addiction, mental health challenges, and misinformation. This study highlights the importance of mindful social media engagement and recommends future research to use quantitative or qualitative methods to deepen the understanding of this relationship. However, this study is limited by its reliance on existing literature. Future research should incorporate empirical methods to validate and expand the findings. Medical undergraduates are encouraged to critically evaluate their social media usage, select platforms wisely, and remain aware of how their engagement may influence their personal and professional growth.

Keywords: Social media usage, intrapersonal skills, medical undergraduates, literature review

The silent endemic: Diagnostic challenges of asymptomatic smear negative paediatric pulmonary tuberculosis in non-citizen populations in Sabah

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ABSTRACT

Introduction: Smear negative pulmonary tuberculosis (PTB) in children poses a significant global health challenge due to diagnostic difficulties and under-reporting. Worldwide, children account for approximately 10% of PTB cases, with smear negative cases often predominant due to paucibacillary disease and challenges in obtaining sputum samples. In Sabah, Malaysia, where the incidence of PTB is relatively high at 128 cases per 100,000 population, individuals under the age of 15 comprise only 4.6% of reported cases. Notably, approximately 35% of these cases are classified as smear negative PTB. Limited access to advanced diagnostics, socioeconomic disparities, and high-risk settings contribute to underdiagnosis. Case Description: A 5-year-old non-Malaysian girl, with no significant past medical history or prior hospitalisations, presented to Klinik Kesihatan (KK) Tawau, Sabah, for contact tracing following her sister's diagnosis of PTB. Despite being asymptomatic for PTB, she presented with a notably absent BCG scar, though her parents claimed immunization at birth. Clinical examination revealed an active child with stable vital signs, clear lung fields, and no palpable cervical lymphadenopathy while her growth was maintained at the 50th centile. Laboratory investigations were largely unremarkable, apart from a high erythrocyte sedimentation rate (ESR) and a strongly positive Mantoux test, which was 15 mm induration. Chest radiograph demonstrated right perihilar haziness with lymph node enlargement. Following a multidisciplinary discussion between the TB team of KK Tawau, led by a Family Medicine Specialist and a Paediatric Infectious Disease physician, the case was diagnosed and managed as smear negative PTB, highlighting the challenges of paediatric TB diagnosis in endemic settings. **Discussion:** The presented case illustrates the formidable challenges in diagnosing and managing smear negative PTB in children. The paucibacillary nature of paediatric PTB, compounded by difficulties in obtaining diagnostic samples from young children, often results in asymptomatic or non-specific presentations, as seen in this 5-year-old. Her positive Mantoux test and suggestive chest X-ray findings were crucial, yet non-definitive, underscoring the reliance on a combination of clinical suspicion, contact history, and ancillary investigations. The absence of a BCG scar, despite reported immunization, highlights potential gaps in vaccination records, particularly relevant in mobile or non-citizen populations, which are frequently seen in Sabah. In resource-limited settings where advanced diagnostic tools may not be readily available, clinicians must depend on a combination of epidemiological risk, clinical suspicion, and radiological findings. Managing such cases requires a multidisciplinary approach and close monitoring, particularly among non-citizen children who may face barriers to healthcare access and continuity of care. **Conclusion:** The case underscores the inherent difficulty in diagnosing smear negative paediatric PTB, especially in settings with non-citizen populations in Sabah. Despite being asymptomatic, a strong contact history, positive Mantoux, and suggestive chest X-ray were pivotal. The multidisciplinary team's consensus was essential, as definitive microbiological confirmation is often elusive. This highlights the critical need for integrated clinical judgement, epidemiological links, and radiological evidence for timely diagnosis and management of childhood PTB in high-burden areas like Sabah.

Keywords: Pulmonary tuberculosis, smear negative, paediatric, Sabah

Unveiling gender differences in caffeine metabolism and its long-term cardiovascular and neurological impact

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ABSTRACT

Introduction: Caffeine is one of the most widely consumed psychoactive substances globally, commonly ingested through coffee, tea, soft drinks, and energy beverages. Its stimulant effects are primarily mediated through the antagonism of adenosine receptors, leading to increased alertness, focus, and sympathetic nervous system activation. However, growing evidence indicates that physiological and behavioural responses to caffeine vary significantly between genders due to differences in metabolism, hormonal influence, and body composition. Understanding these variations is critical for developing gender-sensitive recommendations for safe and effective caffeine consumption. **Materials and Methods:** This review employed a comprehensive literature search using databases such as PubMed, ScienceDirect, NCBI, and Google Scholar. Keywords used included "caffeine," "gender differences," "metabolism," "cardiovascular effects," "neurologic disorders," and "positive and negative effects." The selected studies were analysed to compare caffeine's metabolic pathways, physiological outcomes, and long-term health implications across genders. Special emphasis was placed on the role of enzymes such as CYP1A2, NAT2, and XO, and the influence of hormonal states like pregnancy and oral contraceptive use on caffeine metabolism. **Results:** Findings reveal that men generally exhibit higher CYP1A2 enzyme activity, resulting in faster caffeine metabolism and lower plasma caffeine levels. In contrast, women especially those who are pregnant or using oral contraceptives experience slower caffeine clearance due to reduced enzyme activity, increasing their susceptibility to caffeine's adverse effects. Gender also influences subjective and physiological responses as men report more positive effects such as increased alertness and vigour, whereas women are more prone to side effects such as anxiety, insomnia, and diuresis. Additionally, long-term caffeine consumption shows differential impacts on cardiovascular and neurological health. Men consuming over three cups of coffee per day demonstrated increased risk of myocardial infarction, while women showed potential protective effects, such as reduced coronary artery calcification. Neurologically, moderate caffeine intake was associated with a decreased risk of Alzheimer's and Parkinson's diseases, particularly among women. However, excessive caffeine consumption has been linked to increased white matter hyperintensities in older women, suggesting potential cerebral risk of stroke and dementia. **Conclusion:** Gender significantly affects caffeine metabolism, physiological effects, and long-term health outcomes. Men tend to metabolize caffeine more efficiently and tolerate its effects better, while women are more vulnerable to adverse outcomes, especially under hormonal influences. These differences underscore the need for personalized caffeine consumption guidelines based on gender, hormonal status, and individual sensitivity. Moderate intake, adjusted for body weight and personal tolerance, remains the safest approach. Further research is needed to refine sex-specific recommendations and minimize health risks associated with excessive caffeine use.

Keywords: Caffeine, gender differences, metabolism, cardiovascular health, neurological effects

Prevention of medicolegal issue in clinical practice

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ABSTRACT

Introduction: The Ministry of Health (MOH) is experiencing a rise in medico-legal litigation cases. The recent surge in large compensation amounts, reaching millions of ringgits, has placed a financial strain on the Government. Additionally, MOH healthcare providers are spending more time testifying in court proceedings, which interferes with their clinical responsibilities. **Materials and Methods:** A comprehensive narrative review was conducted using Google Search for general articles, Google Scholar for scholarly studies, and publications from Malaysian Ministry of Health (MOH) Medico-Legal team which is Guidelines on the Management Medico Litigation in Ministry of Health of Malaysia 2023 and Medicolegal eBulletin Vol.4 (2023), and 24 more literatures focusing on medico-legal issue and its preventive measures. **Results:** The most effective methods in preventing medicolegal issues include accurate and timely documentation and the use of standardized informed consent, both of which are essential in defending clinical decisions and reducing legal risk. These are followed by strict adherence to Clinical Practice Guidelines (CPGs) and Standard Operating Procedures (SOPs), which ensure consistency in care delivery, and effective communication with patients and families, which plays a crucial role in maintaining trust and transparency. Additional preventive strategies include continuous medicolegal education and training to enhance legal awareness among healthcare providers, as well as incident reporting and root cause analysis (RCA), which contribute to long-term risk management and system improvement. **Conclusion:** The increasing trend of medico-legal litigation within the Ministry of Health (MOH) does not only impose a significant financial burden but also disrupts the primary clinical duties of healthcare professionals. This review highlights the multifactorial nature of medico-legal issues, predominantly rooted in procedural and diagnostic errors, ethical concerns, and communication failures. However, these challenges are not insurmountable. Strengthening the medico-legal awareness among healthcare providers and fostering a culture of accountability and patient-centred care is essential in safeguarding both patient safety and institutional integrity.

Keywords: Malpractice, negligence, defensive medicine, jurisprudence

Dietary protein intake and its association with mental disorders in older adults: A scoping review

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ABSTRACT

Introduction: Mental disorders such as depression, anxiety, and neurocognitive disorders are increasingly prevalent among older adults, significantly affecting their quality of life and overall well-being. Recent evidence suggests that dietary factors, particularly protein intake, may play a role in mental health outcomes. However, the association between dietary protein intake and mental disorders in older adults remains underexplored. Therefore, this scoping review aims to examine the relationship between dietary protein intake and mental disorders among older adults, as well as to identify the specific protein sources associated. **Materials and Methods:** This scoping review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR). A comprehensive search was performed in three databases (PubMed, Scopus, and ProQuest Health) using predefined keywords and Boolean operators. The inclusion criteria for this review were human studies, all dietary protein intake, regardless of sources, individuals aged 60 years and older, and studies published in English. Studies were excluded if they were animal-based, involved children, adolescents, or paediatric populations, or adults aged 18-59. All study designs were considered, with no limitations on the year of publication. Additionally, a thematic analysis was performed to identify and synthesize key themes across the included studies. **Results:** A total of 2,144 records were identified through database searching. After removing 48 duplicate records using Mendeley, the title and abstract screening were carried out, resulting in the exclusion of 2,008 articles. The remaining studies were then assessed for eligibility by reviewing the full-text articles based on the established inclusion and exclusion criteria. Fourteen articles (n=14) were included in the final analysis. Nine studies reported significant negative association between dietary protein intake and mental disorders among older adults. Thematic analysis identified thirteen themes of protein sources: (1) fish; (2) seafood; (3) meat; (4) eggs; (5) dairy products; (6) plant-based; (7) vegetables; (8) beans; (9) soybeans; (10) nuts; (11) legumes; (12) protein supplements; and (13) unspecified. The thematic analysis highlights the significant role of protein sources with a lower risk of mental disorders, namely anxiety, Alzheimer's disease, cognitive impairment, cognitive decline and depression. Among these sources, seafood, soybeans and legumes stood out as the most consistently protective, especially in relation to cognitive decline. While other sources were also highlighted in some studies, the results were more inconsistent. Overall, the findings suggest that diets incorporating a variety of high-quality protein sources, may help protect against mental health disorders in the older adults' population. **Conclusion:** This review provides evidence on the potential relationship between higher dietary protein intake with lower incidence of mental disorders in older adults, while highlighting the importance of adequate and varied protein consumption. These findings can inform future research and dietary protein interventions aimed at improving mental health outcomes among the aging population.

