



41ST

SCIENTIFIC
CONFERENCE

SUSTAINABLE AND SMART NUTRITION SOLUTIONS FOR A RESILIENT MALAYSIA

PROGRAMME AND ABSTRACTS

28 - 29 JULY 2026

BERJAYA TIMES SQUARE HOTEL,
KUALA LUMPUR, MALAYSIA

Contents

The 21 st Council of Nutrition Society of Malaysia (2026 - 2028)	3
Organising Committee of the 41 st NSM Scientific Conference	4
Message from Chair of the 41 st Annual Scientific Conference	5
Acknowledgements	6
Malaysia Nutrition Leadership Programme (MyNLP)	7
Southeast Asia Public Health Nutrition (SEA-PHN)	8
The 15 th Asian Congress of Nutrition 2027	10
NSM Corporate Message	11
Official Opening	12
Scientific Programme	13
Conference Information	19
Event Layout & Exhibitor Area Layout	21
NSM Awards / Prizes 2026	22
NSM Postgraduate and Undergraduate Prizes 2026	23
NSM Publication Prize 2026	26
NSM Young Researchers' Symposium Prizes 2026	28
NSM Poster Competition Prizes 2026	28
List of Scientific Posters	29
Message from Partners	44
Nutrition Month Malaysia	51
NSM Nutrition Roadshows 2.0	52
Abstracts	53

The 21st Council of Nutrition Society of Malaysia (2026 - 2028)

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Prof. Dr. Mahenderan Appukutty, FNSM, FMASO

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Organising Committee of the 41st NSM Scientific Conference

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Dr. Tan Sue Yee

Dr. Roseline Yap Wai Kuan

Partnership

Assoc. Prof. Dr. Satvinder Kaur Nachatar Singh

Ms. Christy Foo Shen Tze

Message from Chair of the 41st Annual Scientific Conference

Dear Colleagues and Distinguished Delegates,

On behalf of the Nutrition Society of Malaysia (NSM), it is my great pleasure to welcome you to the 41st Annual Scientific Conference of the Nutrition Society of Malaysia.

This year's theme, "Sustainable and Smart Nutrition Solutions for a Resilient Malaysia," reflects our commitment to addressing Malaysia's evolving nutrition and public health challenges through innovation, collaboration, and evidence-based practice. As our nation continues to tackle the double burden of malnutrition, rising non-communicable diseases, and the need for sustainable food systems, nutrition professionals play a pivotal role in improving health outcomes and building a more resilient future.

The Annual Scientific Conference serves as NSM's premier platform for knowledge exchange, bringing together nutritionists, dietitians, researchers, healthcare professionals, policymakers, educators, industry partners, and students to share the latest scientific advances, exchange ideas, and foster interdisciplinary collaboration. Through keynote lectures, scientific symposia, oral and poster presentations, and industry sessions, we hope to inspire meaningful discussions and strengthen partnerships that translate research into impactful practice.

I would like to express my sincere appreciation to our keynote speakers, invited speakers, judges, chairperson, conference partners, exhibitors, volunteers, Organising and Scientific Committees, and all delegates for your invaluable support and contributions in making this conference possible.

I wish you an enriching and productive conference, and I hope your participation will lead to new knowledge, collaborations, and lasting professional connections as we work together towards a healthier, more sustainable, and resilient Malaysia.

Prof. Dr. Mahenderan Appukutty

NUTRITIONIST: MAHPC (NUTR) 00003

Chair, Organising Committee

41st Annual Scientific Conference

President,

Nutrition Society of Malaysia

Acknowledgements

The Nutrition Society of Malaysia gratefully acknowledges contributions from the following for 41st Scientific Conference:

Major Partners

Beneo Institute
dsm-firmenich

Supporting Partners

Herbalife Products Malaysia Sdn. Bhd.
Yakult (Malaysia) Sdn. Bhd.

Lunch Symposium

Ajinomoto (Malaysia) Berhad
Sunup Healthcare Sdn. Bhd. (Tanita)

Advertisement

Cotra Enterprises Sdn. Bhd. - Vitagen
Fonterra Brands Malaysia (Trading as Lactalis-Mainland Dairy) – Anlene

Thesis Prizes

Nutrition Society of Malaysia

Prizes for Young Researchers' Symposium & Poster Competition

International Life Sciences Institute (ILSI) Southeast Asia Region

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Rationale of MyNLP

NSM is organising MyNLP to establish critical mass of capable nutrition leaders in Malaysia.

Programme Objectives

Provides a platform of convergence to connect and provide networking opportunities among food and nutrition professionals across the country and also within the South East Asian Region

Programmes and Workshops

SEAPHN
Leadership
Programme
Workshop

Follow our upcoming activities at www.nutriweb.org.my and email us at mynlp@nutriweb.org.my for further enquiries.



Southeast Asia Public Health Nutrition Network

A collaboration among



Food and Nutrition
Society of Indonesia



Lao Nutrition Association



Nutrition Society of
Malaysia



Myanmar Nutrition and
Dietetic Association



Nutrition Foundation of
the Philippines, Inc



Nutrition Association
of Thailand
under the Patronage of Her
Royal Highness Princess Maha
Chakri Sirindhorn



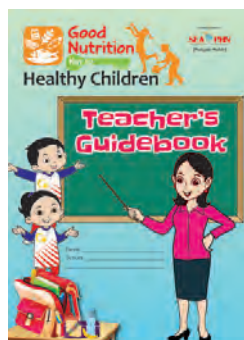
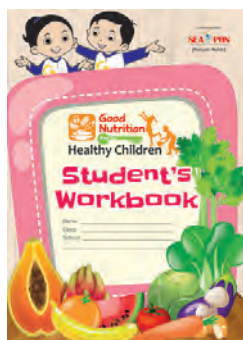
Vietnam Nutrition
Association

The **Southeast Asia Public Health Nutrition (SEA-PHN)** Network is a partnership of key stakeholders in the region, namely nutrition societies and corporate partners to promote public health nutrition among the population and alleviating nutrition problems in the region.

Please visit our website at <http://sea-phn.org>
for more information.
Sign up for Free to download nutrition related documents
at our resource area.

Key Activities of the Network

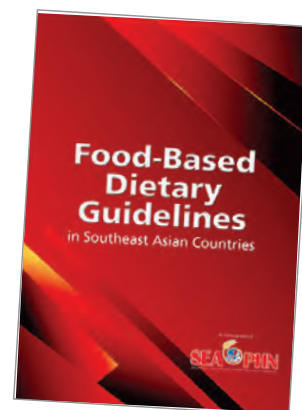
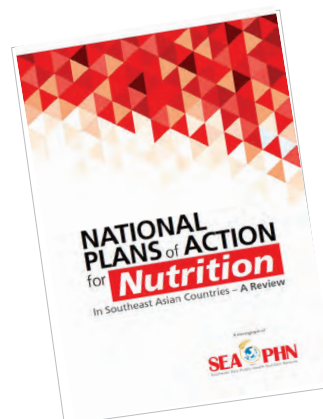
Good Nutrition – Key to Healthy Children (GNKHC) Programme



Nutrition Leadership Programme



Research publications



Mal J Nutr 32 (2): 171- 204, 2026

REVIEW

Food-based dietary guidelines in Southeast Asian countries: A comparison and update

E Siong Tee^{1,2*}, Maria Regina A. Pedro³, Visaratana Therakomen⁴, Mahenderan Appukutty^{1,2,5}, Hardinsyah Ridwan^{1,6}, Truong Tuyet Mai^{1,7} & Siok Hui Voon^{1,2}

Webinars and Conferences





15th ACN 2027
Kuala Lumpur, Malaysia

Asian Congress of **Nutrition 2027**

STRENGTHENING REGIONAL NETWORKS FOR NUTRITION ACTION

Kuala Lumpur, Malaysia | September 12-15, 2027

Welcome to Malaysia

SAVE THE DATE

12-15 SEPTEMBER 2027

KUALA LUMPUR CONVENTION CENTRE



SCAN
HERE FOR
**MORE
DETAILS**



Organised By

Under Auspices Of

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Meet in 
Malaysia
BE Greater, Together.





Nutrition Society of Malaysia

IMPROVING LIVES through **NUTRITION**

As a professional organisation, we are guided by a simple belief – the more people understand food and nutrition, the better they can care for their health and well-being.

For that reason, we support the advancement of research, sharing practical insights and important discoveries for the benefits for all.

We also support the Government's efforts in promoting healthy nutrition in the society to combat nutrient deficiencies as well as diet-related chronic diseases in the country (e.g. obesity, diabetes, hypertension and coronary heart disease).

In caring for the community, we continuously disseminate practical nutrition information to the young and old alike, guiding

them to discover the benefits of good nutrition and a healthy lifestyle.

We are committed to improve lives through nutrition. It's our way of serving Malaysians.

Established in 1985, the Nutrition Society of Malaysia (NSM) is a non-profit scientific organisation that facilitates networking among its 500 professional members and engages in the following scientific and community nutrition promotion activities to achieve its goal.

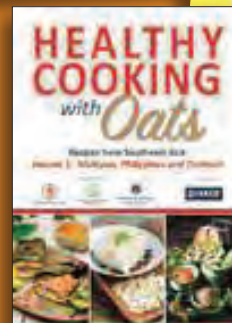
For more information, visit our website:
www.nutriweb.org.my

Our Activities

- Organise annual scientific conferences
- Conduct scientific update sessions
- Advice to government health & regulatory authorities & scientific bodies
- Research on specific community groups
- Lead the Southeast Asia Public Health Nutrition (SEA-PHN) Network
- Conduct nutrition promotion programmes in collaboration with other professional organisations and corporate companies
 - specific target groups especially women, infants and children (eg Healthy Kids, Mi-Care, MyNutriBaby, Positive Parenting)
 - community-based promotion programmes eg Nutrition Month Malaysia, Probiotics Education Programme
- Establish a comprehensive and authoritative website on nutrition for Malaysians

Our Major Publications

- Malaysian Journal of Nutrition
- Berita NSM (newsletter)
- Series of recipe books
 - Healthy Cooking with Oats. Recipes from SEA. Vol 1. Malaysia, Philippines, Thailand
 - Junior Chef Cookbook Vol 1. Let's Play Healthy Cooking.
 - Nutritionists' Choice Cookbook (Vol 1: Healthy Recipes for Your Little Ones. Vol 2: Resipi Untuk Seisi Keluarga)
 - Resipi Sihat, Pilihan Bijak (Vol 1 & 2)
- Various educational booklets and leaflets on dietary guidelines and specific foods
- Nutrition Month Malaysia booklets on healthy eating and active living (www.nutritionmonthmalaysia.org.my)



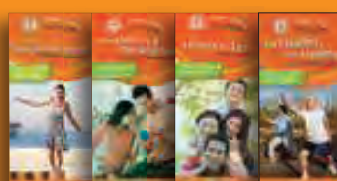
Junior Chef Cookbook Vol 1. Let's Play Healthy Cooking, Nutritionists' Choice Cookbook (Vol 1 & 2), Resipi Sihat, Pilihan Bijak (Vol 1 & 2), Healthy Cooking with Oats



Healthy Eating During Pregnancy & Lactation



Wonders of Whole Grains



Malaysian Dietary Guidelines leaflets



Breastfeed with Confidence



Baby's First Bites



Healthy Spoonfuls for Toddlers



Women@Heart Wanita & Pemakanan manual for professionals and leaflets for public

Official Opening

Day 1 Tuesday, 28 July 2026

08:00 **Registration & Welcome Breakfast**

09:45 **Official Opening & Presentation of NSM Prizes & Awards**
Manhattan II Hall, Level 14, Berjaya Times Square Kuala Lumpur

Welcome Remarks and Official Opening by
Prof. Dr. Mahenderan Appukutty
President, Nutrition Society of Malaysia (NSM)

Presentation of NSM Prizes & Certificates

- o NSM Undergraduate and Postgraduate Prizes
- o NSM Publication Prizes
- o NSM Fellow Conferment

10:45 Coffee Break / Poster & Exhibition Viewing

Scientific Programme

Day 1 **Tuesday, 28 July 2026**

Keynote Lecture 1

Chairperson:

Tee E Siong

Nutrition Society of Malaysia

09:00

**From Child Malnutrition to Food System Transformation:
Rethinking Malaysia's Nutrition Challenges and Solutions**

Poh Bee Koon, Professor

Universiti Kebangsaan Malaysia

Symposium 1:

Chairperson:

Lifespan Nutrition

Loh Su Peng

Universiti Putra Malaysia

11:00

Empowering Communities to End Stunting in Malaysia

Norhasmah Sulaiman

Universiti Putra Malaysia

**National Health and Morbidity Survey (NHMS 2025): Older
Persons Health**

Chan Yee Mang

Institute for Public Health, Malaysia

Invited Lecture 1

dsm-firmenich

Chairperson:

Wong Jyh Eiin

Universiti Kebangsaan Malaysia

12:00

**Algal Omega 3: Advancing Human Health Through
Sustainable, Science-Based Nutrition**

Ek Kai Lin

dsm-firmenich, Singapore

Lunch Symposium

Ajinomoto (Malaysia) Berhad

Chairperson:

Norhaizan Mohd Esa

Universiti Putra Malaysia

12:35

**Sodium Reduction in Real-World Diets: Can Umami-Based
Flavour Optimisation Bridge the Implementation Gap?**

Zulfitri Azuan Mat Daud

Universiti Putra Malaysia

13:10

Coffee Break / Poster & Exhibition Viewing

Symposium 2

Chairperson:

Nutrition Intervention

Gan Wan Ying

Universiti Putra Malaysia

14:00

Empowering the Underserved: A Digitally-Assisted Peer-Support Healthy Lifestyle Framework to Reduce Cardiovascular Disease Risk in A Low-Income Community in Malaysia (MYCardio-PEER)

Amutha Ramadas

Monash University Malaysia

Smart and Sustainable Sodium Reduction: Integrating Sensory Science and Behavioural Strategies for a Health-Resilient Malaysia

Say Yee How

Sunway University, Malaysia

Invited Lecture 2

Beneo Institute

Chairperson:

Rokiah Don

Nutrition Society of Malaysia

15:00

Gut-driven Longevity: The Role of Prebiotic Chicory Root Fibres in Mood and Bone Health

Alvin Surya Tjahyo

BENEO-Institute/ BENEEO Asia Pacific Pte Ltd, Singapore

Nutrition Update 1

Chairperson:

Wee Bee Suan

Universiti Sultan Zainal Abidin, Malaysia

15:35

Randomised Controlled Trial of Breastfeeding Peer Support via Mobile Text Messaging in Sarawak

Johnny Shean Kang Ling

Universiti Malaysia Sarawak

Small Bites, Big Impact: A Clinically Proven Red Palm Oil-Enriched Biscuit for Combating Hidden Hunger

Radhika Loganathan

Malaysian Palm Oil Board

Effects of A Relaxation Intervention on Physiological and Psychological Outcomes among Mothers of Preterm Infants Delivered in Hospital Sultan Abdul Aziz Shah: A Within-Subject Randomised Trial

Nazratul Fareha Azman

Universiti Putra Malaysia

Cinnamon (*Cinnamomum verum*) in Lipid Health: Nutritional, Biochemical, and Molecular Perspectives

Baskaran Gunasekaran
UCSI University, Malaysia

16:35 Coffee Break / Poster & Exhibition Viewing

Nutrition Update 2

Chairperson: Roseline Yap Wai Kuan
Nutrition Society of Malaysia

16:50 **Impact of Nutrition-Centered Diabetes Care Practices among Healthcare Professionals Through Interdisciplinary Experiential Learning in Culinary Medicine**

Vaidehi Ulaganathan
UCSI University, Malaysia

Continuous Glucose Monitoring in Non-Diabetic Elite Field Hockey Athletes during International Competition

Tham Ching Suen
National Sports Institute, Malaysia

Effect of *Cosmos Caudatus* Supplementation on Frailty, Psychological Well-Being and Cardiometabolic Parameters among Older Adults with Possible Sarcopenia and Sarcopenia

Keerthana Sree Gangaya
Universiti Sains Malaysia

Prevalence of Cognitive Frailty and Its Association with Clinical Outcomes among Older Outpatients in Malaysia

Nurul Fatin Malek Rivan
Universiti Kebangsaan Malaysia

18:05 **End of Day 1 Conference**

Day 2 **Wednesday, 29 July 2026**

8:00 Poster & exhibition viewing

Young Researchers' Symposium

Chairperson: **Yasmin Ooi Beng Houi**
Universiti Malaysia Sabah

9:00 **Syndemic-informed Maternal Vulnerability Profiles among Malaysian Pregnant Women: A Latent Class Analysis**

Kimberly Tan Weng Kuan
University of Nottingham Malaysia

Feasibility, Efficacy, And Cost-Analysis of Homemade Oral Nutrition Supplements on Patients on Haemodialysis with Protein-Energy Wasting: A Parallel, Open-Labelled, Randomised Controlled Trial

Ernielyn Wilfred
Universiti Malaysia Sabah

Smart and Culturally Adapted Antenatal Nutrition Intervention for Women with Gestational Diabetes Mellitus in Malaysia: Findings from the M-FIGO Randomised Controlled Trial

Loh Beng In
Universiti Sains Malaysia

Combating Anaemia in Orang Asli Children Aged 24–59 Months in Selangor: Potential Use of *Moringa Oleifera* in Improving Iron and Growth Status

Chong Shao Hui
Universiti Putra Malaysia

Beyond the Plate: What Shapes Fruit and Vegetable Intake among Malaysian Adolescents

Shaliza Amierra Shahridzal
Universiti Kebangsaan Malaysia

Navigating Breastfeeding: Understanding Galactagogue Use among Breastfeeding Mothers in Malaysia

Claire Ng Yann Wei
International Medical University, Malaysia

Effects of Low-Glycaemic Index Sweetened Condensed Creamer and Digital Nutrition Education on Blood Glucose Control among Healthy Malaysian Adults

Lee Ee Rong
UCSI University, Malaysia

10:30 Coffee Break / Poster & Exhibition Viewing

Keynote Lecture 2

Chairperson: **Hamid Jan Jan Mohamed**
Universiti Sains Malaysia

11:00 **The Missing Layer in Precision Health: Data Integrity and the Future of AI in Health and Nutrition**
Carmen Tekwe, John & Carole Seffrin Endowed Professor of Public Health
Indiana University Bloomington, USA

Symposium 3

Chairperson: **Nurliyana Abdul Razak**
UCSI University, Malaysia

11:45 **Eating Out in the Age of Compressed Malaysian Modernisation: Insights from Eating Out in Asia**
Elise Mognard
Taylor's University, Malaysia

Approaching a Decade of ToyBox Sarawak: Transforming Child Health by Evolving from Physical Kits to Sustainable, Digital Nutrition Solutions for Teachers, Children, and Parents
Cheah Whye Lian
Universiti Malaysia Sarawak

Lunch Symposium

Sunup Healthcare Sdn Bhd (Tanita)
Chairperson: **Chin Yit Siew**
Universiti Putra Malaysia

12.45 **Evolvement of Modern Body Composition Technology into Boarder Clinical Applications and Real-Life Public Research**
Dek Ng
TANITA Asia Pacific

13:20 Poster & Exhibition Viewing

Invited Lecture 3

Chairperson: **Satvinder Kaur**
UCSI University, Malaysia

14:00 **Protein Intakes across Southeast Asia: Challenges and Opportunities**
Cecilia Cristina Santos-Acuin
University of the Philippines Los Baños

Forum

Promoting Healthy Food Environment - Beyond Ultra-Processed Foods

Moderator:

Tan Sue Yee

Nutrition Society of Malaysia

14:35

Panelists:

- o Tee E Siong
Southeast Asia Public Health Nutrition Network
- o Wong Jyh Eiin
Universiti Kebangsaan Malaysia
- o Wan Rosli Wan Ishak
Universiti Sains Malaysia

Nutrition Update 3

Chairperson:

Chew Lye Yee

Taylor's University, Malaysia

15:20

Food Environments, Food Insecurity, and Nutritional Outcomes in the Urban Fringe of Malaysia

Chong Xin Xuan

University of Nottingham Malaysia

Feeding Difficulties among Children with Cow's Milk Protein Allergy

Samah Faiz

Universiti Putra Malaysia

Bottom-Up Evidence on Social-Spatial Inequalities in Urban Food Environments: A Quantitative Participatory Geospatial Study in Kuala Lumpur

Koh Su Yuan

University of Nottingham Malaysia

Development of Ready to Drink Protein Milk Shake Formulated with Overripe Banana Sweetener (RTD-PS-OBS)

Ainnur Adnin Mohd Sha'ari

Universiti Sains Malaysia

16:20

Coffee Break / Poster & Exhibition Viewing

16:40

Rapid Fire Poster Presentation

17:10

Prize Giving and Closing Ceremony

17:45

End of Conference

Conference Information

Registration Counter

Registration counter is located in front of the **Manhattan III Hall, Level 14, Berjaya Times Square Kuala Lumpur.**

Scientific Sessions

All scientific sessions shall be held in the **Manhattan II Hall, Level 14, Berjaya Times Square Kuala Lumpur.**

Poster Presentations

Scientific poster presentations shall be held at the **Manhattan III Hall, Level 14, Berjaya Times Square Kuala Lumpur.**

Opening hours:

- 28th July 2026: 8:00 a.m. to 6:00 p.m.
- 29th July 2026: 8:00 a.m. to 6:00 p.m.

Trade Exhibition

The trade exhibition is located at the Foyer of the **Manhattan III Hall, Level 14, Berjaya Times Square Kuala Lumpur.**

Opening hours:

- 28th July 2026: 8:00 a.m. to 6:00 p.m.
- 29th July 2026: 8:00 a.m. to 6:00 p.m.

Official Language

The official language of the conference is **English.**

Certificate of Attendance

E-certificate of attendance will be given to all registered delegates. The certificates will be uploaded on the conference website within 30 days after the Conference on 30th August 2026. Participants may download the certificates from the website by following the instructions given on the website. Special certificates will be given to those who participated in the Young Researchers' Symposium, Nutrition Update sessions and Poster Presentations.

Name Badges

Registered delegates are required to always wear their name badges during the Conference for identification and security purposes. Admission to all Conference sessions and meals is based on name badges.

Support Sustainability – Return Your Lanyard

In support of the Sustainable Development Goals (SDGs), NSM kindly requests all delegates to return their conference lanyards after the conference. Please place them in the designated collection container at the **Registration Counter on Day 2.** Thank you for supporting our sustainability efforts.

Lunch & Coffee Breaks

Lunch will be served as bento boxes **during Lunch Symposiums at Manhattan II, Level 14,** on both days of the conference. Morning and afternoon refreshments shall be served at **Manhattan III** and around the trade exhibition areas at the **foyer outside Manhattan conference halls.**

All food and drinks served are **Halal. Vegan** meals are only served to delegates who have indicated during the conference registration.

Note for Speakers

Preview of slides

All speakers have been requested to submit their presentation materials to the Organising Committee in advance. You may preview your slides at least two hours prior to their session. The **Speaker Preview Corner** is located at the **Bronx III room**.

Opening hours:

- 28th July 2026: 8:00 a.m. to 6:00 p.m.
- 29th July 2026: 8:00 a.m. to 6:00 p.m.

Please be present at the **Manhattan II Hall** at least **15 minutes** prior to the start of your session and identify yourself to the secretariat.

Note for Chairpersons

Please be present at the **Manhattan II Hall** at least **15 minutes** prior to the start of your session.

Mobile Phone

As a courtesy to all delegates and speakers, mobile phones and other electronic devices must be operated in silent / vibration mode throughout the Conference sessions. No telephone conversations are permitted in the session rooms.

Wi-Fi

Complimentary Wi-Fi (30 Mbps per user) is available at the hotel. The Wi-Fi password is displayed in the foyer area.

Parking

Parking is available at the Basement Car Park via Gate 2, at a fixed rate of RM15 nett per entry (weekdays only). For easier access to the hotel, please park at the West Wing.

Breastfeeding Room

The breastfeeding room is located **next to the Lotus@Berjaya, Level 14**, Berjaya Times Square Kuala Lumpur.

Prayer Room

Surau (mushola) is located **behind the Bronx III room at Level 14**, Berjaya Times Square Kuala Lumpur.

Liability

The Organising Committee will not assume any responsibility for accidents, losses or damages, as well as for delays or modifications to the Conference programme.

Disclaimer

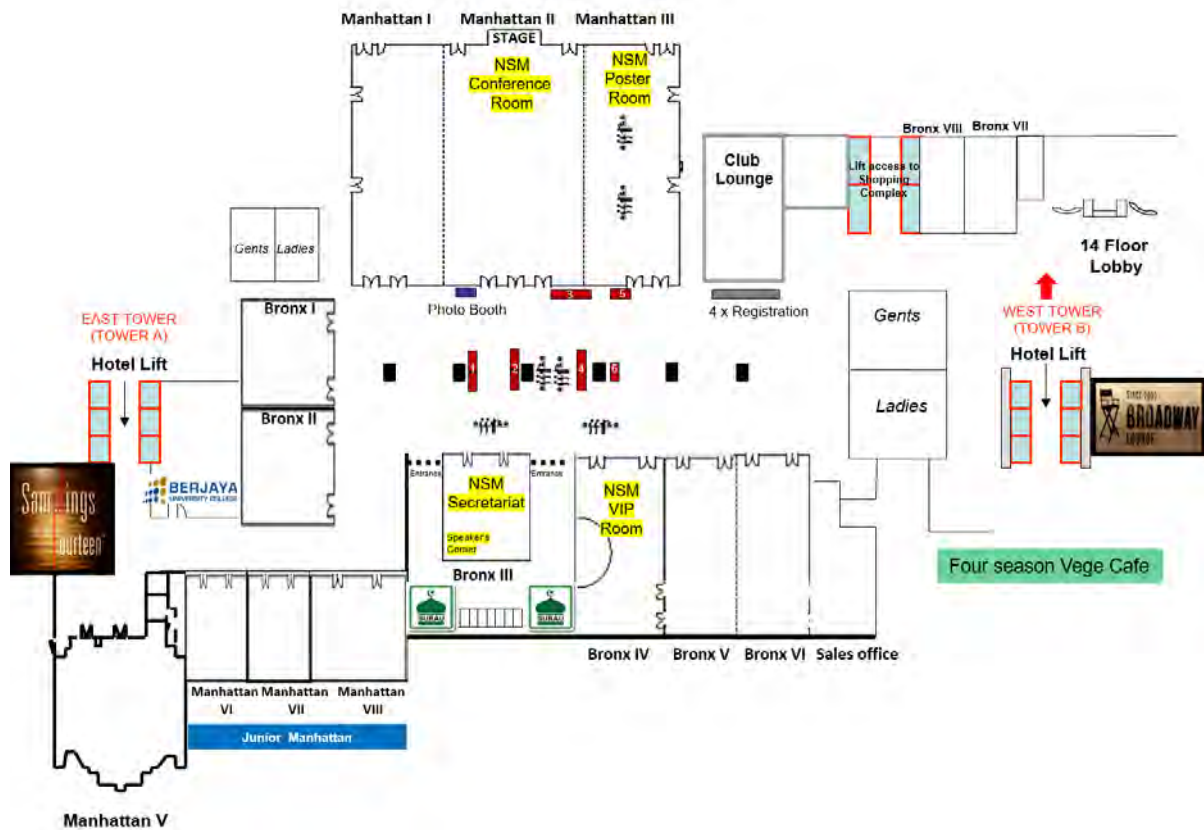
NSM provides a platform for researchers and professionals to present and discuss their scientific work. The views, opinions, interpretations, and conclusions expressed in the abstracts, presentations, and discussions are those of the respective authors, speakers, and delegates, and do not necessarily reflect the views or policies of NSM.