Keywords: Dietary protein, mental disorders, older adults, neurocognitive disorders, protein sources

The impact of microplastics exposure on human fertility

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ABSTRACT

Introduction: Microplastics (MPs) are small plastic particles (<5mm) widely present in the environment and increasingly detected in human biological samples, including blood, placenta, and reproductive tissues. Due to their ability to act as carriers of toxic chemicals and their potential to disrupt human physiology, concerns have emerged regarding their effects on fertility and reproductive health. The objectives are to investigate the presence and accumulation of microplastics in reproductive tissues and fluids, to evaluate the effects of microplastics on hormonal regulation, particularly endocrine function and reproductive hormone levels and to explain the pathway of microplastics to human tissues. **Materials and Methods:** A scoping review approach was conducted using literature from scientific databases including PubMed, Google Scholar, Elsevier, and Scopus. Both observational and experimental studies were included to assess microplastics' presence in human tissues, toxicological profiles and reproductive outcomes. English open access articles reviewed over the last 10 years (2014-2024). Keywords used are Microplastics, Human Fertility, Reproductive toxicity, Endocrine disruption, Oxidative stress, Embryonic development. **Results:** Microplastics can enter the body through ingestion, inhalation, and dermal contact, and have been detected in critical biological sites such as blood, placenta, and reproductive tissues. Acting as carriers for endocrine-disrupting chemicals, they contribute to hormonal imbalances, oxidative stress, inflammation, and DNA damage. These mechanisms are linked to reduced sperm quality, impaired ovarian function, and disrupted embryonic development which are supported by animal and in vitro studies. Microplastics impair reproductive health by triggering oxidative stress, hormonal disruption, inflammation, and cell death in gonadal tissues, affecting both sperm and egg quality. These changes can also impact fetal development, leading to long-term fertility issues and potential transgenerational effects. **Conclusion:** This scoping review highlights the emerging threat of microplastics to human reproductive health. Although human clinical evidence remains limited, current findings from animal and in vitro studies strongly support the potential reproductive toxicity of microplastic exposure and emphasize the urgent need for further investigation and preventive action.

Keywords: Microplastic, reproductive health, hormone, endocrine-disruptors

Insight and impact of nutrition in the management of psoriatic disease: A path to a better outcome

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ABSTRACT

Introduction: Psoriasis is a chronic, immune-mediated inflammatory skin disease that affects between 0.09 and 11.43% of the global population. It is linked to both environmental and genetic causes and is frequently accompanied by coexisting illnesses such as psoriatic arthritis, obesity, metabolic syndrome, and cardiovascular disease. Recent research has focused on the importance of modifiable lifestyle factors, notably nutrition, in determining the progression and severity of psoriatic illness. Inflammation and oxidative stress are key factors in its pathophysiology, and dietary components can influence these processes through immune modulation, alterations in gut microbiota, and metabolic regulation. This review aims to evaluate the impact of specific dietary regimens and nutritional supplements on psoriasis, offering insights into potential integrative treatments for enhanced disease management. **Materials and Methods:** A literature review was conducted using electronic databases, including PubMed, ScienceDirect, Scopus, and Google Scholar. The keywords used were "psoriasis," "nutrition," "diet," "dietary intake," "inflammation," "severity," "management," and "outcomes." Peer-reviewed journal papers, clinical trials, and reviews published in English were considered. The research examined various dietary interventions and supplementation strategies, as well as their impact on psoriasis outcomes, specifically the Psoriasis Area and Severity Index (PASI). The Mediterranean diet, low-calorie ketogenic diets, and gluten-free diets were all evaluated. Additionally, specific nutrients such as vitamin D, omega-3 fatty acids, antioxidants, and polyphenols were explored. **Results:** The data imply that nutrition has a major impact on the aetiology and clinical severity of psoriasis. A low-calorie diet, particularly in overweight or obese patients, was linked to significant reductions in PASI scores and inflammatory markers. Very low-calorie ketogenic diets demonstrated further benefits by improving mitochondrial function and reducing oxidative stress. The Mediterranean diet, which includes anti-inflammatory foods such as olive oil, seafood, fruits, vegetables, and legumes, has been strongly associated with lower disease severity and reduced systemic inflammation. Gluten-free diets have been shown to be particularly effective in patients with psoriasis who have positive antigliadin antibodies or concurrent celiac disease. Nutritional supplements, such as vitamin D, omega-3 polyunsaturated fatty acids, and antioxidants (including vitamins A, C, and E, as well as selenium), have been shown to reduce inflammation and enhance immune function. However, the level of efficacy varied among individuals and was often influenced by underlying metabolic or immunological issues. **Conclusion:** Nutrition is a viable supplementary therapy for the overall management of psoriatic illness. Certain dietary patterns and supplements may help to reduce disease severity, improve immunological balance, and lower comorbid risks. Despite the optimistic findings, the majority of current research is based on observational or cross-sectional studies. Larger, well-designed randomized controlled trials are needed to validate causality and develop realistic dietary recommendations for individuals with psoriasis. Individualized dietary counselling should be considered as part of a multidisciplinary strategy to improve clinical results and quality of life in psoriasis patients.

Keywords: Psoriasis, nutrition, dietary intake, management, severity

“The dark side of sun avoidance”: Exploring Vitamin D deficiency in the era of photoprotection among the skin of colours — A review

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ABSTRACT

Introduction: The importance of photoprotective behaviours has become instilled among the society consistent with the increasing public knowledge regarding sun-induced skin damage. Although ultraviolet radiation (UVR) is infamously known for its sunburn, photoaging and malignant potentials, the skin undeniably also needs sunlight for the Vitamin D metabolism for bodily functions. The skin of color population (SOC) which naturally has increased protection against the sun making them more prone to having Vitamin D deficiency due to their slightly different skin from the lighter skin population. This scoping review aimed to explore the prevalence of photoprotective behaviours among SOC, their relevance and consequences on vitamin D metabolism. **Materials and Methods:** A scoping review was conducted across PubMed, Google Scholar and Scopus using predefined keywords. Eligible studies included those focusing on SOC populations, research that examined photoprotective behaviours and Vitamin D levels or metabolism and studies published in English or Bahasa Malaysia. The studies were excluded if they were to focus solely on lighter skin populations, articles that are not reporting outcomes related to Vitamin D, non-peer review studies and opinion pieces. **Results:** The review found that photoprotective behaviours are increasingly common among SOC population but may be influenced by culture, socioeconomic background, religion and geography. Common practices include sunscreen application, sun avoidance and wearing concealing clothing. However, sunscreen usage is still low among SOC population due to factors such as poor health literacy, misconceptions about sunburn risk and cosmetic concerns. Although photoprotection is effective in minimizing photoaging and pigmentary disorders among the SOC population, there is rising concern regarding lower serum Vitamin D levels following these behaviours. Melanin’s role as a natural barrier of skin may affect the effectiveness of photoprotection as it differs across skin phototypes as they have different degree of protection against the sun. This subsequently will impact the overall health status leading to various health problems. However, some studies suggest regular sunscreen use may not significantly impair the Vitamin D synthesis in healthy individuals of the SOC population. Still, this requires further research especially in Malaysia as a multiracial country with a population largely comprising of people of SOC with important consideration that they may have different photoprotection behaviour depending on their culture and religion for example Muslimah in Malaysia tend to wear protective clothing daily for religious reason. These issues need to be addressed properly as it may further impact vitamin D metabolism. **Conclusion:** This scoping review highlights the importance of balance between photoprotection and maintaining adequate sun exposure for Vitamin D metabolism especially among the SOC populations since they have different sunlight requirement compared to lighter skin phototypes. Hence, more education is needed with tailoring to the needs of their skin since there is limited research regarding this topic especially in multicultural countries like Malaysia in order to make sure they practice photoprotection without risking their overall health.