NSM does not endorse or guarantee the accuracy, completeness, or validity of any findings, claims, products, or opinions presented during the conference and accepts no responsibility or liability for any statements made by the authors, speakers, or delegates.

BERJAYA

TIMES SQUARE, KUALA LUMPUR - MALAYSIA

HOTEL



Function Room, Level 14

No	Exhibitor
1	<u>dsm-firmenich</u>
2	<u>Ajinomoto (Malaysia) Berhad</u>
3	<u>Sunup Healthcare Sdn Bhd</u>
4	NSM
5	<u>Yakult (Malaysia) Sdn Bhd</u>
6	Herbalife



NSM Awards / Prizes 2026

NSM Postgraduate and Undergraduate Prizes 2026

Two types of NSM Prizes are awarded under the Education Fund of the Nutrition Society of Malaysia, according to the By-Laws of the Society. The NSM Postgraduate Prize is awarded for a thesis accepted for a PhD or MSC degree whereas the Undergraduate Prize is awarded for a thesis accepted for a basic / first degree. Each prize comprises a cash award and a certificate, as follows: RM1,000 for a PhD thesis, RM750 for MSC thesis and RM500 for undergraduate prize.

In 2026, the NSM is awarding 7 Postgraduate Prizes; 6 for PhD and 1 for MSC, with a total cash award of RM6,750. Ten undergraduates receive Undergraduate Prizes with a total cash award of RM5,000. The total cash award for both categories of thesis prizes this year is RM11,750. The list of names is arranged in alphabetical order.

The recipients for the PhD thesis prize are:

1. Dr. Chek Lok Poh

A Mixed-Methods Cluster Randomised Controlled Trial to Improve Caregivers' Nutrition Knowledge, Attitudes, Practices, and Child Growth in Urban Low-Income Families in Malaysia

Supervisor: Assoc. Prof. Dr. Gan Wan Ying

Co-supervisors: Prof. Dr. Norhasmah Sulaiman & Assoc. Prof. Dr. Chin Yit Siew

University: *Universiti Putra Malaysia (UPM)*

2. Dr. Livy Chong Guey Yong

Chrononutrition, Chronotype and Glucose Tolerance among Prediabetic Adults in Malaysia: Prospective Longitudinal Study Chrono-DMTM

Supervisor: Assoc. Prof. Dr. Koo Hui Chin

Co-supervisors: Prof. Dr. Ruzita Abd Talib & Assoc. Prof. Dr. Satvinder Kaur N/O Nachatar Singh

University: *Tunku Abdul Rahman University of Management and Technology (TAR UMT)*

3. Dr. Lydiatul Shima Ashari

A prospective case-control study on nutritional status and lifestyle risk factors towards quality of life among colorectal cancer and polyp patients in Malaysia

Supervisor: Prof. Dr. Hamid Jan Jan Mohamed

Co-supervisors: Prof. Dr. Lee Yeong Yeh & Assoc. Prof. Dr. Mohd Razif Shahril

University: *Universiti Sains Malaysia (USM)*

4. Dr. Muhamad Hishamudin Mohmad Hasim

Trim And Triumph (TNT) Challenge: A Workplace Intervention on Body Composition, Metabolic, and Psychological Health in Overweight and Obese Office Workers

Supervisor: Dr. Cheng Shi Hui

Co-supervisors: Assoc. Prof. Dr Lim Yin Sze & Prof. Dr. Christopher Lim Thiam Seong

University: *University of Nottingham Malaysia (UNM)*

5. Dr. Norhayati Mustafa Khalid

Development and Effectiveness Evaluation of Multidomain Intervention iAGELESS 1.0TM on Nutritional Profile and Brain Activation among Older Adults with Cognitive Frailty

Supervisor: Assoc. Prof. Ts. Dr. Hasnah Haron

Co-supervisors: Prof. Dr. Suzana Shahar, Assoc. Prof. Dr. Mazlyfarina Mohamad & Prof. Dr. Chin Ai-Vyrn

University: Universiti Kebangsaan Malaysia (UKM)

6. Dr. Siti Madihah Muhammad Royani

The Salt@Home Method: Development and validation of a novel method for determining salt intake and its associations with psychosocial and nutritional factors in adults from Malaysian households

Supervisor: Asst. Prof. Dr. Vaidehi Ulaganathan

Co-supervisors: Assoc. Prof. Dr. Baskaran Gunasekaran, Assoc. Prof. Dr. Aryati Ahmad, Prof. Dr. Tanima Bhattacharya & Assoc. Prof. Dr. Lailatul Muniroh

University: UCSI University, Malaysia

The recipients for the MSC thesis prize are:

1. Sangeetha Manimaran

Development and Validation of Knowledge, Attitude and Practices Questionnaire on Food Waste Among Hospital Staffs: Addressing the Strategies and Challenges in Reducing Food Waste

Supervisor: Dr. Nurul Huda Razalli

Co-supervisors: Prof. Dr. Suzana Shahar & Prof. Dr. Zahara Abdul Manaf

University: Universiti Kebangsaan Malaysia (UKM)

The recipients for the Undergraduate thesis prize are:

1. Chin Jia Wen

Complementary and Alternative Medicine Usage and Its Association with Health Information Seeking Behaviour and Health Literacy among Adults with Chronic Kidney Disease

Supervisor: Dr. Khor Ban Hock

University: Universiti Malaysia Sabah (UMS)

2. Derrick Lu Hong E

Prevalence and Factors Associated with Adherence to Iron-Containing Supplementation among Pregnant Women Attending Selected Health Clinics in Hulu Langat, Malaysia

Supervisor: Dr. Lee Siew Siew

University: University of Nottingham Malaysia (UNM)

3. Divyaa Solai Rajan

Family Meals and Its Associations with Nutritional and Emotional Wellbeing among Parents in Klang Valley

Supervisor: Dr. Sharifah Intan Zainun Sharif Ishak

University: Management and Science University (MSU)

4. Intan Jasmira Md Yazid

Correlation between Knowledge, Attitude and Practice (KAP) of Iron Intake and Anaemia with Dietary Iron Intake among Female University Students in Kuala Nerus, Terengganu

Supervisor: Dr. Marhazlina Mohamad

University: Universiti Sultan Zainal Abidin (UniSZA)

5. Jojo Ting Sing Joe

Hydration Knowledge, Attitude, Physical Activity Level and Fluid Consumption Pattern among Undergraduate Students in the School of Health Sciences, Universiti Sains Malaysia Health Campus

Supervisor: Dr. Soo Kah Leng

University: *Universiti Sains Malaysia (USM)*

6. Liew Shue Wei

Perception and Motivators on the Use of Galactagogues among Chinese Breastfeeding Mothers around Klang Valley, Malaysia

Supervisor: Dr. Serene Tung En Hui

University: *IMU University, Malaysia*

7. Lim Wee Ting

Factors Associated with Health-Related Quality of Life (HRQoL) among Postpartum Mothers in Klang Valley, Malaysia

Supervisor: Dr. Nurzalinda Zalbaha @ Zabaha

University: *Universiti Putra Malaysia (UPM)*

8. Nazihah Mat Tajuddin

Persepsi Ibu Bapa Terhadap Iklan Makanan dan Minuman yang Disiarkan di Televisyen Malaysia (Parents' Perceptions of Food and Beverage Television Advertisements in Malaysia)

Supervisor: Dr. Sameeha Mohd Jamil

University: *Universiti Kebangsaan Malaysia (UKM)*

9. Ng Kai Yenn

Association between Academic Stress, Physical Activity and Eating Behaviour among Undergraduate Students in Klang Valley, Malaysia

Supervisor: Dr. Shashikala Sivapathy

University: *UCSI University, Malaysia*

10. Sarah Kok Tung Xing

The Mediating Role of Picky Eating Behaviour in the Relationship between Food Insecurity and Body Composition among Young Adults in Malaysia

Supervisor: Dr. Tan Seok Tyug

University: *Monash University Malaysia (MUM)*

NSM Publication Prize 2026

The NSM Publication Prizes are aimed at encouraging and promoting local research publications in nutrition science among NSM members. Prizes are awarded by the Nutrition Society of Malaysia with financial support from Corporate Members of the Society. In 2026 two Corporate Members of NSM supported this initiative, namely Fonterra Brands (Malaysia) Sdn. Bhd. (C1879) and Herbalife Products Malaysia Sdn. Bhd. (C2195).

Fonterra Brands Malaysia (Trading as Lactalis-Mainland Dairy) – Anlene sponsored a prize for one category of NSM Publication Prize for the year 2026, namely Mobility and Musculoskeletal Health and Nutrition. The intention was to provide one award each year, each carrying a cash prize of RM2,000 and a certificate by NSM.

Herbalife Products Malaysia Sdn. Bhd. offered to sponsor prizes for three categories of the NSM Publication Prize in different fields of nutrition research, namely (i) Roles of Dietary Fibre in Health, (ii) Intervention for Promoting Healthy Ageing, and (iii) Interventions for Promoting Nutritional Status of General Population. For each category, the intention was to provide one award for each year, each to carry a cash prize of RM2,000 and a certificate by NSM.

NSM Publication Prize: Mobility and Musculoskeletal Health and Nutrition

For the category of Mobility and Musculoskeletal Health and Nutrition sponsored by Fonterra Brands Malaysia (Trading as Lactalis-Mainland Dairy) – Anlene, one publication was submitted by one member for consideration by NSM. The Selection Committee decided to award the prize to the applicant with the following details:

Name of recipient: **Dr. Lim Sook Yee** (L2048)
Universiti Putra Malaysia

Publication: Associations between poor appetite, sarcopenia, and cognitive function in community-dwelling Malaysian older adults. *Journal of Preventive Medicine and Public Health* (2025), 58 (6): 589–598
<https://doi.org/10.3961/jpmph.25.196>

NSM Publication Prize: Interventions for Promoting Nutritional Status of General Population

For the category of Intervention for Promoting Nutritional Status of General Population sponsored by Herbalife Products Malaysia Sdn. Bhd., five publications were shortlisted for consideration by NSM. The Selection Committee decided to award the prize to the applicant, with the following details:

Name of recipient: **Nursyafiqah Aqilah Suhaimi** (O3233)
Universiti Putra Malaysia

Publication: An 8-week vitamin D3-fortified fruit drink supplementation increases serum ferritin concentration: A randomised controlled trial in Malaysian women with low iron stores. *Journal of the Academy of Nutrition and Dietetics* (2024), 124(11): 1440–1450.
<https://doi.org/10.1016/j.jand.2024.02.013>

For the category of Roles of Dietary Fibre in Health sponsored by Herbalife Products Malaysia Sdn. Bhd., one publication was submitted and considered by NSM. The Selection Committee decided to award the prize to the applicant, with the following details:

Name of recipient: **Tan Chee Yee** (O3131)
Universiti Putra Malaysia

Publication: Mature okra: A nutrient-dense crop with untapped applications in health, food and industry. *Journal of the Science of Food and Agriculture*, published online in 2026.
<https://doi.org/10.1002/jsfa.70733>

NSM Publication Prize: Intervention for Promoting Healthy Ageing

No applications were received for the Intervention for Promoting Healthy Ageing category; therefore, no publications were considered for this award.

NSM Young Researchers' Symposium Prizes 2026

Winners of the Young Researchers' Symposium are awarded a certificate and the following cash prizes:

1st Prize - RM400
2nd Prize - RM300
3rd Prize - RM200
1 Consolation Prize of RM100

Prizes for 2026, totalling RM1,000 are provided by International Life Sciences Institute (ILSI) Southeast Asia Region.

NSM Poster Competition Prizes 2026

This poster competition is for Postgraduates and Undergraduates. Winners are awarded a certificate and the following cash prizes:

Postgraduate prizes (5 winners):
1st Prize - RM300
2nd Prize - RM200
3rd Prize - RM150
2 Consolation Prizes of RM100 each

Undergraduate prizes (10 winners):
1st Prize - RM200
2nd Prize - RM150
3rd Prize - RM100
7 Consolation Prizes of RM50 each

Prizes for 2026, totalling RM1,650 are provided by International Life Sciences Institute (ILSI) Southeast Asia Region.

List of Scientific Posters

Scientific posters have been grouped into the following themes:

- A: Nutritional Status, Consumption Pattern & Disease
- B: Community Nutrition Promotion, Education & Interventions
- C: Clinical Nutrition / Intervention Trials
- D: Nutrients & Other Components in Foods / Products
- E: Experimental Nutrition (Animal and In-vitro Studies)
- F: Food Science & Technology
- G: Physical Activity / Sports Nutrition

Different posters will be displayed on the 2 days of the conference. Please visit the poster area on both days.

Posters with numeral code starting with 1 are displayed on Day 1. Posters with numeral code starting with 2 are displayed on Day 2.