Keywords: Photoprotection, photoprotective behaviour, People of skin of colour (SOC), melanin, Vitamin D deficiency

A ghost in the neck: A case report

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ABSTRACT

Introduction: Lateral neck swelling is common in general population usually it could be from the salivary gland mass namely parotid or submandibular gland. It could also be from the lymphadenopathy surrounding these structures. However, in this case a rare finding was discovered. **Case description:** We report a case of a 12-year-old boy presented with right submandibular mass or swelling which increase in size over the past 4 weeks and associated with pain. Clinically it measures 2x2cm located at right lower cheek close to submandibular gland region. Excision biopsy was performed. The microscopic description showed multiple pieces of tissue, many are composed of basaloid cells that show abrupt keratinisation without granular layer into ghost cell. Other pieces show multinucleated giant cell of foreign body type reaction. The final diagnosis is Pilomatricoma. **Discussion and Conclusion:** Pilomatricoma is a benign skin tumour derived from the hair matrix. It is relatively uncommon and typically occur on the scalp, face and upper extremities. Although it rare to occur at the submandibular region medical professional should be alert and aware that once of the differential diagnosis for the subcutaneous lateral neck mass could be a ghost cell which is Pilomatricoma.

Keywords: lateral neck swelling, pilomatricoma, ghost cell

Blastocystis infection and gut microbiota composition in type 2 diabetic mellitus patients and non-diabetic individuals

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ABSTRACT

Introduction: The influence of anaerobic protozoan *Blastocystis* on human gut health is not well understood. While *Blastocystis spp*. frequently inhabiting the gut, their clinical importance remains ambiguous. Therefore, a study on Blastocystis was conducted to evaluate the prevalence of *Blastocystis* and its association with gut microbiota in T2DM patients and non-diabetic individuals. **Materials and Methods:** A total of 203 participants aged 18-65 years including T2DM patients and non-diabetic individuals were recruited in the study. *Blastocystis* subtypes were identified by Polymerase Chain Reaction (PCR) and faecal microbiome was accessed by targeting V4 region of the bacterial 16S ribosomal gene. **Results:** The prevalence of *Blastocystis* in T2DM was 25.49% and 17.82% in non-diabetic individuals, with the most prevalent subtype in the total population being ST3, followed by ST1 and ST2. The older age T2DM patients (45 years old and above) had a higher prevalence rate of *Blastocystis* infections (17%) than in younger age (less than 45 years old) (9%). The composition of gut microbiota was significantly different between *Blastocystis*-positive and Blastocystis-negative groups. *Blastocystis* infection was positively associated with higher alpha diversity in T2DM patients and non-diabetic individuals. Interestingly, at the phylum level, the T2DM group had an obvious increase of Bacteroidetes and a marked increase of Actinobacteria with the presence of *Blastocystis*. **Conclusion:** The findings suggested that the presence of Blastocystis was linked to increased diversity and richness in the gut bacterial composition, signifying a potentially beneficial association between Blastocystis and the gut microbiota.

Keywords: *Blastocystis*, gut microbiota, type 2 diabetes mellitus

Sustaining healthy aging: A comparative analysis of influenza vaccination programs in Southeast Asia and lessons for Malaysia's 2025 initiative

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ABSTRACT

Introduction: Influenza poses a significant public health threat in Southeast Asia, with older adults facing a heightened risk of severe complications, hospitalization, and mortality. As the region's population ages, prioritizing preventive healthcare through vaccination is becoming increasingly crucial. In a landmark move toward supporting healthy aging, Malaysia launched a free influenza vaccination program in 2025 for high-risk individuals aged 60 and above. This study conducts a comparative review of influenza vaccination programs across six Southeast Asian nations — Singapore, Brunei, Thailand, Vietnam, Myanmar, and Malaysia — to identify key progress, challenges, and actionable strategies that can inform and strengthen Malaysia's new initiative. **Materials and Methods:** We conducted a comprehensive analysis of national health data, World Health Organization (WHO) regional reports, and scientific studies published between 2015 and 2025. The review focused on several key metrics: eligibility criteria, funding mechanisms, and delivery systems. We also evaluated vaccination coverage rates among older adults and healthcare workers, and the integration of these programs into broader healthy aging frameworks. This comparative approach allowed us to identify best practices and common pitfalls, providing a robust foundation for drawing lessons applicable to Malaysia's program. **Results:** Our findings reveal a wide disparity in vaccination uptake throughout the region. Singapore stands out as a model of success, with a high vaccination rate (over 70% for healthcare workers and an increasing trend for older adults) driven by subsidies and seamless integration into primary care. In contrast, Brunei shows moderate elderly coverage (estimated to be between 50-65%), but its progress is hampered by limited national data reporting. Thailand's Universal Coverage Scheme has achieved a moderate uptake of influenza vaccines among older adults, though rural outreach remains a persistent challenge. Vietnam and Myanmar represent the lower end of the spectrum. Vietnam's coverage remains below 20%, largely due to a fragmented system that relies on campaign-based efforts. Myanmar has the lowest rates, with access primarily confined to urban private services, and a severe lack of a national policy. Prior to its new initiative, Malaysia's vaccination rates were historically low (less than 15%) due to significant cost barriers. The new 2025 program aims to dramatically increase coverage for the elderly, but it faces potential hurdles in public awareness, logistical distribution, and ensuring equitable access. **Conclusion:** Malaysia's free influenza vaccination program is a transformative step toward safeguarding its aging population. However, financial accessibility alone will not guarantee success. The experiences of its neighbors offer valuable lessons: embedding vaccination within the existing primary care system, as seen in Singapore, is critical for sustainable uptake. Thailand's example highlights the need for robust rural outreach, while Brunei's model underscores the importance of consistent government support and data collection. The failures of fragmented systems in Vietnam and Myanmar serve as a cautionary tale. To achieve its ambitious targets, Malaysia must prioritize sustained public education, establish efficient and equitable distribution channels, and fully integrate the program into its existing healthy aging policies. By learning from its regional counterparts, Malaysia can build a resilient and effective vaccination program, positioning itself as a leader in preventive healthcare for an aging society.

Keywords: Influenza, vaccine, Southeast Asia, Malaysia, healthy aging

Analysis of linear parameters measured from digitized landmarks reveal sexual dimorphism of clavicle in Malaysian population

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ABSTRACT

Introduction: The clavicle is amongst the postcranial bones that can be utilized for identification of unknown skeletal remains as it is sexually dimorphic. The accuracy and reliability of the identification process is population-specific, which leads to the need for the development of regional databases. To overcome the limited bone collections of the Malaysian population, virtual anthropology utilizes three-dimensional (3D) computed tomography (CT) models to visualize skeletal components. Previous morphometric studies on the clavicle analyse linear parameters measured directly on the bone. In this study, we aim to elicit sexual dimorphism of the clavicle bone by analysis of linear parameters obtained from landmarks applied on 3D clavicular models and to determine its classification accuracy. **Materials and Methods:** A total of 140 CT thorax of 70 males and 70 females, aged between 20 to 74 years were sampled from the Malaysian population. Nine landmarks were digitized on the clavicular models. Based on the landmarks, five linear parameters were measured which include clavicular length (CL), acromial end length (AL), acromial end height (AH), sternal end length (SL), and sternal end height (SH). Data were analysed using independent T-test and discriminant function analysis (DFA). **Results:** There were significant sex differences in all parameters of the clavicle ($p<0.05$), except for acromial end height ($p=0.08$). Subsequent univariate DFA of the significant parameters revealed classification accuracy between 60.7% (SL) to 90.7% (CL). Multivariate DFA revealed classification accuracy between 65.7% to 91.4%, while stepwise analysis showed 91.4% accuracy. **Conclusion:** Sexual dimorphism of the clavicle can be elicited from analysis of linear measurements obtained from landmarks applied on the clavicular surface. This novel approach provides an alternative method for obtaining linear parameters on skeletal bodies with high accuracy for sex classification.

Keywords: Virtual anthropology, sex estimation, clavicle

Comparative analysis of immune aging and susceptibility to tropical infections in the elderly: Insights from Malaysia and regional counterparts

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ABSTRACT

Introduction: Southeast Asia's aging population is increasingly vulnerable to tropical infections due to immune aging processes such as immunosenescence and inflammaging. Malaysia, in particular, faces rising rates of dengue, leptospirosis, tuberculosis, and pneumonia among individuals aged 60 and above. **Materials and Methods:** This comparative analysis synthesizes epidemiological data from Malaysia and regional counterparts including Thailand, Vietnam, Indonesia, and Singapore. It integrates findings from national health surveys, ministry reports, and peer-reviewed immunological studies to assess disease burden and immune aging markers. **Results:** In Malaysia, dengue case fatality rates among the elderly reached 1.8% in 2023, compared to a national average of 0.3%. Leptospirosis incidence was 35.2 per 100,000 with a 12.5% mortality rate, and tuberculosis affected 30% of individuals over 60. Pneumonia accounted for 15.2% of medically certified deaths in 2023. Regional comparisons show Thailand's integrated elder care reduces dengue mortality below 1%, while Singapore maintains a dengue fatality rate under 0.1% due to targeted interventions. Immunological findings across the region reveal consistent patterns of T-cell senescence, elevated IL-6 and TNF-α levels, and reduced vaccine responsiveness. **Conclusion:** The study highlights the urgent need for age-specific public health strategies, improved diagnostic access, and regional collaboration to mitigate the impact of tropical infections on aging populations in Southeast Asia.

Keywords: Aging, immunosenescence, inflammaging, dengue, leptospirosis, tuberculosis

Effectiveness of intravascular lithotripsy for calcified coronary artery disease: A systematic review

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ABSTRACT

Introduction: Coronary artery calcification (CAC) is commonly encountered in patients with coronary artery disease (CAD) and poses significant challenges during percutaneous coronary interventions (PCI). Heavily calcified lesions are associated with complications such as vessel perforation, restenosis, and stent thrombosis. Intravascular lithotripsy (IVL) is a newer modality that uses pulsatile acoustic pressure waves to fracture calcified plaque, improving vessel compliance and enabling optimal stent deployment. This systematic review was conducted to evaluate the clinical effectiveness, safety, and cost-effectiveness of IVL for the treatment of calcified CAD. **Materials and Methods:** A systematic search was conducted using MEDLINE® (via Ovid), EBM Reviews, PubMed, US FDA, and INAHTA databases. Bibliographies of relevant articles were also manually searched. Only studies involving human subjects were included, with no language restrictions. The most recent search was performed on August 26, 2024. Eighteen studies meeting the inclusion criteria were included and assessed for study quality and critically appraised. **Results:** IVL demonstrated high clinical success rates in treating calcified coronary lesions, with two meta-analyses reporting success between 93% and 94.4%, defined as residual stenosis <50% post-stent and absence of in-hospital major adverse cardiovascular events (MACE). Procedural success ranged from 78.2% to 100%, and device success from 93.7% to 100%, with consistent definitions across studies involving residual stenosis <30% and TIMI III flow. Safety outcomes were favourable, with MACE rates reported between 2% and 8% at 30 days, and up to 12.6% in extended follow-up. Myocardial infarction (MI) rates were low (1%–5%), and overall mortality was reported at approximately 2%. No significant differences were observed between IVL and rotational atherectomy (RA) in terms of adverse outcomes. Complications such as coronary dissection, stent thrombosis, or perforation were rare. IVL received regulatory approval from the US FDA, CE mark in Europe, and registration with the Malaysian Medical Device Authority. Economically, one study indicated potential cost savings of £398 per PCI when using IVL compared to RA, due to reduced use of consumables. **Conclusion:** There is robust evidence supporting the effectiveness and safety of IVL in treating calcified CAD. The procedure shows high success rates, a favourable safety profile, and potential long-term cost benefits. IVL represents a promising and practical option for complex coronary interventions, particularly in heavily calcified lesions.

Keywords: Intravascular Lithotripsy, coronary artery disease, coronary calcification

Ancestry estimation: Analysis of os coxae form using virtual models

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ABSTRACT

Introduction: Ancestry estimation is a key component in biological profiling of unknown skeletal remains within forensic anthropology and bioarcheology. The os coxae, a component of the pelvic complex, has long been recognised for its diagnostic value due to its complex morphology and sexually dimorphic features. Ancestry estimation using the os coxae is well-justified, as its shape is influenced by population-specific evolutionary pressures that vary across ancestral groups. **Materials and Methods:** A total of 402 virtual os coxae models were reconstructed from multislice computed tomography (CT) scans. The form of the os coxae was captured using twenty-five anatomical landmarks, which was then analysed using a size-preserving geometric morphometric approach and principal component analysis (PCA). Multivariate analysis of variance (MANOVA) was employed to assess statistically significant differences in form between the ancestral groups (Malay, Chinese and Indian). Discriminant function analysis (DFA) was used to classify the os coxae models by ancestry and to determine cross-validated classification accuracy. **Results:** The PCA generated 69 principal components (PCs), each representing distinct aspects of morphological variation within the study sample. The first four principal components accounted for over 53% of the total form variance, with the first PC alone explaining approximately 25%. MANOVA revealed a statistically significant difference in os coxae form among the ancestral groups ($F = 10.161$, $p < 0.001$; Wilks' Lambda = 0.103; partial $\eta^2 = 0.68$). Ancestry was correctly classified in 83.6% of os coxae models within the study sample based on form DFA. The classification accuracy varies across the ancestral groups: Malay – 81.3%, Chinese – 91.8% and Indian – 77.6%. **Conclusion:** The findings demonstrate that geometric morphometric analysis offers a statistically robust approach for capturing and comparing morphological variation in the os coxae relevant to ancestry estimation in forensic and anthropological contexts. Although the skull is conventionally used for ancestry estimation, it is not always available or intact. In such cases, the os coxae serves as a reliable alternative or complementary element, particularly when dealing with fragmented or incomplete skeletal remains.

Keywords: Ancestry estimation, Geometric morphometrics, Os coxae, Pelvis, Forensic Anthropology

Maternal cholesterol levels and autism spectrum disorder of the children: Exploring metabolic links and implications

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ABSTRACT

Introduction: While genetic predisposition plays a major role in ASD aetiology, recent research highlights the significance of prenatal environmental influences, which include maternal nutrition. Maternal cholesterol contributes to the fetal cholesterol pool, and deficiency can disrupt these critical developmental pathways. Cholesterol is crucial for many brain developmental processes and is an essential substance in the development of the fetal brain, yet its role in ASD pathogenesis remains unclear. It was suggested that cholesterol plays a critical role in synaptic plasticity and neuronal development, which are key processes in ASD pathogenesis. Alterations in lipid metabolism, particularly in the production and regulation of cholesterol, may contribute to neuroinflammation, oxidative stress, and abnormal neuronal connectivity, all of which are implicated in the development of ASD. **Materials and Methods:** A literature search was conducted using selected databases such as Scopus, PubMed and Google Scholar using the keywords 'autism spectrum disorder', 'cholesterol', 'neurodevelopment', 'prenatal or maternal nutrition' and 'lipid metabolism'. **Results:** Maternal cholesterol levels were found to have significant implications on ASD. Studies showed that both pathologically low and excessively high maternal cholesterol levels have been associated with adverse neurodevelopmental consequences, including increased ASD risk. Low maternal plasma cholesterol concentrations, particularly low LDL were associated with a 35% increased risk of ASD in their children even with a small reduction of the LDL. This association was more obvious among overweight and obese mothers, which suggested that maternal BMI may interact with lipid levels to influence the risk of ASD in newborns. Studies also found that low maternal HDL was associated with an increased risk of ASD, particularly in male offspring. It highlights the complex interplay between maternal lipid metabolism and amino acid profiles in influencing risk of ASD. Also, mothers with lipid abnormalities were found to be 16% more likely to have a child with autism than mothers without such abnormalities, therefore highlighting a potential familial link between maternal lipid profiles and ASD risk. Animal studies suggested that maternal dietary fat intake during critical developmental periods can lead to molecular changes in the brain that are relevant to ASD. Genetic disorders that impact cholesterol metabolism, such as Smith-Lemli-Opitz Syndrome (SLOS), have been associated with ASD. SLOS is defined by mutations in the DHCR7 gene, which results in the disruption of cholesterol biosynthesis, and there is a notable prevalence of ASD among those affected. This association highlights the essential role of cholesterol in neurodevelopment, and disturbances in their biochemical pathways may play a part in the pathogenesis of ASD. **Conclusion:** The findings suggest that both insufficient and excessive cholesterol levels in mothers and genetic defects in cholesterol metabolism can affect the likelihood of ASD in their children. Maintaining optimal cholesterol levels through a well-balanced diet and regular monitoring could be an effective approach to support fetal neurodevelopment and potentially lower the risk of ASD. Varying levels of dietary cholesterol intake among Malaysians due to cultural and socioeconomic factors not only influence maternal health but also the neurodevelopmental outcomes in offspring, with potential implications for disorders such as ASD.

Keywords: Maternal cholesterol, autism, children, metabolic

Innovations in corrective lens materials and their impact on visual performance

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ABSTRACT

Introduction: Advancements in ophthalmic corrective lens materials have transformed visual correction by enhancing user clarity, comfort, and adaptability. Newer materials such as high-index, polycarbonate, trivex, photochromic, and blue-light filtering lenses offer multiple benefits, including lighter weight and greater resistance. However, their specific impact on visual performance requires further evaluation. Owing to the lack of clarity regarding the visual performance on these newer lens materials, we conducted a review to identify the visual performance, particularly visual acuity, contrast sensitivity, wavefront, and chromatic aberrations. **Materials and Methods:** A systematic search was conducted on relevant articles published using PubMed, ScienceDirect, Scopus, and Google Scholar. Studies on different lens materials and different outcomes on visual performance were targeted. Only original studies with published data were included. **Results:** A total of 16 studies were included in this review. Among the newer lens materials, high-index lenses offer a thinner profile but may reduce contrast and increase chromatic aberration at higher indices. Polycarbonate lenses are lightweight and impact-resistant, making them suitable for children and sports use, though their low Abbe value contributes to higher chromatic and wavefront aberrations. Trivex lenses provide a balanced profile with excellent visual clarity, reduced chromatic aberrations, and high impact resistance, making them ideal for users requiring both durability and optical performance. Photochromic lenses improve contrast and reduce glare in dynamic lighting but may cause temporary visual distortions during transitions. Blue light-filtering lenses are effective in reducing glare and enhancing contrast in low-light settings, though they show minimal effect on visual acuity and may subtly affect colour perception. A comparative analysis showed Trivex lenses offered the best balance between visual acuity, contrast sensitivity, and minimal aberrations, while high-index and polycarbonate lenses demonstrated trade-offs between clarity and lens thickness or durability. **Conclusion:** This review identified multiple newer lens materials and their impact to visual performance. While no single material is optimal for all users, Trivex lenses stand out for their combination of clarity, safety, and comfort. Eventually, personalized lens selection, guided by visual demands and clinical evidence, remains essential to optimize both vision quality and user satisfaction.