Poster presentation

Group A: Nutritional Status, Consumption Pattern & Disease

- P-1001 Maternal dietary fibre intake during the first trimester and infant personal-social skill development: a mother-infant cohort study
Ling Jun Lee, Shiang Yen Eow, Wan Ying Gan, Su Peng Loh, Leslie Thian Lung Than, Norazlin Kamal Nor
- P-1002 Growing with the clock: How infant cortisol rhythms shape early growth trajectories
Ee Yin Kok, Satvinder Kaur, Nurliyana Abdul Razak, Nurul Husna Mohd Shukri, Masaki Takahashi
- P-1003 Preliminary findings of sustainable and healthy eating behaviours among higher education institution communities
Felicia Yan Lin Lee, Nithiah Thangiah, Maslinor Ismail, Heng Yaw Yong, Serene En Hui Tung, Wai Yew Yang, Bala Murali Sundram, Noran Naqiah Mohd Hairi, Ai Kah Ng, Norsyazmi Mohd
- P-1004 Beyond the classroom: parental smoking exposure, lifestyle behaviours, and cognitive performance of Malaysian primary schoolchildren
Nurul Hasanah Hasmuni Chew, Giin Shang Yeo, Shu Chin Teh, Bee Koon Poh, Shoo Thien Lee, Ilse Khouw, Alvin Lai Oon Ng
- P-1005 Associations between pregnancy and nutritional factors with blood pressure in the third trimester of pregnancy: A preliminary finding of the MYBIOTA cohort study
Shiang Yen Eow, Ling Jun Lee, Wan Ying Gan, Su Peng Loh, Yit Siew Chin, Leslie Thian Lung Than

- P-1006 Dietary behaviours and nutritional outcomes in children with autism spectrum disorder: A comparison with typically developing children
Wong Kai Xuan, Seong Ting Chen, Jun-Jean Ong, Wan Ying Gan, Chun Wie Chong, Nor Azian Abdul Murad, Nurul Hanis Ramzi
- P-1007 Prevalence of breakfast skipping among Malaysian shift workers in Klang Valley, Malaysia: A cross-sectional study
Emmanuel Ngelayang Anak Franky Giltelin, Nur Islami Mohd Fahmi Teng, Norsham Juliana
- P-1008 Prevalence of malnutrition and its associated factors among client of the Community-based Drug Treatment and Rehabilitation (CBTaR) in Kuala Terengganu
Huda Nabilah Sudin, Rohana Abd Jalil, Wan Mohd Zahiruddin Wan Mohammad, Tengku Alina Tengku Ismail, Arif Aji Sabta, Oui Peik Geik, Siti Azrin Ab Hamid, Nur Nadia Muhamed, Divya Vanoh, Mohd Azhar Mohd Yasin, Wahyu Rafdanil
- P-1009 Students' perceptions, attitudes, and intention to purchase healthy snacks and beverages from vending machines on campus
Aishath Zara Hussain, Nurliyana Abdul Razak
- P-1010 The Salt@Home method: Development and validation of a novel method for determining salt intake and its associations with psychosocial and nutritional factors in adults from Malaysian households
Siti Madiah Muhammad Royani, Vaidehi Ulaganathan, Baskaran Gunasekaran, Tanima Bhattacharya, Aryati Ahmad, Lailatul Muniroh
- P-1011 Factors associated with height-for-age z-score (HAZ) among children aged 6-36 months in Johor Bahru and Kulai, Johor
Suzaimahani Binti Othman, Chin Yit Siew, Nurzalinda Zalbahar
- P-1012 Parental perspectives on food-related beliefs in childhood cancer: A qualitative study at Hospital Tunku Azizah, Kuala Lumpur
Nurul Farhana Rahmat, Chin Yi Phang, Pei Teng Lum, Mohd Jamil Sameeha, Jyh Eiin Wong, Bee Koon Poh, Zulaiha Muda, C-Khai Loh, Roslee Rajikan
- P-1013 Vitamin D status and its associated factors among children living in low-cost flats in Kuala Lumpur, Malaysia
Nur Amalin Juhari, Yit Siew Chin, Syarifah Balqis Syed Ahmad
- U-1001 The association between breastfeeding practices, dietary quality, and post-partum depression among mothers in Selangor, Malaysia
Jia Wen Tham, Sarina Sariman, Fahmi Hafidz
- U-1002 The role of intrinsic motivation in promoting sustainable dietary practices among university students
Chong Ci Tan, Sara Subhan, Snigdha Misra
- U-1003 Relationship between risk perception of type 2 diabetes mellitus and physical activity level among young adults in Malaysia
Yuxuan Tang, Yap Eunice Xuan Yen, Nik Nur Izzati Nik Mohd Fakhruddin, Amutha Ramadas

- U-1004 Cross-sectional study on phytoestrogen intake and mood variability in perimenopausal and postmenopausal women
Jie Rou Seow, Ramlah Mohamad Ibrahim, Tomoko Soga, Mageswary Sivalingam
- U-1005 A cross-sectional study on phytoestrogen intake and mood variability in menstruating and perimenopausal women
Isabel Fidelia Handjojo, Ramlah Mohamad Ibrahim, Tomoko Soga, Mageswary Sivalingam
- U-1006 eHealth literacy and its association with digital nutrition tool use and perceived dietary changes among Malaysian adults
Yuen Zi Wong, Amutha Ramadas, Siao En Wong, Katherine Ooi Wei-Lin
- U-1007 Association between binge eating disorder, psychological wellbeing, and weight status among University Students
Momtaha Alam Raiba, Shashikala Sivapathy
- U-1008 Association between emotional eating, sleep quality, and weight status of Malaysian undergraduate students in UCSI University
Liew Ki, Shashikala Sivapathy
- U-1009 Association between breakfast skipping and gut health among university students in Klang Valley
Ter Zhi Yin, Satvinder Kaur Nachatar Singh, Rachel Hii Jia Rui
- U-1010 Prevalence of anaemia and associated factors among young women aged 18 - 25 years in Klang Valley, Malaysia
Lee Zi Qi, Satvinder Kaur Nachatar Singh
- U-1011 Association between academic stress, physical activity and eating behaviours among undergraduate students in Klang Valley, Malaysia
Ng Kai Yenn, Shashikala Sivapathy
- U-1012 Diet quality and protein source patterns among women of reproductive age in Universiti Kebangsaan Malaysia, Kuala Lumpur campus
Nur Aliyah Fakhirah Mohd Fadzly, Law Chai Jia, Hasnah Haron
- U-1013 Health-related quality of life with musculoskeletal symptoms and sarcopenia among middle-aged women in Kuala Lumpur and Selangor
Yong Jin Ting, Nor Farah Mohamad Fauzi, Jyh Eiin Wong
- U-1014 The association of exposure to food and beverages marketing and purchasing behaviour via social media with food choice and body mass index status among university students in Malaysia
Nurhannah Farzana Muhammad Affendi, Mohd Jamil Sameeha
- U-1015 Facilitators and barriers to food label reading among older adults in Klang Valley
Ishma Nazihah Hudal Firdaus, Siti Aminah Mohd Alwalik, Hanis Mastura Yahya, Yee Xing You
- U-1016 Comparison of nutritional status and physical functional capacity among paediatric cancer patients at diagnosis and after receiving treatment at Hospital Tunku Azizah Kuala Lumpur
Ivy Chong Zhi Tian, Pei Teng Lum, Nurul Farhana Rahmat, Chin Yi Phang, Bee Koon Poh

- U-1017 Usability of nutrition screening tool for childhood cancer in determining nutritional status of paediatric cancer patients at Hospital Tunku Azizah, Kuala Lumpur
Aina Syafiqah Mohd Hilmi, Lum Pei Teng, Phang Chin Yi, Nurul Farhana Rahmat, Poh Bee Koon
- U-1018 Musculoskeletal symptoms and its association with age and weight status among middle-aged women in Kuala Lumpur and Selangor
Athira Nadia Muhd Shahkine Rudin, Nor Farah Mohamad Fauzi, Wong Jyh Eein
- U-1019 Association between eHealth literacy and dietary behaviours among university students and staff: A cross-sectional study
Siti Yunisah Mohd Ruzaleh, Ban Hock Khor
- U-1020 Associations of sociodemographic characteristics, pregnancy-related variables and gastrointestinal symptoms with iron supplementation compliance scores among pregnant women in 5 selected health clinics in Selangor
Nur Amalin Aisyah Sauti, Salma Faeza Ahmad Fuzi
- U-1021 Late-night eating among late-night eaters in the Klang Valley: A Theory of Planned Behaviour study
Muhammad Faisyal Dawar, Gan Wan Ying
- U-1022 Factors associated with the frequency of online food delivery services usage among university students
Aisyah Wardina Asyhar Badri, Wan Ying Gan
- U-1023 Factors associated with constipation among community-dwelling older adults in the Klang Valley
Chai Foong Liew, Siti Nur' Asyura Adznam
- U-1024 Association between ultra-processed food consumption with sociodemographic characteristics and body weight status among higher education students in Kuala Nerus, Terengganu
Masturina Marsya Mazlan, Siti Norhasnatul Jannah Zainudin, Hasmiza Halib, Napisah Hussin
- U-1025 Parental feeding practices and weight status among children with learning disabilities in Kuala Terengganu, Terengganu
Nurul Shuhaida Imran, Laila Ruwaida Mohd Zainuddin
- U-1026 Association between breakfast consumption and cognitive performance among B40 children in Kuala Nerus, Terengganu
Nur Aisyah Ab. Aziz, Sharifah Wajihah Wafa Syed Saadun Tarek Wafa
- U-1027 Double burden of malnutrition and its association with diet quality and meal patterns among working adults in Terengganu
Nor Syakirah Zakiah Ahmad, Wan Nur Alya Faiqah Wan Kamaruzaman, Nur Sabrinasyaza Muhammad, Nurin Ayuni Syazwani Mohd Tajudin, Chee Yen Wong
- U-1028 Correlation between macronutrient intake and happiness among overweight and obese female adults
Nur Iznai Maisyara Suhaimi, Marhazlina Mohamad
- U-1029 Association between diet quality and nutritional status among children in B40 households in Kuala Nerus, Terengganu
Nurshafika Hardi, Sharifah Wajihah Wafa Syed Saadun Tarek Wafa

- U-1030 Lifestyle behaviours, psychological health, and nutritional status among working adults in Terengganu
Wan Nur Alya Faiqah Wan Kamaruzaman, Nor Syakirah Zakiah Ahmad, Nur Sabrinasyaza Muhammad, Nurin Ayuni Syazwani Mohd Tajudin, Chee Yen Wong
- U-1031 Association between mental health, psychological well-being and food security among mothers in B40 households in Terengganu
Nur Alia Maisarah Zamri, Bee Suan Wee
- U-1032 Infant and young child feeding practices and nutritional status among infants aged 6-15 months in Hulu Langat and Sepang District, Selangor
Michael Wei Kheng Foong, Kimberly Weng Kuan Tan, Siew Siew Lee
- U-2048 Food choice motives, body weight status, and body image perception among UCSI University students
Lim Chia Ying, Nurliyana Abdul Razak
- X-2001 Prevalence and factors associated with stunting among children in *Projek Perumahan Rakyat* (PPR) Pak Mahat, Kuantan, Pahang
Roselawati Mat Ya, Wan Azdie Mohd Abu Bakar, Luqman Al Bashir
- X-2002 Recommendations on national food availability through the Nutrition Enhancing Agriculture-Food Supply Calculator (NEA-Calculator) based on the Malaysian Dietary Guidelines 2020
Ain Hanani Budiono, Khairul Zarina Mohd Yusop
- X-2003 Dietary fat-to-carbohydrate ratio is associated with body mass index independent of socio-economic factors in multi-ethnic Malaysian women
Sia Yen Yap, Yen Teng Ng, Phooi Tee Voon, Seok Shin Tan, Seng Huat Ong, Su Peng Loh, Norhaizan Mohd Esa
- X-2004 Parental and child eating behaviours, household food insecurity, and their associations with weight status among Malay children aged 7-12 years in the Klang Valley, Malaysia
Thipashri Muthamil Selavan, Chan Kai Sze, Thanusha Supparau, Wan Nur Aleeya Wan Najmi, Thiru Kumaran Mogana Kumar, Ang Yeow Nyin
- X-2005 Association between academic stress, adverse childhood experiences and eating behaviour among university students in Klang Valley, Malaysia
Christy Foo Shen Tze, Shashikala Sivapathy
- X-2006 Unhealthy dietary behaviours and psychological distress among Malaysian school-going adolescents: a national cross-sectional study
Kee Chee Cheong, Cheah Yong Kang, Tan Lay Kim, Chong Guey Yong, Sumarni Mohd Ghazali, Teh Chien Huey, Lim Hui Li, Cheong Yoon Ling, Chan Ying Ying, Najjah Tohar, Yusrina Mohd Yusoff, Muhd Zulfadli Hafiz Ismail, Lim Kuang Kuay
- X-2007 Handgrip strength predicts cardiometabolic risk among children aged 6 to 12 years: findings from SEANUTS II Malaysia
Chan Kai Sze, Farah Nor Mohamad Fauzi, Jyh Eiin Wong, Bee Koon Poh, Koh Denise, Khouw Ilse
- X-2008 Contribution of energy and nutrients across meals and snacks among Malaysian schoolchildren: Findings from SEANUTS II
Giin Shang Yeo, Shoo Thien Lee, Jyh Eiin Wong, Nik Shanita Safii, Bee Koon Poh, Ilse Khouw