Keywords: Corrective lens material, Visual Performance, Trivex Lens

Exploring the psychosocial dimensions of glasses use among school-aged children with refractive errors

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ABSTRACT

Introduction: Refractive errors are one of the leading causes of visual impairment in children and, if left uncorrected, can significantly impact educational outcomes, social development, and quality of life. In Malaysia, the burden is disproportionately higher among children from low-income (B40) families due to financial, logistical, and awareness-related barriers. While previous studies highlighted the prevalence and financial burdens associated with refractive errors, less is known about the psychosocial dimensions influencing spectacle use. This study aims to explore the lived experiences of school-aged children who wear corrective eyewear. **Materials and Methods:** A qualitative approach was employed involving 23 school children aged 7–12 from B40 households in Seremban, Negeri Sembilan. These children received spectacles following a school-based vision screening program. Semi-structured interviews were conducted using child-friendly questions to explore emotional responses, peer and family influence, and daily usage challenges. Thematic analysis was applied to the transcribed data to identify patterns and core themes. **Results:** Five major themes emerged: (1) Visual and academic improvement — children reported clearer vision and better engagement in class; (2) Initial resistance — some experienced discomfort and shyness; (3) Parental and peer influence — encouragement boosted consistent use, while disapproval led to discontinuation; (4) Emotional adjustment — a mix of growing confidence and lingering self-consciousness; and (5) Practical barriers — issues such as broken or misplaced glasses. These findings reveal that while spectacles offer clear educational benefits, their consistent use depends on social support and emotional acceptance. **Conclusion:** Glasses significantly improve vision and learning potential for children with refractive errors. However, psychosocial factors such as self-image, family dynamics, and peer interactions influence long-term use. Holistic interventions involving vision education, ongoing support, and accessibility must be integrated into school health programs to ensure sustained impact.

Keywords: Refractive error, school children, corrective eyewear, psychosocial adaptation, vision care

Complementary and alternative medicine on the treatment of otitis media

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ABSTRACT

Introduction: Otitis media is defined as inflammation of the middle ear which extends from the tympanic membrane up until the lateral wall of the inner ear. It was recognized as one of the major contributors to hearing loss, particularly among children under the age of five and individuals living in developing countries. Complementary and alternative medicine (CAM) becoming more popular in the community. Hence, this review aimed to study the benefits and adverse effects of CAM treatment, focusing on homeopathy, acupuncture, herbal medicine, supplement vitamin D, and probiotics. **Materials and Methods:** A scoping review was conducted from English scientific databases, including PubMed, Google Scholar, and Science Direct. Out of 32 papers found, only 16 papers that met the inclusion and exclusion criteria were included. This consists of all populations diagnosed with otitis media that were treated with complementary and alternative medicine published within 15 years. Other ear-related diseases and studies that did not involve CAM therapy were excluded. **Results:** A systemic review on 9 studies for homeopathy revealed symptom improvement, which led to a reduction in incidents of middle ear effusion together with a reduction in antibiotic use. It is also generally safe even for immunocompromised patients, apart from allergic reactions to the ingredients of the herbs used. There were no herb-drug or drug-drug interactions. Acupuncture showed significant enhancement in treatment when combined with antibiotics. However, there was no study for the outcome of acupuncture alone. Seven randomized clinical trials of herbal medicine showed good outcomes when combined with antibiotics. It shortened the initial recovery time and reduced complications such as effusion. Mild side effects such as headache, nausea, and vomiting have been reported. Probiotic supplements specifically with the variant S. salivarius are widely discussed recently but show no significant effect. A systematic review on the effects of vitamin D supplements highlighted its benefits on reducing ear discharge and rate of recurrence with no specific adverse effects. **Conclusion:** CAM in the treatment of otitis media offers potential in enhancing treatment outcomes. It showed promising results when combined with pharmacology and also can reduce the use of antibiotics in certain cases. However, further high-quality, large-scale studies are essential to establish the clinical efficacy, optimal dosing, safety profiles, and long-term benefits of these interventions.

Keywords: Otitis media, complementary therapies, herbal medicine, adverse effects

Beyond refractive error: A sibling case of chorioretinal coloboma mimicking astigmatism

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ABSTRACT

Introduction: Chorioretinal coloboma is one of the rare congenital ocular malformations that result from defective closure of the embryonic fissure during the early weeks of gestation. The condition may cause visual problems, depending on the location of the tumour and its size, with possible complications such as retinal detachment or choroidal neovascularisation. The disease is usually diagnosed at an early age even if visual impairment is severe, but cases are sometimes only detected when it is too late and the child has already attended school, for instance, presenting as refractive errors. In addition, familial cases have rarely been reported, and siblings presenting with high astigmatism have not been described. **Case description:** Two siblings presented to the ophthalmology clinic with complaints of blurred vision and high cylindrical refractive errors. The first case, a 9-year-old girl, had anisometropia with a cylindrical refractive error of –4.00 dioptres (D) in the left eye and –0.50 D in the right. Her 14-year-old brother had –5.00 D in the right eye and –0.50 D in the left. Both had normal anterior segment findings. Fundoscopic examination revealed inferonasal chorioretinal colobomas in both siblings. The brother's left eye also demonstrated optic disc and macular involvement, with sharply demarcated areas of absent retina and choroid, exposing underlying sclera. Optical coherence tomography confirmed deep excavation corresponding to the coloboma margins. No systemic abnormalities were present in either patient, and there was no family history of ocular disease. Both patients were prescribed corrective lenses and scheduled for routine follow-up to assess visual function and identify any complications. **Discussion:** These cases illustrate that chorioretinal coloboma can present with high astigmatism due to irregular retinal structure, rather than corneal deformity alone. The bilateral findings in siblings raise the possibility of an underlying genetic predisposition, we suggest that genetic counselling and screening of at-risk relatives should be done. Children with high astigmatism and anisometropia are at a substantially increased risk of developing amblyopia; therefore, early screening and timely refractive correction are essential to optimise visual outcomes. Moreover, the lifelong risk of retinal detachment in patients with coloboma emphasizes the importance of patient and parent education regarding alarm symptoms, including sudden vision loss, flashes, or floaters. The findings in this and similar cases support fundus examination as part of the ocular workup whenever a child presents with significant unequal or bilateral refractive errors. **Conclusion:** Chorioretinal coloboma may sometimes present in children as high or asymmetric astigmatism, without other obvious ocular and systemic signs. It is important to consider this condition, particularly in cases of unusual refractions within the paediatric population. Early detection promotes timely referrals for refractive correction and reduces the likelihood of amblyopia, while also aiding in the identification of potential sight-threatening issues, such as retinal detachment. Even in the absence of familial occurrences, genetic counselling and screening of relatives can be beneficial for planning clinical interventions and ensuring long-term monitoring.

Keywords: Chorioretinal Coloboma, astigmatism, anisometropia, Pediatric Ophthalmology

Sarcopenia in perimenopause: The untold story of muscle loss and pain

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ABSTRACT

Introduction: Perimenopause; the transition phase leading up to menopause is a critical window in a woman's life marked by fluctuating oestrogen levels and hormonal shifts that accelerate a cascade of physical, metabolic and emotional changes. Among these, musculoskeletal (MSK) symptoms such as joint pain, muscle weakness, and reduced physical function are highly prevalent, affecting over 70% of women with 25% experiencing functional disability. Central to this is sarcopenia: the progressive loss of skeletal muscle mass, strength and function. Evidence shows that oestrogen decline triggers early sarcopenic changes. Despite this, muscle health is rarely addressed in midlife women and sarcopenia is seldom diagnosed at this stage. This missed opportunity delays early interventions that could significantly improve long-term quality of life. **Materials and Methods:** A comprehensive literature search was conducted across Scopus, ScienceDirect, and Web of Science databases, focusing on studies from 2000 to 2025. Search strings targeted the association between sarcopenia or muscle loss and musculoskeletal pain among perimenopausal or midlife women. Keywords used included: "sarcopenia", "muscle loss", "muscle weakness", "musculoskeletal pain", "joint pain", "back pain", "perimenopause", "midlife women", and "menopausal transition". Animal studies and postmenopausal-specific research were excluded. Boolean operators and database-specific syntax were applied to refine results. This narrative review aimed to synthesize current evidence, highlight research gaps and identify opportunities for early intervention. **Results:** Oestrogen decline during perimenopause reduces muscle protein synthesis, increases intramuscular fat infiltration, and elevates pro-inflammatory cytokines, accelerating early muscle deterioration. MSK symptoms often manifesting as joint stiffness, back pain or fatigue is frequently misattributed to aging or other conditions, resulting in underdiagnosis of early sarcopenia. This neglect impacts women's functional capacity, work performance, mental well-being, and quality of life. With regards to Malaysian population, literature remains sparse with most local studies focused on postmenopausal groups. Hence, there is an urgent need to establish a longitudinal cohort study tracking women from age 40 which represent Malaysia's multiethnic population. Current gaps include the limited integration of muscle strength and pain measures; most studies evaluate strength alone, overlooking musculoskeletal pain that substantially impacts function and mobility in perimenopausal women. Biomarkers data across menopausal stages also remain limited, restricting insight into the biological mechanisms of sarcopenia during the transition. In addition, there is a lack of perimenopause-specific interventions, such as nutritional and resistance training trials. Furthermore, awareness and screening protocols among healthcare providers remain insufficient. Our review highlights the importance of bridging these gaps through culturally relevant research, interventional studies and preventive health strategies tailored to midlife Malaysian women. **Conclusion:** Perimenopause represents a critical yet under-recognized period for detecting and addressing sarcopenia. Promoting muscle health in this window is essential for reducing long-term disability and dependency. Early screening, culturally adapted interventions, and raising awareness among women and healthcare providers are needed to shift the paradigm towards healthy ageing for Malaysian women.