- X-2010 Sociodemographic differences in sweet taste perception and hedonic responses among Malaysian adults
Law Bee Pek, See Meng Lim, Bee Koon Poh, Gün Shang Yeo, Hasnah Haron
- X-2011 Nutritional vulnerabilities and socio-economic barriers among marginalised children in Sabah's Alternative Learning Centres
Yasmin Beng Houi Ooi, Ban Hock Khor, Ramlah George
- X-2012 Where Malaysians drink most: A national study of sugar-sweetened beverages across mealtimes
Nurulhudha Mohd Jamil, Norhasmah Sulaiman, Loh Su Peng, Gan Wan Ying, Salma Faeza Ahmad Fuzi, Siti Raihanah Shafie, Nur Arina Bakeri, Munirah Samsul, Syafiqah Rahamat, Nur Amalina Amirullah
- X-2013 Dysmenorrhea and its associated factors among secondary school students in Manjung, Perak
Nurzalinda Zalbahar, Nurfatini Izzati Zulkifle
- X-2014 Scrolling into unhealthy diets? Associations between social media use and dietary behaviours among Malaysian young adults
Nurul Ain Azizan, Pei Ling Tan

Group B: Community Nutrition Promotion, Education & Interventions

- P-1016 Empowering young lives: Evaluating the eToyBox LMS for promoting energy balance-related behaviours among preschoolers, a non-randomised controlled trial
Michael Pui Chia Shin, Cheah Whye Lian
- P-1017 Exploring dietary acculturation among first-generation Turkish immigrants in Malaysia: A qualitative study
Nurunnisa Kartal Engin, Norhasmah Sulaiman, Nurzalinda Zabahar@Zabaha, Siti Nur'Asyura Adznam
- P-1018 Barriers to healthier food retail environment in Malaysia: Stakeholder perspectives from a needs assessment
Shu Chin Teh, Christine Joan, Mohd Jamil Sameeha, Bee Koon Poh, Elaine Q. Borazon, Avita Usfar, Sirinya Phulkerd, Nisha Arunatilake, Anne-Marie Thow
- P-1019 Assessing informal food vendor motivations and challenges for healthier food environments: A qualitative study in Kuala Lumpur, Malaysia
Scott David Hastie, Siew Siew Lee, Festo Massaawe, Ee Von Goh
- P-1020 Effects of a six-day whole-diet salty taste intervention on taste perception, dietary behaviour, and individual differences in young adults
Victoria Olarewaju, Yee-How Say, Yook Chin Chia
- P-1021 Feasibility of a Train-the-Trainer (TTT) programme to enhance digital health literacy and youth empowerment among nutrition students
Lim Shuen, Yit Siew Chin, Nurul Faqihaha Az-Zahra Mohd Hashim, Yit Siew Chin, Pui Yee Tan, Yun Yun Gong, Shi Hui Cheng, Ai Ni Teoh, Mahenderan Appukutty, Chan Yoke Mun

- P-1022 Body composition and cardiometabolic risk among primary school children with excess weight in Selangor
Nor Hasyimah, Yit Siew Chin, Pei Wen Su, Thivvyatracynty Mohan Kannan, Nor Baizura Md Yusop, Yoke Mun Chan, Poh Ying Lim, Firdaus Mukhtar, Intan Hakimah Ismail, Than Thian Lung Leslie, Mahenderan Appukutty
- P-1023 Relationship between dietary intake, physical activity and postpartum weight gain among urban Malaysian mothers
Shinara Mennam Koval, Vaidehi Ulaganathan, Digsha Augundhooa, Siti Madihah Muhammad Royani
- P-1024 Nutritional knowledge, attitudes, and practices of people living with Human Immunodeficiency Virus (HIV): a systematic review protocol
Angielica Reambillo-Navasero, Elizabeth Arenas, Emmanuele Mistades, Kate Nicole Sison, Ma Pri-Ann Tinipunan, Paige van der Pligt
- U-1033 Engagement with digital nutrition platforms and its association with changes in dietary behaviours of adult Internet users in Malaysia
Wong Siao En, Katherine Ooi Wei-Lin, Yuen Zi Wong, Amutha Ramadas
- U-1034 Association between utilisation, perceived benefits, challenges, and health outcomes of using digital health tools among adult internet users in Malaysia
Katherine Ooi, Siao En Wong, Yuen Zi Wong, Amutha Ramadas
- U-1035 Relationship between risk perception of type 2 diabetes mellitus and mindful eating behaviour among young adults in Malaysia
Eunice Xuan Yen Yap, Yuxuan Tang, Nik Nur Izzati Nik Mohd Fakhruddin, Amutha Ramadas
- U-1036 Understanding awareness, barriers, and challenges to Mediterranean diet adherence among adults in Malaysia: A qualitative study
Ong Jia Yau, Vaidehi Ulaganathan, Digsha Augundhooa, Baskaran Gunasekaran
- U-1037 Understanding the impact of a culinary medicine workshop on nutrition knowledge and dietary behaviour: A qualitative study
Mei Chen Tan, Vaidehi Ulaganathan, Digsha Augundhoa, Baskaran Gunasekaran, Jessica See, Patrick Lim
- U-1038 Awareness, barriers, and challenges towards mediterranean diet adherence among cardiovascular patients in Malaysia: A qualitative study
Sarjithaa Ramarao, Vaidehi Ulaganathan, Digsha Augundhooa, Baskaran Gunasekaran
- U-1039 Association between social media addiction, eating behaviours and body image dissatisfaction among Malaysian undergraduates in Klang Valley
Danielle Boon Xie Ng, Shashikala Sivapathy
- U-1040 Nutritional awareness and health consciousness: Do they affect consumer wine consumption pattern and choices? - A qualitative study
Yi Wen Lim, Vaidehi Ulaganathan, Baskaran Gunasekaran, Digsha Augundhooa
- U-1041 Household Food Insecurity and their association with food safety knowledge, attitude, and practices (KAP) among urban poor mothers in Kuala Lumpur
Chin Xin Nuo, Aarick Toh Shen Goh, Stephenie Yoke Wei Wong

- U-1042 Development and evaluation of a recipe-based education guide for salt reduction strategies
Uzma Fathnin Azmi, Nurul Fatin Malek Rivan, Hanis Mastura Yahya, Suzana Shahar, Norhasniza Yaacob
- U-1043 The For You Page (FYP) trap: adolescents' exposure to unhealthy food and unregulated supplement marketing on TikTok
Sanggeetarsi K Santharan, Mohd Jamil Sameeha
- U-1044 Development and validation of a questionnaire on motivation and challenges towards healthy ageing among cancer survivors in Malaysia
Wan Aineen Sofea Wan Mohd Jeffri, Nor Alisa Sofia Jasmesri, Mohd Razif Shahril
- U-1045 What Generation X and Millennial parents think about the effect of unhealthy food marketing on social media among adolescents in Kuala Lumpur and Selangor?
Chai Min Er, Sameeha Mohd Jamil
- U-1046 Development and validation of a knowledge, attitude, and practice questionnaire on healthy ageing among cancer survivors in Malaysia
Nor Alisa Sofia Jasmesri, Wan Aineen Sofea Wan Mohd Jeffri, Mohd Razif Shahril
- U-1047 Food selection, photography and validation of food images for the Malaysian version of the Leeds Food Preference Questionnaire
Lim Jian Yao, See Meng Lim, Bee Pek Law, Bee Koon Poh, Hasnah Haron
- U-1048 Effectiveness of a one-day sodium reduction workshop on sodium intake and knowledge, attitudes, and practices (KAP) among Malaysian adults: A quasi-experimental study
Siti Nur Azirah Zamri, Nurul Fatin Malek Rivan, Hasnah Haron, Suzana Shahar
- U-1049 Development and content validity evaluation of nutrition and lifestyle e-book for women experiencing infertility
Marlissa Nurhanny Mohd Asmi, Razinah Sharif
- U-1050 Assessment of food environment based on availability of healthy and unhealthy foods at night markets in Kuala Lumpur and Kedah
Najwa Amni Mohd Nazri, Poh Bee Koon
- U-1051 Prevalence of sarcopenia and its association with age and weight status among middle-aged women in Kuala Lumpur and Selangor
Shenegapriyavaty Manickam, Jyh Eiin Wong, Nurul Fatin Malek Rivan, Poh Bee Koon
- U-1052 Maternal characteristics-related determinants of exclusive breastfeeding among mothers in Kota Kinabalu, Sabah: a cross-sectional study
Malisa Cheon, Norliyana Aris
- U-1053 Support system-related determinants of exclusive breastfeeding among mothers in Kota Kinabalu, Sabah: a cross-sectional study
Keng Su Min, Norliyana Aris
- U-1054 Factors associated with sustainable food consumption behaviour among foundation students in Universiti Putra Malaysia
Jolene Zu Fei Tiow, Wan Ying Gan

- U-1056 Association of maternal, obstetric and lifestyle factors with maternal psychological distress among postpartum mothers in *Klinik Kesihatan* in Klang Valley, Malaysia
Qiu Thong Chong, Qian Ni Chan, Ruo Xuan Goi, Jeya Kumar Jeysree, Nurul Husna Mohd Shukri
- U-1057 Factors associated with iron compliance scores among pregnant women in 5 selected health clinics in Selangor
Rabiatul Rodiah Razali, Salma Faeza Ahmad Fuzi
- U-1058 Associations of maternal characteristics, lifestyle and psychological factors with total polyunsaturated fatty acids (PUFA) levels in breast milk of lactating women in Klang Valley
Qian Ni Chan, Ruo Xuan Goi, Qiu Thong Chong, Jeysree Jeya Kumar, Nurul Husna Mohd Shukri
- U-1059 Factors associated with preconception health attitude among individuals attending premarital course in Klang Valley
Salsabila Hanani Jauhari Affandi, Nurzalinda Zalbahar
- U-2001 Factors associated with sexual practices among unmarried university students
Muhammad Syahmi Rusdi, Nurzalinda Zalbahar@Zabaha, Fatimah Ahmad Fauzi
- U-2002 Factors associated with intra-household food allocation among mothers and children aged 2 to 12 years in *pangsapuri* under *Majlis Perwakilan Penduduk* (MPP) Zon 8, Seksyen 24, Shah Alam
Nur Izzati Alya Mohamad Nadzri, Norhasmah Sulaiman
- U-2003 Factors associated with malnutrition risk among community-dwelling older adults in Klang Valley and Putrajaya
Nor Syahidah Ibnu Mas'ud, Siti Nur'Asyura Binti Adznam
- U-2004 Associations of sociodemographic factors, parental factors, body composition, and dietary inflammatory index with BMI-for-age among selected primary schools in Selangor
Nur Aisyah Khairina Md Khairuddin, Chin Yit Siew, Izzati Shubri, Nor Hasyimah Khalid, Su Pei Wen
- U-2005 Development of Nutrition Pop-up Book (Re-bookz) from recycled materials and its usability among parents and children
Adam Khusyairy Ahmad Suhiamin, Nurul Nadzirah A Latif, Abbe Maleyki Mhd Jalil
- U-2006 An assessment of knowledge, attitudes, and practices regarding probiotic and prebiotic consumption among higher education students in Kuala Nerus, Terengganu
Nur Zafirah Nasuha Che Hashim, Napisah Hussin
- UX-2001 NutriPlanet: A validated education module to promote sustainable healthy diets in university students
Siang Fatt Yong, Pak Yen Tan, Serene En Hui Tung, Heng Yaw Yong, Megan Hueh Zan Chong
- UX-2002 Development and evaluation of calorie labelling: Customers' knowledge, attitudes, practices and usability in a university cafeteria
Yuen Han Chan, Heng Yaw Yong, Pei Nee Chong, Ai Kah Ng, Farhatun Amaliyyah Ab Murad

- X-2015 e-DineSmart: Development and evaluation of a bilingual e-learning platform to improve food safety and healthy cafeteria practices among university food handlers
Sze Min Ong, Enn Xi Lim, Heng Yaw Yong, Pei Nee Chong, Marliana Omar Bakhi
- X -2016 Validation of a nutrition literacy instrument for community-based assessment of Malaysian adults
Wai Siew Teh, Nabila Huda Hamdan, Nadrah Mohamad Hafizoo, Ainor Farahin Aziz, Muhammad Furqan Razak, Azrul Zafri Azuri
- X -2017 Knowledge, attitudes, and beliefs toward plant-based meat alternatives among university students
Snigdha Misra, Hema T. Parthipan Rajah, Sara Subhan
- X-2019 Exploring challenges and strategies for reducing food waste in Malaysian hospitals: perspectives of multidisciplinary professionals through a qualitative descriptive study
Sangeetha Manimaran, Nurul Huda Razalli, Zahara Abdul Manaf, Suzana Shahar
- X-2020 Interventions to reduce food-related pester power among children: A scoping review
Sameeha Mohd Jamil
- X-2021 CoPT Nutri Trail: A school-based digital nutrition education to improve adiposity outcomes among overweight and obese children
Norhasniza Yaacob, Ruzita Abd Talib, Mohd Izwan Mahmud, Amirah Ismail
- X-2022 The role of seasonal wild foods in food security: Insights from communities in northwestern Philippines
Charina Javier, Norhasmah Sulaiman, Amin Ismail, Shamsul Azahari Zainal Badari, Eva Goyena
- X-2023 Weight status, eating behaviour, physical activity and blood pressure among female non-academic university staff in Kuala Nerus, Terengganu
Nur Ira Syafiqah Aziman, Marhazlina Mohamad
- X-2024 A pilot study on integrating interactive nutrition education into badminton training for primary school students in Kuching, Sarawak
Zheng Feng Ang
- X-2025 The newly usage of Maternal Anaemic Reporting System (MARS) as a structured reporting tool for managing anaemia in pregnancy patients in government health clinics in Kota Kinabalu Sabah
Ling Swee Nian

Group C: Clinical Nutrition / Intervention Trials

- P-1025 Carbohydrate quantity, not glycaemic index or fat quality, drives postprandial glycaemic and incretin responses in rice-based meals
Gowri Nagapan, Tilakavati Karupaiah, Sreelakshmi Sankara Narayanan, Yeong Chai Hong, Rozman Zakaria, Abdul Halim Abdul Gafor, Kanga Rani Selvaduray
- P-1026 Associations of recreational physical activity and sedentary behaviour with colorectal cancer risk
Iffaah Jasmine, Vaidehi Ulaganathan, Digsha Augundhooa, Siti Madihah Muhammad Royani, Baskaran Gunasekaran

- U-2007 Influence of knowledge, attitudes, and dietary habits on sustainable food consumption practices among university students in Malaysia
Teoh Wei Jin, Snigdha Misra
- UX-2003 Phytochemical consistency of a polyherbal beverage during scale-up and its exploratory effects on sleep quality
Jacqueline Sim, Pei Ling Tang
- X-2026 Does prenatal omega-3 supplementation enhance child intelligence? Evidence from an updated systematic review and meta-analysis
Han Yin Lim, Vimala Balasubramaniam, Wan Ahmad Syazani Mohamed, Mohammad Adi Mohammad Fadzil, Suraiami Mustar, Imanul Hassan Abdul Shukor, Zhun Wieng Lai
- X-2027 Evaluation of the Young Nutri Genius programme: A post-COVID virtual nutrition education and home-based exercise intervention among children with excess weight
Asvini Vasthavan, Chin Yit Siew, Mahendran Appukutty, Poh Ying Lim, Firdaus Mukhtar
- X-2028 From diet to vision: red palm olein-enriched biscuit supplementation as a preventive approach to xerophthalmia
Tan Pei Yee, Radhika Loganathan, Kim Tiu Teng, Kanga Rani Selvaduray, Chuan Chun Lim, Katherine Boon Hwei Seng, Norlina Ramli, Yvonne Ai Lian Lim, Syahirah Nadiah Mohd Johari
- X-2029 Oral nutritional supplementation with nutrition education improves growth, dietary intake and appetite among underweight preschool children in Kuala Lumpur, a multi-center community-based randomised controlled trial
Abdul Hakim Abdul Wahid, Zahara Abdul Manaf, Hana Hamzaid, Haslina Abdul Hamid, Rosnah Sutan
- X-2030 Acute effect of eating different portion sizes of cucumber on perceived appetite, satiety and energy intake among healthy individuals
Ramlah George, Nurul Syahirah Jeffrey
- X-2031 The effect of a soya based dietary fibre beverage on adiposity and systemic inflammatory markers among overweight adults: A randomised controlled study
Nurraihana Hamzah, Hamid Jan Jan Mohamed, Divya Vanoh, Dzulkiflee Ismail, Siti Azhani Amran, Wan Izani Wan Mohammed, Majid Khan Majahar Ali, Nur Amanina Zainuddin

Group D: Nutrients & Other Components in Foods / Products

- U-2008 Anti-diabetic enzyme inhibition potential and antioxidant activity of *Vanilla planifolia* extract
Fatimah Zulkifli, Bee Ling Tan
- U-2009 Effects of domestic cooking methods on proximate composition, antioxidant capacity, and enzyme-inhibitory properties of *Solanum nigrum* leaves
Megan Lim Jia Yin, Premdass Ramdas, Ramlah Mohamad Ibrahim
- U-2010 Determination of perfluorooctanesulfonic acid (PFOS) content in Char Kuey Teow sold at street stalls and health risk assessment
Muhamad Aidil Adham Norizaham, Razinah Shahrif, Normala Abd Latif

- U-2011 Market characteristics of commercial ready-to-drink fruit and vegetable beverages and physicochemical analysis of selected products in Malaysia
Fan Ni Enn, See Meng Lim, Bee Koon Poh, Haron Hasnah
- U-2012 Sodium labelling compliance and availability of lower sodium flavouring products in the Malaysian retail food environment
Aida Afira Wong Adam, Burmese Wong Wei Sung, Nurul Fatin Malek Rivan, Hanis Mastura Yahya
- U-2013 Determination of sugar content in selected flavoured coffee beverages and health risk assessment among young adults
Sofea Eleena Nasurah Saipolazmi, Razinah Sharif
- U-2014 Determination of phytic acid and sodium content in different types of fermented soybean foods (tempeh, tauco and douchi)
Sze Qi Kew, Norhaizan Mohd. Esa
- U-2015 Antioxidant and anti-inflammatory activities in selected Malaysian herbs (*Selaginella doederleinii*, *Melastoma malabathricum* L., *Millettia atropurpurea*, *Quercus infectoria* & *Syzygium polyanthum*)
Nur Ainaa Farhana Mohd Sahidi, Norhaizan Mohd Esa
- U-2016 Comparison of vitamin C content in fresh and pickled fruits of *Psidium guajava* at different serving sizes: Food composition table calculation and analytical method determination
Pei Yee Chew, Amin Ismail
- U-2017 Determination of phytate, iron, zinc, calcium levels and their molar ratios in selected brown and refined rice flours in Malaysia
Jia Xuan Ang, Norhaizan Mohd. Esa
- U-2018 Comparison of sodium values declared on nutrition labels and laboratory measurements in processed and ultra-processed foods
Qiao Yi Ng, Azrina Azlan
- U-2019 The effect of fermentation time on antioxidant properties of tempeh with different type of beans
Ana Nazura Zainudin, Siti Raihanah Shafie
- U-2020 Effect of baking and boiling on total iron content and iron bioaccessibility in iron-fortified and unfortified wheat flour
Joan Liz Liu, Mohd Redzwan Sabran
- U-2021 Sugar composition and predicted in vitro glycaemic response of selected Malaysian street beverages in Putrajaya
Eira Ailbe Mohamad Nidzam, Amin Ismail
- U-2022 Comparison of free and bound phenolic acids content and antioxidant activity in young and matured coconut water
Afrina Filza Ab. Fatah, Amin Ismail
- U-2023 Biostability of total anthocyanin in red grapes juice (*Vitis Vinifera* L.) incorporated with green apple juice (*Malus Domestica*)
Nur Anis Nasuha Azmi, Nurul Husna Shafie
- U-2024 Physicochemical characteristics and sensory acceptance of a functional snack bar incorporated with dates
Nurul Aliah Shamsul Bahri, Norhayati Abd. Hadi

- U-2025 Physicochemical characteristics and sensory acceptance of cookies incorporated with rolled oats
Wan Ilhami Fagihah Wan Mohd Nazri, Norhayati Abd Hadi
- U-2026 Physicochemical properties, antioxidant activity, and sensory acceptability of yoghurt incorporated with purple sweet potato
Nur Elyana Ramli, Napisah Hussin, Abbe Maleyki Mhd Jalil
- U-2027 Nutrient composition and glycaemic index of dark chocolate cookies prepared with barley flour
Nur Qistina Sofea Muhammad Yusro, Hasmiza Halib
- U-2028 Physicochemical and sensory acceptance of crackers incorporated with underutilised *Artocarpus integer* rags
Nur Batrisyia Mohd Nawwi, Laila Ruwaida Mohd Zainuddin
- U-2029 Physical characteristics and sensory analysis of dark chocolate cookies prepared with barley flour
Nur Nabilah Mahamanayi, Hasmiza Halib
- U-2030 Physicochemical properties, sensory acceptance, and glycaemic index of energy bars incorporated with sweet potato flour (*Ipomoea batatas*)
Nur Musfirah Ghazali, Napisah Hussin
- U-2031 Functional properties, sensory evaluations, and consumer acceptance of protein powder extracted from melon manis Terengganu peel, seed and flesh
Ainnur Balqis Zolkipli, Mohd Adzim Khalili Rohin
- U-2032 Functional properties, sensory evaluation and consumer acceptance of protein extracted from immature Melon Manis Terengganu
Munirah Izzah Mohd Azmi, Mohd Adzim Khalili Rohin
- U-2033 Physicochemical properties and antioxidant capacity of energy gels developed from overripe mango (*Mangifera indica* L.) and guar gum
Nurzawannah Muhammad Amin, Rabiatul Atirah Rosliza @ Rosli, Abbe Maleyki Mhd Jalil
- U-2034 Winged bean (*Psophocarpus tetragonolobus*): Functional characterization and potential contribution to sustainable plant-based protein systems
Xin-Qi Megan, Chew, Festo Massaawe
- U-2040 Physicochemical and sensory acceptance of crackers incorporated with underutilised jackfruit rags
Ainie Wahidah Che Ismail, Laila Ruwaida Mohd Zainuddin
- UX-2004 Effects of different extraction methods on colour stability, phytochemical content, and antihyperglycaemic potential of *Pandanus amaryllifolius* extract
Shervien Tan, Nurul Nadiyah Mohamad Nasir
- X-2033 Exploring commercially available dietary supplements with cognitive-enhancing claims in Kuala Lumpur and online platforms
Hanis Mastura Yahya, Ng Wei Jie

Group E: Experimental Nutrition (Animal and In-vitro Studies)

- U-2035 A comparative analysis of proximate composition, antioxidant activity, and enzyme-inhibitory properties in peeled and unpeeled *Curcuma caesia*
Ming Er Kau, Premdass Ramdas, Ramlah Mohamad Ibrahim
- U-2036 Phytochemical and in-vitro bioactivity analyses of germinated brown rice from Sabah: potential relevance to metabolic syndrome management
Bee Sin Yau, Noor Atiqah Aizan Abdul Kadir, Nur Hanisah Azmi
- U-2037 Anthocyanin-rich bigel beads from black rice for sustained release under ageing-mimicking gastrointestinal conditions
Siti Nurizati Ismail, Noor Atiqah Aizan Abdul Kadir
- X-2032 Sialylated-mucin glycoprotein from edible bird's nest extracts protect hypercholesterolemic rabbits against vascular oxidative stress and inflammation by alteration the NOS3/NF- κ B signaling pathway
Nurul Nadiah Mohamad Nasir, Ramlah Mohamad Ibrahim, Seng Joe Lim, Rozi Mahmud, Nor Asma Ab Razak, Norsharina Ismail, Kim Wei Chan, Md Zuki Abu Bakar

Group F: Food Science & Technology

- P-1030 Sensory profiling and characterization of a sugar-minimized functional food bar incorporating underutilised borneo fruit
Lu Ying Khoo, Azrina Azlan, Siti Raihanah Shafie, Wan Ying Gan, Mohd Redzwan Sabran, Nang Ling Chuo
- P-1031 Understanding food safety practices among home-based food handlers
Cheong J-Sun, Stephenie Yoke Wei Wong, Satvinder Kaur Nachatar Singh
- U-2038 The development of plant-based nugget, nutrient determination and consumer acceptance
Suriya Putri Jaafar, Razinah Sharif, Ika Aida Aprilini Makbul
- U-2039 Physical, nutritional and sensory evaluation of plant-based patty incorporating green banana (*Musa spp.*) flour
Tzer Fen Tan, Wan Rosli Wan Ishak
- UX-2005 Effects of ultrasound-assisted extraction parameters on antioxidant properties, antimicrobial activity, and colour retention of curry leaf (*Murraya koenigii*) extract
Shuang Yun Yap, Zunura'in Zahali
- UX-2006 Effects of osmotic and ultrasound-assisted osmotic dehydration pretreatments on vacuum-dried purple sweet potato powder
Xin Lee, Siok Peng Kek
- X-2034 Nutritional characterisation and application potential of biosafe single-cell oil and carotenoids from *Rhodotorula mucilaginosa* DLVYJT for functional food development
Tuyen Truong, Quoc Duy Nguyen

Group G: Physical Activity / Sports Nutrition

- U-2042 The influence of sports nutrition knowledge and body image perception towards the use of ergogenic supplements among university athletes and recreational sports players in the Klang Valley
Lim Jia Ying, Nurliyana Abdul Razak
- U-2043 Motivation for physical activity and exercise, body image, and physical activity level among university students in Kuala Lumpur
Zhenwen Siow, Nurliyana Abdul Razak
- U-2044 Associations between chronotype, sleep quality and physical activity among university students in Kuala Lumpur and Selangor
Diviyah Kumaran, Nurliyana Abdul Razak
- U-2045 Social, community and environmental support for physical activity participation and involvement in organised sports among adolescents in the Larut Matang and Selama, Perak
Haziqah Insyirah Mohamed, Nurin Syazwani Sharudin, Mohd Razif Shahril
- U-2046 Social, community and environmental support for participation in physical activity and organised sports among children in Seberang Perai Utara, Pulau Pinang
Nurin Syazwani Sharudin, Haziqah Insyirah Mohamed, Mohd Razif Shahril
- U-2047 Comparison of hydration status, fluid intake and sweat rate among combat sports athletes in Penang, Malaysia
Jia Wei Lee, Lean Hiong Loo, Jyh Eiin Wong
- X-2035 Inadequate energy intake and eating disorder symptoms among injured university athletes during rehabilitation
Nurul Fadhillah Abdullah, Nur Shafiqah Mansor
- X-2036 Urban-suburban disparities in physical activity and cardiometabolic risk among Malaysian working adults: An objective measurement study
Nur Izzatun Nasriah Nasruddin, Anto Cordelia Tanislaus Antony Dhanapal