Keywords: Perimenopause, sarcopenia, musculoskeletal pain, muscle weakness, ageing

Health issues in geriatric LGBTQ: A review

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ABSTRACT

Introduction: The geriatric LGBTQ is an under-researched group in geriatric care. Although they face unique and compounded challenges due to the intersectionality of age-related issues, sexual and psychological issues, with poor support, there is no reference for healthcare personnel. This review aims to identify the medical conditions and the barriers to healthcare among elderly LGBTQ individuals. **Materials and Methods:** Literature search was conducted using databases including PubMed, Scopus, CINAHL and PsycINFO for articles published between 2010 and 2025. Keywords included were 'geriatric LGBTQ,' 'ageing sexual minorities,' 'elderly transgender health,' 'LGBTQ chronic diseases,' 'elderly LGBTQ health barriers,' and 'LGBTQ health disparities.' Studies were selected based on relevance and the population studied. **Results:** Five important health conditions and eight barriers were identified. However, five barriers are due to patients' factors, and another three are due to healthcare personnel factors. For the health conditions: (1) Studies have consistently shown that older LGBTQ individuals have higher rates of chronic conditions, frequently related to long-standing psychosocial stress, poor lifestyle, and limited access to continuous care. (2) Lesbian and bisexual women report higher rates of obesity and metabolic syndrome due to ageing, leading to undiagnosed chronic diseases like diabetes, hypertension, which eventually result in cardio and cerebrovascular complications. (3) Gay and bisexual men face an elevated burden of HIV-related comorbidities and cardiovascular complications. (4) There are higher rates of depression due to psychosocial issues, like being single and poor family support. (5) Some LGBTQ suffer from hormone therapy-related complications, misdiagnosis or medical neglect. The barriers experienced by the patients are (1) Their fear of seeking healthcare stems from previous negative encounters with healthcare personnel. (2) The dual health burden of ageism and LGBTQ is complex for them to understand as a patient. (3) The LGBTQ related stigma often contributes to mental health deterioration, related to cognitive decline and suicide risk. (4) Unsupported ageing issues cause them to default to medical follow-up and have poor self-care. (5) Financial issues cause limited access to continuous medical care. Whilst barriers due to healthcare personnel are: (1) Healthcare personnel lack training in LGBTQ issues, resulting in a poor understanding of the group's health complexity. (2) Healthcare personnel fail to integrate gender identity issues, sexual orientation into geriatric risk assessments. (3) Healthcare personnel's poor acceptance, with poor communication skills, causes poor relationships and failed patient care. These barriers can be alarming if not intervened as the geriatric LGBTQ is a growing population. Chronic diseases, like diabetes mellitus, AIDS, and neurodegenerative disorders like Alzheimer's, require long-term care to prevent complications and provide a quality life. Therefore, an integrated health support systems tailored to aging LGBTQ is essential. **Conclusion:** The Geriatric LGBTQ population requires urgent yet guided targeted interventions. Therefore, identifying their health issues, improving provider education with a reiteration of training is vital. Development of guidelines for the management of geriatric LGBTQ, encompassing culturally competent geriatric care models, inclusive of holistic healthcare design for LGBTQ issues, is imperative. Future research should focus on longitudinal health outcomes for a more improved quality care.

Keywords: Elderly, chronic diseases, transgender, bisexual, queer, homosexual

Is there a potential for the growth of organoids with 3D bioprinting in mimicking human organs?

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ABSTRACT

Introduction: Organoids are small, 3D structures grown from stem cells that mimic the function and structure of real organs, like the brain, liver, or intestine. These mini-organs are created in a lab by providing stem cells with the right conditions to develop and organise into tissues that resemble those in the human body to closely imitate real organs. However, the potential of the growth of organoids with 3D Bioprinting in mimicking human organs as an innovative approach in tissue engineering and regenerative medicine is still in question. Hence, this literature review is conducted to shed light on this possible potential. **Materials and Methods:** Literature reviews on journals and articles published between 2014 to 2019 from the electronic databases like Science Direct, Cell Press, Nature, IOPScience, Google Scholar, and ResearchGate were reviewed. Keywords used were "cells", "organs", "organoids", "3D bioprinting", and "human organs". **Results:** Lab-grown organ models derived from stem cells offer a platform for disease modelling and drug testing. However, limitations such as a lack of vascularisation and structural complexity hinder their full potential in creating fully functional and complex organs. Therefore, 3D bioprinting is designed to mimic human organs and is called organoid miniatures. The 3D bioprinting addresses the challenges by enabling the precise, layer-by-layer fabrication of complex tissues using bio-inks composed of living cells and biomaterials. Thus, the process of using 3D printing technology will create three-dimensional, functional structures that replicate human organs or tissues. Notwithstanding, this technique allows for the creation of more functional and physiologically relevant organ models, opening new avenues for personalised medicine, drug development, and potentially organ replacement. Cells in the printed organs need to remain healthy and able to communicate with each other. However, this is not always guaranteed, as the technology is still in development. There is a risk that bioprinted tissues may not survive or function appropriately in the long run. There are also ethical and social implications of this technology, particularly when it involves embryo formation. Moreover, the high cost of 3D bioprinting technology could limit access, benefiting only wealthy individuals or institutions. There are also concerns that the 3D bioprinting might be used for non-medical purposes, such as creating organ replicates. In the Muslim countries, the Islamic perspectives are also not well discussed. **Conclusion:** The use of 3D bioprinted organoids presents a promising future for a range of applications, including disease modelling, drug development, and organ replacement therapies. However, addressing the safety and ethical issues is crucial on top of the challenges in creating a viable, functional, and physiologically relevant organ model.

Keywords: Organoids, cells, 3D bioprinting, human organs, biotechnology

Platelet function associated with human coronavirus (HCoV-229E): A preliminary study

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ABSTRACT

Introduction: Thrombotic complications are well recognized in coronavirus infections, especially in SARS-CoV-2 infection heralding to coagulopathy and vascular events. Although SARS-CoV-2 has been extensively investigated, the extent of its mechanism remains poorly defined. HCoV-229E, a cause of seasonal respiratory illness, may similarly perturb platelet responses. This study aimed to investigate the effect of coronavirus exposure on platelet aggregation and adhesion to better understand virus-induced thrombotic risk. **Materials and Methods:** Platelet-rich plasma (PRP) and platelet-poor plasma (PPP) from healthy volunteers were prepared by centrifugation, with platelet counts confirmed within the normal physiological range (150–400 × 10^9/L). Platelet aggregation was assessed using modified light transmission aggregometry (LTA) in 96-well plate in response to ADP (0.1-30 µM), collagen (0.1-30 µg/ml), TRAP-6 (0.1-30 µM), and epinephrine (0.001-100 µM). PRP was incubated with HCoV-229E at multiplicities of infection (MOI) 0.1 or 1.0 for 30 minutes, with virus-free PRP serving as control. Following aggregation, platelet adhesion was evaluated using a p-nitrophenyl phosphate hydrolysis assay at 405 nm. Each experiment was performed in triplicate with samples from at least three independent donors. Statistical comparisons were performed using unpaired t-tests, with $p < 0.05$ considered significant. **Results:** At MOI 0.1, platelets exhibited enhanced aggregation responses, particularly to ADP and collagen at 1–10 µM ($p < 0.05$). Similar trend was observed in platelet adhesion assays in collagen-induced adhesion with slight increases observed with ADP, TRAP-6, and epinephrine. In contrast, MOI 1.0 exposure potentiate platelet aggregation and adhesion at low agonist concentrations ($p < 0.01$), but significant attenuation of maximal responses at higher doses ($p < 0.05$). This attenuation was evident in reduced aggregation amplitudes and suppressed adhesion across all agonists, indicating impaired platelet responsiveness under higher viral load. Overall, HCoV-229E shifted platelet responsiveness towards a dysregulated state, characterized by hyperreactivity at lower thresholds and impaired function at higher stimulation. **Conclusion:** HCoV-229E modulates platelet function in a viral concentration–dependent manner, enhancing platelet aggregation and adhesion at low exposure while inhibiting at higher exposure. Our findings suggested initial viral response promotes platelet hyperreactivity, but high-level viral exposure leads to functional platelet exhaustion. These findings extend the spectrum of coronavirus-induced platelet dysfunction beyond SARS-CoV-2 and underscore the importance of considering coronaviruses in thrombotic risk assessment. Further mechanistic studies are warranted to define the molecular pathways underlying these platelet–virus interactions.

Keywords: Platelet function, platelet aggregation, platelet adhesion, Coronavirus infection, HCoV-229E

Multiomics integration of gut microbiota and metabolomics in metabolic dysfunction-associated fatty liver disease (MAFLD) in the elderly: A systematic review proposal

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ABSTRACT

Introduction: Metabolic dysfunction-associated fatty liver disease (MAFLD) has emerged as a major global health concern, particularly among the elderly, who are disproportionately affected due to age-related metabolic changes, immune senescence, and increased vulnerability to chronic diseases. The pathogenesis of MAFLD is multifactorial, involving complex interactions between host genetics, lifestyle factors, and the gut microbiota. The gut-liver axis plays a central role in disease progression, with microbial metabolites influencing hepatic lipid metabolism, inflammation, and fibrosis. Recent advances in multiomics technologies, especially the integration of gut microbiota profiling and metabolomics offer unprecedented insights into these interactions, enabling the identification of novel biomarkers and therapeutic targets. This systematic review aims to synthesise current evidence on the integration of gut microbiota and metabolomics in understanding the progression of MAFLD in elderly populations. Specifically, it seeks to identify microbial and metabolic signatures associated with disease severity, evaluate the methodological quality of multiomics studies, and explore the potential of these approaches for precision diagnostics and personalised interventions. **Materials and Methods:** The review will be conducted in accordance with PRISMA guidelines. A comprehensive literature search will be performed across major databases including PubMed, Scopus, Web of Science, and Embase. Eligible studies will include original research involving elderly individuals (≥60 years) diagnosed with MAFLD, employing multiomics approaches that combine gut microbiota analysis (e.g., 16*S* rRNA sequencing, metagenomics) and metabolomics (e.g., LC-MS, NMR spectroscopy). Data extraction will focus on study design, population characteristics, omics platforms used, key findings, and limitations. A qualitative synthesis will be conducted to map the current landscape of multiomics research in this domain, and a meta-analysis will be performed where data homogeneity permits. **Results:** The review is expected to provide a comprehensive overview of gut microbial and metabolic alterations associated with MAFLD progression in the elderly. It will highlight consistent patterns across studies, such as shifts in microbial diversity, enrichment of pro-inflammatory taxa, and changes in metabolite profiles linked to lipid metabolism and oxidative stress. The review will also identify gaps in current research, including underrepresentation of elderly cohorts, variability in omics methodologies, and lack of longitudinal data. These findings will inform future research directions and support the development of age-specific diagnostic and therapeutic strategies. **Conclusion:** As the global population ages, understanding the unique pathophysiological mechanisms of MAFLD in elderly individuals becomes increasingly important. Multiomics integration represents a powerful tool to unravel the complexity of the gut-liver axis and its role in disease progression. This systematic review will contribute to the growing body of knowledge in precision hepatology, offering insights that could lead to earlier diagnosis, improved risk stratification, and targeted interventions tailored to the aging population. Ultimately, it aims to bridge the gap between omics research and clinical application, fostering a more personalised approach to managing MAFLD in the elderly.

Keywords: MAFLD, multiomics, metabolomics, gut microbiota, elderly

Mismatch nightmare

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ABSTRACT

Introduction: Mismatched transfusion of women in reproductive age group poses risk of intravascular haemolysis to the woman and haemolytic disease of fetus and newborn (HDFN) in subsequent pregnancies. We present two cases of mismatched transfusion for learning purposes for all. Both cases presented with ruptured ectopic pregnancy to the Emergency Department of Hospital Ampang. **Case Description:** Case 1: 28-year-old Gravida 3 Para 0+2 at 8 weeks POA, presented with worsening lower abdominal pain for four days. Ultrasound showed empty uterus with right adnexal mass of 6x6cm, organized clots in Pouch of Douglas and free fluid up to the Morrison's pouch. Intra-operatively, there was hemoperitoneum of two litres with ongoing bleed from ruptured left tubal ectopic pregnancy. She had hypotensive episodes with shock index of 1.3. Therefore, she was transfused with one pint O Rhesus positive blood and four units of fresh frozen plasma. Case 2: 32-year-old G1 P0 presented to emergency department with unsure of dates with abdominal pain dan anaemic symptoms. Ultrasound showed empty uterus with free fluid up till Morrison's Pouch. Intra-operatively, there was hemoperitoneum of 2 litres and ruptured left tubal ectopic pregnancy. She was hypotensive with shock index of 1.7. She was transfused with one pint O Rhesus positive blood and was informed later that she was Rhesus negative blood. Subsequently she was transfused with one pint of A Rhesus negative blood and 4 units of fresh frozen plasma. Following the Rhesus positive blood transfusions, both patients were given anti-D immunoglobulin and monitored closely for signs of red blood cell haemolysis. Both patients recovered well post-surgery without any signs of severe intravascular haemolysis or multiorgan failure. Short course of steroids, erythropoietin stimulating agent and also parenteral iron were prescribed for the second patient post-surgery. Monthly out-patient reviews with monitoring of full blood count, liver function and antibody titres were arranged for 6 months. She was seen by both Maternal Foetal Medicine and Haematology teams. There was no delayed haemolysis seen for both patients at 3 months post event. **Discussion:** Both patients were diagnosed with ruptured ectopic pregnancy on presentation to the hospital. They were unstable, in hypovolaemic shock and required immediate resuscitation with blood transfusion. In view of the patients' blood group was unknown at presentation and immediate procurement of rhesus negative blood was impossible, both patients were transfused with Rh-D positive blood as an emergency resuscitation management. It is important to have a protocol for management of inadvertent mismatch transfusion and the immediate and long-term follow-up involving multidisciplinary teams. Dose and timing of anti-D immunoglobulin is crucial in ensuring adequate removal of D-positive red cells while monitoring for complications of intravascular hemolysis. The couple must also be made aware of the risk of HDFN in subsequent pregnancies with the possibility of requiring in-utero transfusion and iatrogenic premature delivery. All future pregnancies are deemed high risk and will require Maternal Fetal Medicine follow-up. **Conclusion:** Mismatched transfusion should be a "never event". However, with shortage of rhesus negative blood, we will face situations whereby mismatched transfusion would be required as lifesaving measure.

Keywords: Blood mismatch, Rhesus negative, pregnancy

The impact of gaming on the ageing population: A scoping review

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ABSTRACT

Introduction: The global increase in life expectancy has sparked interest in developing new methods to promote healthy ageing. Digital gaming has emerged as a potential avenue to encourage cognitive, physical, and mental health and well-being in the elderly. Although many studies have reported benefits ranging from improving executive function to reducing loneliness, the evidence base is fragmented across disciplines. Therefore, this scoping review aimed to systematically map the extent, range and aspects of research examining the impacts of gaming on cognitive, physical, mental health and well-being in the ageing population. **Materials and Methods:** A literature search was conducted in PubMed, Scopus and Google Scholar from 2015 to 2025, using terms related to "gaming," "video games," "exergames," and "elderly." Eligible studies included empirical research involving participants aged ≥60 years and reporting cognitive, physical, mental health and well-being outcomes linked to gaming interventions. Eligible studies were identified, and data extraction captured study design, gaming modality, duration, outcome measures, and key findings. **Results:** A total of 40 studies met the inclusion criteria, encompassing randomised controlled trials (23 studies), quasi-experimental studies (6), pretest-post-test design (7), longitudinal study (2), pilot study (1) and qualitative approach (1). Gaming interventions were delivered on two main platforms: conventional screens (31 studies) and immersive virtual reality (9). The screen-based interventions were further categorised by their primary purpose, including exergames (19 studies), cognitive training games (6), general video games (5), and one educational game. Reported outcomes were clustered into three domains. Sixteen studies in the cognitive domain demonstrated improvements in memory, attention, executive functioning and processing speeds, particularly through serious games designed for cognitive training. Eleven studies in the physical domain reported enhanced balance, mobility, fall prevention, gait, muscle strength and aerobic endurance, in exergame interventions. Six studies in the mental health and well-being domain highlighted reduced loneliness, increased social engagement, improved mood, enhanced sense of belonging and reduced depressive and anxiety symptoms. The remaining seven studies demonstrated mixed improvement across cognitive (attention, memory, executive function), physical (balance, mobility, aerobic fitness, gait) and mental health (reduced depression symptoms) domains. **Conclusion:** This review highlights gaming as a promising strategy to improve cognitive, physical, and mental health and well-being in older adults. However, the available evidence is limited by small sample sizes, short intervention durations, the absence of an active control group for comparison, and the overall limited number of studies. Considerations for future research include developing larger longitudinal studies, involving elderly individuals with both healthy and various physical or mental conditions, and examining the duration of improvements in outcome measures after training sessions. Future research should also compare gaming interventions with conventional methods, considering long-term effects and including cognitive, physical, mental health, and well-being outcomes. Collaborative efforts between researchers and game developers are essential for designing engaging, tailored, and sustainable interventions for older adults. This review underscores gaming as a potentially valuable, engaging, and accessible strategy for enhancing quality of life in ageing societies. This review was undertaken to fulfil the requirements of the Special Study Module (SSM) in Year 5, FPSK, USIM.

Keywords: Gaming, video games, exergames, elderly

Association of dietary intake and age-related hearing loss: A narrative review

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ABSTRACT

Introduction: According to World Health Organization (WHO) prevalence of age-related hearing loss (ARHL) or presbycusis is increasing at alarming rate. Its prevalence is around 25-30 percent in people aged 65-74 years. In addition to health problem, ARHL also effect economic burden for hearing aids and treatments. Current studies showed there are relation between dietary and nutritional intake in development of ARHL. **Materials and Methods:** The articles were search using database PubMed, Google Scholar, Web of Science and Scopus. The keyword used were age related hearing impairment or loss, presbycusis, nutrition intake and dietary intake. All the related articles published in English within 10 years were included in this review. **Results:** Studies showed that high consumption of anti-oxidants such as Vitamin A, C and E, fruits and vegetables, and polyunsaturated fatty acid (Omega 3) can prevent or slower the development of ARHL. Besides, higher intake of seeds and nuts, fruits, seaweed, and vitamin A were positively associated with better hearing and prevent ARHL. Higher intake of riboflavin, niacin and retinol was inversely associated with ARHL prevalence. While other study reported that lower intake of niacin and potassium, and higher intake of carbohydrates as a risk factors for ARHL. Ultra-processed foods intake also significantly correlated with high-frequency hearing loss. Study done for adult American populations also found that high caffeine intake was associated significantly higher rate of ARHL particularly those under 65. In addition, sugary foods, high-caloric drinks, beer, and spirits also had significant relation for development of ARHL. **Conclusion:** From the review we conclude that dietary intake has association with ARHL. High intake of antioxidants such as vitamin A, C, E, Omega 3, riboflavin, niacin and retinol can prevent ARHL. While high consumption of carbohydrate, ultra processed food, sugary food, caffeine and high caloric drinks are the risk factors to develop ARHL.