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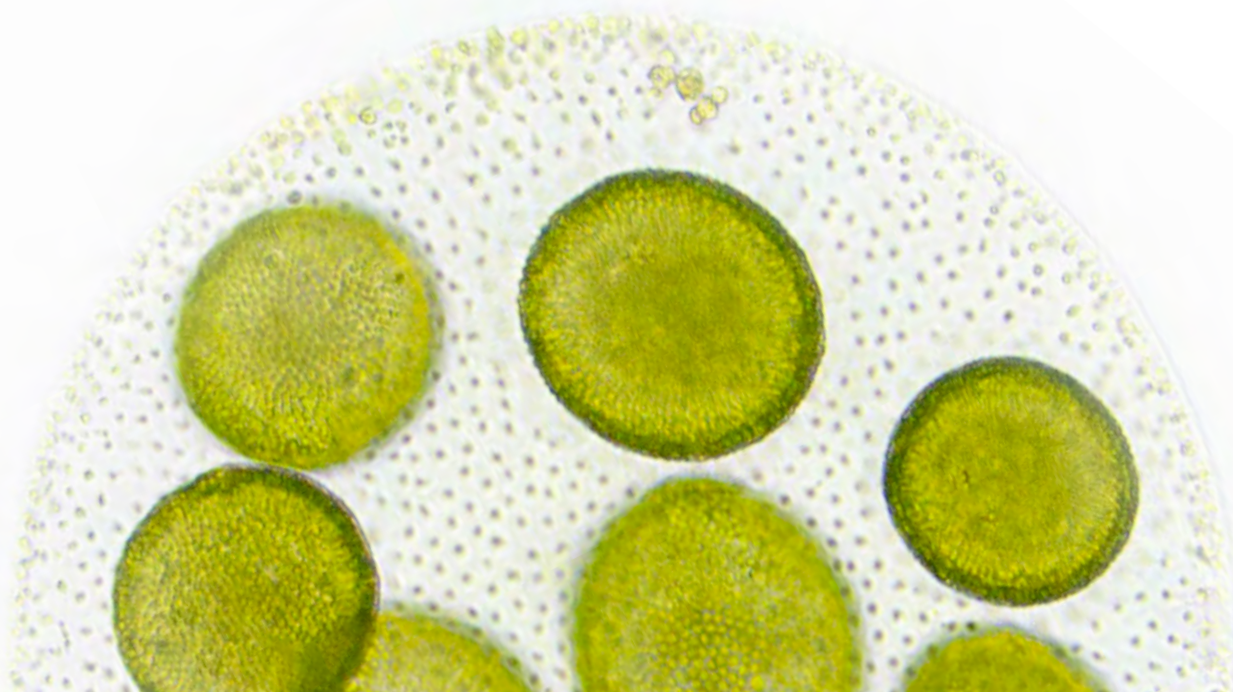
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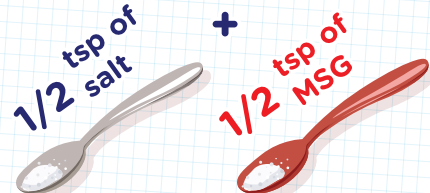


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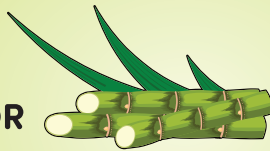


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- Total Body Water %
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- Intra-Cellular Water kg
- ECW/TBW Ratio
- Basal Metabolic Rate
- Basal Metabolic Rate Indicator
- Bone Mass
- Metabolic Age
- Physique Rating
- Skeletal Muscle Mass Index

Segmental Measurements

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- Segmental Body Fat Mass
- Segmental Body Fat Rating
- Segmental Fat Free Mass
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Achievements of NMM

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Family Carnivals

- Organised 12 major fun-filled carnivals and 3 virtual fairs

School & Kindergarten Roadshows

- Visited 160 primary schools and provided healthy eating and active living messages
- Visited 175 kindergartens and conducted interactive nutrition activities



Educational Materials for School Children & Preschoolers

- Published comic book and activity book for primary school children
- Published DVD and worksheets for preschoolers



Educational Press Articles

- Published over 102 articles in English, Bahasa Malaysia & Chinese newspapers

Publications for Public

- Published 15 practical nutrition guidebooks, 5 recipe books and 1 mini-booklet

- Disseminated messages through radio, television & website



Visit our website to obtain more information on educational materials from the Nutrition Month Malaysia programme. We also welcome feedback/queries. To reach us, please contact:

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NSM Nutrition Roadshows 2.0

A Nutrition Promotion Programme of the Nutrition Society of Malaysia

Improving Lives through Nutrition

Focusing on



Healthy Eating



Active Living

Objectives

- inspire and empower the community with the knowledge and skills to practise healthy eating and active living
- foster community awareness on the importance of assessing their nutritional status regularly
- serve as capacity building and partnership platform for nutritionists in promoting optimal nutritional well-being of Malaysians

Two main approaches and activities

COMMUNITY OUTREACH ROADSHOWS

- Nutrition Screening
- Individualised nutrition advice
- Dissemination of nutrition educational materials
- Cooking demonstration

ONLINE NUTRITION PROMOTION

(Fb, IG & TikTok)

- Nutrition Educational Information (Tips, Healthy Eating Reminders, NutriQuote)
- Healthy Recipe cards and Cooking demonstration by Nutritionist
- Interactive Activities (NutriFun Quiz)
- Special events & activities on Healthy Cooking & Active Living



Improving Lives Through Nutrition

NSM Roadshows 2.0: Nutrition Promotion Programme For
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Abstracts

40th NSM Scientific Conference | Day 1

Keynote Lecture 1

From child malnutrition to food system transformation: Rethinking Malaysia's nutrition challenges and solutions

Poh Bee Koon

Nutritional Sciences Programme, Centre for Community Health Studies (ReaCH), Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Malaysia is facing the challenges of nutrition transition, characterized by the double burden of malnutrition, which includes undernutrition, micronutrient deficiencies, overweight and obesity across the lifespan. While child malnutrition remains an important public health concern, it also reflects broader nutrition challenges that affect families, communities and the food environment. To addressing this situation, it is important to shift from viewing malnutrition as just an individual or household problem, towards recognising it as part of a wider systemic issue. This keynote lecture will present the state of child malnutrition in Malaysia based on available national and regional data. It will cover findings on nutritional status, dietary patterns, physical activity, sedentary behaviour and sleep. The issue of child malnutrition will be discussed within the wider context of nutrition transition, including socioeconomic changes, food insecurity, emergence of novel challenges and increasingly obesogenic environments. Attention will also be given to life-course implications of malnutrition, linking child health with adolescent development, maternal nutrition and future risk of non-communicable diseases. Drawing on research experience in nutritional assessment, dietary tools, digital applications and school-based interventions, the lecture will reflect on what has been learned from efforts to measure, prevent and manage malnutrition. While education and intervention programmes can be effective when properly designed, their long-term impact may depend on how they are implemented, whether supportive environments are in place, and how well they are reinforced by policy. Finally, the lecture will discuss how Malaysia can move towards more sustainable and smart nutrition solutions through a stronger food system approach. Some key areas that need prioritisation include strengthening nutrition surveillance systems; improving food environments in schools and communities to support healthier food choices and foster healthy eating; promoting responsible innovation; and encouraging positive collaboration among various interest-holders, including government, academia, practitioners, industry, and communities. Ultimately, Malaysia's nutrition future will depend on how well we connect evidence, practice and policy to create healthier environments for children, families and the wider population.

Symposium 1: Lifespan Nutrition

Empowering communities to end stunting in Malaysia

Norhasmah Sulaiman

Department of Nutrition, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang Selangor, Malaysia

Stunting remains a persistent public health challenge in Malaysia, reflecting not only inadequate nutrition but also broader social, economic, environmental, and behavioural determinants. Despite comprehensive national nutrition policies and high coverage of maternal and child health services, stunting prevalence remains above desired levels, particularly among vulnerable and underserved populations. This highlights a critical gap between policy implementation and community-level impact. This presentation explores community empowerment as a strategic and sustainable approach to reducing stunting in Malaysia. Drawing on national and regional evidence and community-based implementation experiences, it highlights the role of community health volunteers, caregivers, local leaders, and civil society organizations in improving maternal and child nutrition. Community-driven interventions including growth monitoring, home visits, nutrition education, infant and young child feeding support, and behaviour change communication have demonstrated strong potential to improve nutrition outcomes when they are culturally appropriate, locally adapted, and supported through continuous capacity building. However, programme effectiveness continues to be constrained by limited community awareness, inconsistent participation, resource limitations, and inadequate multisectoral coordination. Addressing these challenges requires strengthening community systems through sustained capacity building, improved collaboration, and better integration of health, nutrition, and

social protection services. Particular emphasis on the first 1,000 days of life remains essential for preventing chronic undernutrition. This presentation argues that community empowerment is a cornerstone of sustainable stunting reduction. A shift towards a more inclusive, community-centred approach can enhance the effectiveness, equity, and sustainability of nutrition interventions, contributing to a healthier and more resilient Malaysia through smart and sustainable nutrition solutions.

National Health and Morbidity Survey (NHMS 2025): Older persons health

Chan Yee Mang

Institute for Public Health, Malaysia

Malaysia is projected to become an aged nation by 2036, highlighting the importance of understanding the health status and well-being of older persons. The National Health and Morbidity Survey (NHMS) 2025: Older Persons Health was conducted to provide nationally representative data on ageing-related health conditions and functional status among Malaysians aged 60 years and above. This cross-sectional survey employed a complex stratified cluster sampling design involving 165 Enumeration Blocks nationwide. A total of 7,528 older persons and 956 informal caregivers participated in the survey. The study assessed multiple domains including ageing well, social support, quality of life, cognitive impairment, dementia, depression, physical function, disabilities, physical activity, non-communicable diseases (NCDs), sarcopenia, frailty, and caregiver burden using validated instruments. Findings showed that only 14.7% of older persons met the criteria for ageing well. The prevalence of probable cognitive impairment was 49.7%, dementia 9.8%, clinically significant depression 8.0%, frailty 10.7%, and sarcopenia 45.3%. High prevalence of known NCDs was observed, including hypertension (57.6%), hypercholesterolaemia (55.3%), and diabetes mellitus (32.3%). Approximately one-third of older persons experienced poor social support, while 32.2% of informal caregivers reported caregiver burden. Although some indicators such as depression, ADL limitation, and sedentary behaviour improved compared with NHMS 2018, the increasing burden of chronic diseases, frailty, and cognitive decline remains a major challenge. These findings provide important evidence to support national healthy ageing policies, geriatric healthcare planning, and community-based interventions for older persons in Malaysia.

Invited Lecture 1

Algal omega-3: Advancing human health through sustainable, science-based nutrition

Ek Kai Lin

dsm-firmenich, Singapore

As populations live longer, the priority is no longer lifespan alone, but also on health span—the years lived in good health, function and independence. Long-chain omega-3 fatty acids EPA and DHA are well recognised nutrients in this effort, with evidence supporting benefits across cardiovascular, cognitive, visual and immune health. At the same time, delivering these nutrients to a growing global population requires solutions that are both science-based and sustainable. Algal-source EPA+DHA offers a solution: after the discovery of specific microalgal strains that produce DHA and in later years the discovery of strains that produce both DHA and EPA. It is the original source of marine omega-3s and provides a scalable alternative to wild-caught marine oils and helps meet nutrition needs with a lower reliance on finite ocean resources. Recent findings from the DO-HEALTH study further strengthen the case for algal sources omega-3s in healthy aging. In a post hoc analysis of 777 older adults, daily supplementation with 1 g of algal omega-3 over three years slowed biological aging across three DNA methylation clocks, corresponding to an approximately 3-month slowing of biological aging, with additional benefit observed when combined with vitamin D and exercise. This presentation will explore how algal EPA+DHA can help bridge the gap between human and planetary health by offering a sustainable omega-3 solution aligned with the goals of healthy longevity.

Lunch Symposium

Sodium reduction in real-world diets: Can umami-based flavour optimisation bridge the implementation gap?

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Excess sodium intake remains a major contributor to hypertension and cardiovascular disease. In Malaysia, mean salt intake remains above the recommended level, despite national sodium reduction initiatives and relatively high public awareness of the health risks of excessive salt intake. A key challenge is translating awareness into sustained dietary change, particularly in local eating environments where sauces, condiments, processed foods, and outside meals contribute substantially to sodium intake. This presentation brings together evidence from Malaysia's efforts to reduce sodium, population salt intake data, food reformulation initiatives, and international literature on flavour optimisation strategies. Particular attention is given to the role of umami-based approaches in supporting sodium reduction through preservation of palatability and consumer acceptability. Current evidence suggests that education-based approaches alone are insufficient to achieve sustained sodium reduction. Implementation barriers include underestimation of personal salt intake, strong taste preferences, incomplete sodium labelling, and limited adoption of lower-sodium products in everyday food environments. Reformulation strategies, including gradual sodium reduction, salt substitutes, and flavour optimisation, may help address these barriers. Emerging evidence indicates that umami-based strategies can enhance savoury taste perception and may allow sodium reduction in selected food products while maintaining palatability. However, evidence remains context-specific, and long-term real-world effectiveness requires further evaluation. Sustainable sodium reduction requires an integrated approach involving policy, behavioural change, food reformulation, and industry collaboration. Umami-based flavour optimisation may serve as a practical supportive strategy within broader national efforts to reduce sodium intake in real-world Malaysian diets.

Symposium 2: Nutrition Intervention

Empowering the underserved: A digitally-assisted peer-support healthy lifestyle framework to reduce cardiovascular disease risk in a low-income community in Malaysia (MYCardio-PEER)

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Introduction: While lifestyle modification is a critical cardiovascular disease (CVD) prevention strategy, traditional interventions often face workforce and cultural barriers in low-resource settings. This study evaluated the MYCardio-PEER framework, a community-driven model combining peer support and digital health tools for primary CVD prevention among underserved populations. **Methods:** This quasi-experimental study was conducted in Kulim, Kedah, involving adults at moderate or high CVD risk based on the Framingham Risk Score (FRS). Following a community needs assessment, local peer leaders were trained to facilitate an 8-week intervention. The program was digitally assisted via WhatsApp groups, delivering bite-sized educational videos and infographic posters to promote healthy lifestyle changes. The intervention group (n=30) was compared against a control group (n=31) receiving standard lifestyle advice. Assessments were conducted at baseline, week 8, and week 20. **Results:** The MYCardio-PEER intervention led to significant improvements compared to the control group. Key findings included a significantly greater reduction in the FRS (p=0.029) and superior dietary shifts: significantly reduced energy intake (p<0.001), decreased consumption of processed foods (p=0.046), and increased dietary fibre intake (p<0.001). Process evaluation revealed high program adherence (82.4%) and strong satisfaction with peer leadership and digital content (96.0%). **Conclusion:** Integrating peer-led support with digital tools effectively reduced CVD risk and improved health behaviours in this underserved community. The MYCardio-PEER framework offers a scalable, community-centred model to address health inequities and support national NCD prevention strategies.