Keywords: Age related hearing loss, presbycusis, nutrition, dietary

Upregulation of β-Catenin, Ki67 and VEGF gene expression level following treatment of date palm fruit fraction in hypoxic cardiomyocyte–BMMSC co-culture

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ABSTRACT

Introduction: Date palm fruit is rich in bioactive compounds with regenerative properties. An aqueous extract was fractionated using solid-phase extraction, and Fraction D (FD) was identified based on its ability to enhance BMMSC proliferation (MTT assay). FD was then evaluated for its angiogenic paracrine potential. Materials and Methods: BMMSCs were co-cultured for 24 h with hypoxia-injured cardiomyocytes in four conditions: (i) basal medium (negative control), (ii) complete growth medium with 10% FBS (positive control), (iii) 10% FBS supplemented with FD, and (iv) 2% FBS supplemented with FD. BMMSCs were harvested for total RNA extraction, cDNA synthesis, and quantitative PCR (qPCR) analysis of β-catenin, Ki67, and VEGF gene expression. Pairwise statistical comparisons between groups were performed using the Mann–Whitney test ($p < 0.05$). **Results:** Gene expression analysis revealed no significant changes in β-catenin among groups. However, Ki-67, a proliferation marker, was markedly upregulated in BMMSCs co-cultured with 2% FBS + FD compared to both the control and 10% FBS groups ($p < 0.05$). Similarly, VEGF-A expression was significantly elevated in the 10% FBS + FD group relative to control and 10% FBS, while the 2% FBS + FD group showed reduced VEGF-A expression ($p < 0.05$). These findings suggest that Fraction D supplementation enhances BMMSC proliferative capacity and paracrine pro-angiogenic signalling under optimized culture conditions. **Conclusion:** Supplementation with date palm Fraction D enhances BMMSC functional activity by promoting proliferation (Ki-67 upregulation) and paracrine pro-angiogenic signalling (VEGF-A induction). These findings highlight its potential as a regenerative agent to support stem cell-mediated cardiac repair.

Keywords: Ajwa date palm fruit, proliferation, angiogenesis, mesenchymal stem cells, hypoxic cellular model

A Scoping review methodology on elderly digital health appointment

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ABSTRACT

Introduction: A digital health appointment is defined as the use of information and communication technology to enable patients to make appointments with healthcare providers through the Internet. As Malaysia transitions into an aged nation by 2030, with 15.3% of its population expected to be over the age of 60, addressing the digitalisation and healthcare needs of the elderly becomes increasingly critical. Despite the significant number of elderly using smartphones and the Internet, their adoption towards digital health technology is still poor. This scoping review aims to explore the usability and situation of digital health appointments among the elderly and their caregivers. Our primary aim is to identify the types, providers, reasons and features of the digital health appointment used by them from the existing literature. **Materials and Methods:** The methodology of our scoping review followed the Arksey & O'Malley framework and PRISMA-ScR checklist. PRISMA-ScR, developed by Tricco et al (2018), is the extension of the PRISMA checklist for systematic reviews and meta-analyses. It is suitable for use in health-related research due to its structured framework for conducting and reporting scoping reviews. Three main steps identified from the checklist, which are 1) development of research question, 2) systematic literature search and 3) data extraction and analysis. Articles published from 2020 to 2025 were included. The keywords used were "digital appointment systems" and "older adults". **Results:** A total of 1140 papers were identified from three databases, namely PubMed, Scopus, and Web of Science. After removing the duplication, the number of papers became 999. This paper underwent title and abstract screening for relevancy, followed by eligibility screening using inclusion and exclusion criteria by two independent researchers. Any discrepancy between them was resolved by discussion. A total of 58 papers is included in the study. This final paper will be thoroughly reviewed in full text to extract data in line with the research objective. Data charting and deductive thematic analysis will be conducted for data analysis. **Conclusion:** The findings of the review would be important to identify research gaps in digital health appointments and to develop strategies for enhancing usage among these populations.

Keywords: Digital health, aged, caregivers, appointments

From stigma to support: The OPPA framework for elder peer support in mental health

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ABSTRACT

Introduction: Mental health remains a growing public health concern globally, with older adults often facing stigma, limited awareness, and reduced access to psychosocial support. In Malaysia, misconceptions surrounding mental health are prevalent, where the term is often narrowly associated with severe psychiatric illness or "madness." Such stigma discourages help-seeking behavior and reinforces isolation within the community. However, older adults themselves represent a valuable but underutilized resource for mental health advocacy and peer support, given their lived experiences, wisdom, and strong community presence. The Older Persons Peer Support Agent (OPPA) program was designed with the objective of educating older adults to provide peer support, increase community awareness, and reduce stigma related to mental health. **Materials and Methods:** A structured two-day training program was developed using an evidence-informed approach. The training module comprised four key components: (i) emotion recognition, to help participants identify and understand basic emotions in themselves and others; (ii) introduction to common mental health problems, including stress, anxiety, and depression; (iii) effective communication skills, with emphasis on active listening and being a supportive peer; and (iv) pathways to care, introducing available community and professional services to OPPA agents to link people requiring care. A total of 100 older adults were recruited and trained as OPPA agents. Upon completion, participants were stationed at three local masjids to act as peer support providers, where they could be approached by community members in need of guidance, emotional support, or referral. **Results:** The training was well received by participants, many of whom expressed surprise at the breadth of mental health issues beyond severe psychiatric disorders. Participants highlighted that they had previously believed mental health referred only to individuals who were "crazy," but the training opened their perspective to the everyday challenges of emotional well-being, stress, and common disorders faced across the lifespan. Furthermore, the module increased their awareness of the variety of mental health services available in the community, many of which they had not previously known. Participants reported feeling empowered, excited, and more confident to play an active role as peer supporters within their local communities. Initial feedback from community members suggested that having older adults as peer support agents stationed at masjid provided a culturally acceptable and accessible avenue for initiating conversations around mental health. **Conclusion:** The OPPA program demonstrates that older adults, when provided with structured training, can serve as effective peer support agents and advocates for mental health within their communities. This initiative not only enhances older adults' knowledge and capacity but also contributes to breaking stigma and normalizing conversations on mental health at the grassroots level. The program leverages the unique position of older adults as trusted community figures, allowing the impact to extend beyond the individual to families, religious spaces, and the wider society. Importantly, involving older adults in peer support initiatives is both cost-effective and sustainable, as they are motivated by community service rather than financial incentives. By engaging older adults as mental health advocates, the OPPA program helps bridge gaps in awareness, promotes help-seeking, and contributes to a more supportive and mentally healthy community.

Keywords: Mental health, peer support, older adults, community

Stimulation of vascular network formation by fraction D of date palm fruit extract-conditioned media: Implications for healthy ageing and cardiac repair

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ABSTRACT

Introduction: Cardiovascular disease (CVD) is the leading cause of death globally, with risk rising sharply with age, making it a major barrier to healthy ageing. Ageing reduces the heart's regenerative capacity, particularly angiogenesis and vascular repair. While mesenchymal stem cells (MSCs) hold promise for cardiac repair via their paracrine secretome, hypoxia within injured myocardium limits their function. Natural bioactives offer a means to enhance MSC function. Date palm fruit contains bioactives with regenerative potential. We fractionated an aqueous extract by solid-phase extraction and, based on BMMSC proliferation (MTT), selected Fraction D (FD) for functional testing of angiogenic paracrine activity. **Materials and Methods:** Bone marrow-derived mesenchymal stem cells (BMMSCs) were co-cultured with hypoxia-injured cardiomyocytes for 24 h under the following conditions: (i) basal medium (negative control), (ii) complete growth medium supplemented with 10% fetal bovine serum (FBS; positive control), (iii) 10% FBS with Fraction D (FD), or (iv) 2% FBS with FD. Following incubation, conditioned media (CM) were collected from each group and applied to endothelial cells seeded on Matrigel for tube formation assays. Tube formation parameters — including number of junctions, number of branches, total tube length, and total branching length — were quantified at 4, 8, 12, and 24 h. Statistical analysis was performed using the Mann–Whitney U test, with $p < 0.05$ considered significant. **Results:** FD markedly potentiated angiogenesis compared with both controls, with the largest effects at 4–12 h. Relative to basal CM, 10% FBS + FD increased junction number by ~8–17-fold and branches by ~6–21-fold; total and branching lengths rose ~10–16-fold. Versus complete CM, FD provided consistent gains: junctions +1.3–2.0×, branches +1.2–1.4×, total length +1.2–1.4×, and branching length +1.2–1.4× (4–12 h; all $p < 0.05$). Reducing serum to 2% while keeping FD preserved or enhanced performance: at 4–12 h, 2% FBS + FD was comparable to 10% FBS + FD (0.95–1.1× across metrics), and at 24 h it maintained network stability more strongly, exceeding complete CM by ~1.3–2.6× and 10% FBS + FD by ~1.5–2.2× ($p < 0.05$). **Conclusion:** CM from BMMSC–injured cardiomyocyte co-cultures supplemented with Fraction D robustly enhances endothelial network formation, with serum-sparing (2% FBS) conditions retaining or even improving durability of tubes at 24 h. These data support Fraction D as a pro-angiogenic modulator that amplifies the reparative BMMSC-cardiomyocyte secretome and may enable lower-serum formulations for cardiac tissue repair strategies. As cardiovascular disease is an ageing-related disorder marked by impaired vascular repair, FD shows promise as a natural adjunct to regenerative cardiology, supporting vascular resilience and promoting healthy ageing.

Keywords: Ajwa date palm fruit, proliferation, angiogenesis, mesenchymal stem cells, hypoxic cellular mode