Smart and sustainable sodium reduction: Integrating sensory science and behavioural strategies for a health-resilient Malaysia

Say Yee How

Sunway University, Malaysia

Excess sodium intake remains a primary driver of hypertension and cardiovascular disease in Malaysia, fuelled by entrenched dietary habits and a heavy reliance on high-sodium condiments. Although tropical sweat losses necessitate some sodium intake, habitual consumption in the country far exceeds physiological requirements, as it is dictated primarily by learned taste preferences rather than biological need. Sensory research demonstrates that while perceived saltiness correlates linearly with sodium concentration, hedonic responses follow an inverted-U curve. This finding suggests that sodium levels can be effectively reduced without sacrificing palatability. However, bridging the gap between nutritional knowledge and actual dietary behaviour is complicated by cultural norms, consistent exposure to salty foods, and the widespread consumption of out-of-home meals. Furthermore, because inter-individual variability in salt sensitivity is shaped by genetic, metabolic, and ethnic factors, the country requires nuanced, adaptive strategies rather than a single approach. To achieve sustainable population-level reductions, we must integrate sensory science with culturally relevant interventions. Practical and scalable strategies include the gradual reformulation of processed foods to allow for sensory adaptation, the use of umami compounds like monosodium glutamate to maintain flavour while lowering sodium content, and the implementation of potassium-enriched salt substitutes. Additionally, behavioural nudges can help reshape taste preferences over time. By aligning modern food technology with local dietary practices, Malaysia can successfully lower the population's sodium intake. Integrating these evidence-based solutions provides a vital pathway to improving dietary quality, mitigating cardiovascular risk, and fostering a healthier, more resilient population.

Invited Lecture 2

Gut-driven longevity: the role of prebiotic chicory root fibres in mood and bone health

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Malaysia is experiencing a rapidly ageing population, bringing increased focus to age-related health challenges, including mental well-being and bone health. A 2024 report indicated that 2 out of 3 working Malaysian adults reported feeling burnt out. At the same time, osteoporosis risk is rising, affecting 1 in 7 urban adults. These trends highlight the need for integrated preventive nutrition strategies. Aligned with the conference theme, “Sustainable and Smart Nutrition Solutions for a Resilient Malaysia”, this presentation explores the role of prebiotic chicory root fibres as an evidence-based, scalable approach to support healthy ageing. It focuses on the gut-brain and gut-bone axes as interconnected pathways influencing mental well-being and skeletal health, with implications for longevity. Prebiotic chicory root fibres are selectively fermented by beneficial gut microbiota, resulting in the production of short-chain fatty acids (SCFAs), while also promoting microbial taxa involved in the synthesis of neuroactive compounds such as γ -aminobutyric acid (GABA). These metabolites modulate inflammation, stress physiology, and neurotransmitter function, with clinical evidence indicating reduced cortisol awakening response and improved mood regulation. Simultaneously, prebiotic chicory root fibres enhance calcium absorption and improve bone mineralisation, with human studies reporting positive effects on bone turnover markers. Collectively, these findings exemplify how gut microbiome-targeted nutrition can deliver sustainable and smart health solutions, supporting healthy ageing. Prebiotic chicory root fibres offer a science-based, practical dietary strategy to strengthen community well-being and contribute to Malaysia's transition toward a healthier, more sustainable future.

Nutrition Update 1

Randomised controlled trial of breastfeeding peer support via mobile text messaging in Sarawak

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Introduction: Exclusive breastfeeding (EBF) rates in Malaysia remain concerning below national targets. **Objective:** This study evaluated a peer support intervention via mobile text messaging, grounded in Dennis's Breastfeeding Self-Efficacy Framework and Normalisation Process Theory, aiming to improve maternal psychosocial determinants and six-month EBF practices in Sarikei, Sarawak. **Methods:** An open-label, two-arm parallel randomised controlled field trial recruited 140 pregnant women (28-36 weeks gestation). Participants were block randomised (1:1) to receive either standard care alone, or standard care alongside a structured weekly text messaging intervention. This was carried out by trained peer supporters using validated text messages until the fourth week postpartum. Outcomes were assessed at baseline, 8th, and 24th weeks postpartum. Primary data were analysed using repeated-measures MANCOVA and Chi-square tests for independence. **Results:** Among 134 completers, RM MANCOVA revealed the intervention group demonstrated a statistically significant improvement in breastfeeding knowledge over time ($p < 0.001$). However, attitude and self-efficacy scores showed no significant between-group differences. Chi-square analysis indicated that by the 24th week, EBF rates were similar in both groups (22.1% vs 28.8%, $p > 0.05$). Additionally, an exploratory survival analysis noted a delay in formula introduction in the intervention group which was not statistically significant (61.0 vs 41.0 days, $p > 0.05$). Process evaluation identified low maternal engagement, specifically a lack of reciprocal texting as the primary implementation barrier. **Conclusion:** Online peer support is a highly feasible tool for knowledge transfer, yet it is insufficient to sustain EBF rate by six months. This exposes an urgent public health crisis that demands escalated, multi-component interventions.

Small bites, big impact: A clinically proven red palm oil-enriched biscuit for combating hidden hunger

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Introduction: Vitamin A deficiency (VAD) remains a significant public health concern among children in rural Malaysia, contributing to impaired vision, infections, anaemia, and poor growth. Food-based, culturally acceptable interventions are urgently needed. **Objective:** This study evaluates red palm oil (RPO)-enriched functional biscuit to address VAD. **Methods:** A double-blind, randomised controlled trial was conducted among 651 schoolchildren (8-12 years) from 10 rural primary schools across five Malaysian states. Participants received either RPO-enriched biscuits (experimental) or palm olein (PO)-based biscuits (control) daily for six months. Nutritional status, ocular health, soil-transmitted helminth (STH) infections, inflammation markers, and gut microbiota were assessed pre- and post-intervention. **Results:** Baseline data indicated high prevalence of VAD (20.6%), xerophthalmia (42.7%), anaemia (14.9%), iron deficiency (17.9%), iron deficiency anaemia (9.1%), malnutrition (53.4%), inflammation (11.5%) and STH infections (54.5%) among the study population. Post-intervention, both groups showed improvements in retinol levels; however, the RPO group demonstrated significantly greater increases in α - and β -carotenes, improved haematological indices, iron status, reduced inflammation, and lower reinfection rates of *Ascaris lumbricoides*. The prevention of xerophthalmia was significantly higher in the RPO group. Additionally, beneficial gut microbiota (e.g., *Anaerostipes*, *Butyrivibrio* and *Christensenellaceae_R-7_group*) increased, indicating enhanced microbial resilience in the RPO group. **Conclusion:** RPO-enriched biscuits are an effective, scalable, and food-based strategy to improve nutritional status, ocular health, and gut health among VAD-affected children. This innovation supports national nutrition policies and offers a sustainable approach to combating micronutrient deficiencies in Malaysia.

Effects of a relaxation intervention on physiological and psychological outcomes among mothers of preterm infants delivered in Hospital Sultan Abdul Aziz Shah: a within-subject randomised trial

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Introduction: Breastfeeding is essential for maternal and infant health. Preterm infants particularly benefit from breast milk's protective effects against conditions like sepsis and necrotising enterocolitis (NEC). Despite these benefits, exclusive breastfeeding rates remain low in preterm mothers, who often experience psychological distress that can affect breastfeeding performance. **Objective:** The objective of this study was to compare the effects of different relaxation interventions on physiological and psychological outcomes in lactating mothers of preterm infants. **Methods:** A within-subject randomised design was used among 26 mothers of preterm infants, each exposed to guided-imagery meditation (GIM), Quran recitation (QR), infant video with image (IV), distraction with media (DM), and a control condition over two weeks. Heart rate, systolic and diastolic blood pressure (SBP, DBP), fingertip temperature, cortisol level and emotional assessment were assessed before and after each session. **Results:** GIM significantly reduced cortisol levels ($p = 0.029$) and produced significant improvements in stress, anxiety, relaxation, happiness, tiredness, and sleepiness ($p < 0.05$). Quran recitation significantly reduced heart rate ($p = 0.016$) and improved anxiety ($p = 0.009$) and tiredness ($p = 0.015$). Infant video with image resulted in significant increases in fingertip temperature and improved stress, happiness, tiredness, and sleepiness ($p < 0.05$). Distraction with media also increased fingertip temperature and improved stress and tiredness levels ($p < 0.05$). **Conclusion:** Our findings suggest that simple relaxation techniques may contribute to reductions in both physiological and psychological stress markers among breastfeeding mothers.

Cinnamon (*Cinnamomum verum*) in Lipid Health: Nutritional, Biochemical, and Molecular Perspectives

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Introduction: Hypercholesterolemia and obesity are prevalent metabolic disorders commonly managed with statins, which may cause adverse effects such as hepatotoxicity and myopathy. This has prompted interest in safer, natural alternatives such as *Cinnamomum verum* (cinnamon), known for its lipid-lowering, antioxidant, and anti-inflammatory properties. **Objective:** This study aimed to investigate the biochemical and transcriptomic mechanisms of *C. verum* in lipid metabolism. **Methods:** Aqueous extracts of *C. verum* were evaluated using multiple biochemical and molecular assays. Lipid-regulatory activity was assessed via HMG-CoA reductase and pancreatic lipase inhibition assays. Cytotoxicity was determined using the MTT assay on WRL-68 liver cells. Antioxidant activity was measured using DPPH, ABTS, and FRAP assays, while anti-inflammatory effects were evaluated through hyaluronidase, xanthine oxidase, and lipoxygenase inhibition. FTIR analysis identified functional groups, and transcriptomic profiling was conducted using NanoString nCounter. Statistical significance was set at $p < 0.05$. **Results:** *C. verum* showed strong inhibition of HMG-CoA reductase (85.28%) and pancreatic lipase (57.48%). High cell viability (89.19%) indicated low cytotoxicity. Potent antioxidant activity was observed (ABTS 93.94%, DPPH 92.11%), alongside moderate anti-inflammatory effects. FTIR analysis revealed the presence of polyphenols and related compounds. Gene expression analysis demonstrated downregulation of lipogenic genes (HMGCR, PPARG, SREBP2, SOAT1, ABCA1) and upregulation of lipid clearance genes (LDLR, ACAA1, PPARGC1A). **Conclusion:** *C. verum* exhibits significant lipid-lowering, antioxidant, and anti-inflammatory activities with minimal toxicity. Its modulation of key lipid metabolism genes highlights its potential as a natural alternative or adjunct to statins in managing hypercholesterolemia and obesity.

Nutrition Update 2

Impact of Nutrition-Centered Diabetes Care Practices Among Healthcare Professionals Through Interdisciplinary Experiential Learning in Culinary Medicine

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Introduction: Nutrition plays an important role in diabetes prevention and management, yet many healthcare professionals face challenges in translating nutrition knowledge into practical and patient-centered dietary guidance. **Objective:** This study aims to evaluate the impact of interdisciplinary experiential learning in culinary medicine on nutrition-centered diabetes care practices among healthcare professionals. **Methods:** A quasi-experimental repeated-measures intervention study was conducted among 50 healthcare professionals, with three assessment time points. Repeated-measures ANOVA and Post-hoc pairwise comparisons were used for data analysis. **Results:** Nutrition-centered diabetes care practices improved significantly from 2.6 ± 0.7 at baseline to 4.0 ± 0.6 post-intervention and 3.8 ± 0.6 at follow-up ($F = 48.15, p = 0.002$), particularly in nutrition counseling frequency and the use of food-based recommendations during patient education. Self-efficacy toward nutrition-centered diabetes care also increased significantly from 2.8 ± 0.6 at baseline to 4.3 ± 0.5 immediately post-intervention and remained higher at 4.1 ± 0.5 during the 3-month follow-up ($F = 56.42, p = 0.001$). In addition, overall nutrition knowledge in diabetes care improved significantly from 61.3 ± 10.8 at baseline to 82.5 ± 8.7 post-intervention and 79.8 ± 9.2 at follow-up ($F = 39.74, p = 0.004$). Willingness to integrate nutrition counseling into routine diabetes care also improved significantly from 3.5 ± 0.7 at baseline to 4.3 ± 0.5 immediately post-intervention and 4.2 ± 0.5 during follow-up, $F = 19.83, p = 0.015$. Confidence in collaborative diabetes care planning among healthcare professionals increased from 3.4 ± 0.6 at baseline to 4.1 ± 0.5 post-intervention and 4.0 ± 0.5 at follow-up, $F = 15.27, p = 0.031$. **Conclusion:** Interdisciplinary experiential culinary medicine learning can serve as an innovative and sustainable approach to nutrition that strengthens nutrition-centered diabetes care, enhances interdisciplinary healthcare collaboration, and improves the integration of practical nutrition strategies into healthcare management, thereby supporting sustainable diabetes prevention and management in Malaysia.

Continuous glucose monitoring in non-diabetic elite field hockey athletes during international competition

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Introduction: Continuous glucose monitoring (CGM) is increasingly used in non-diabetic athletes to assess glycaemic responses to dietary intake, training, competition, and recovery. During competition, back-to-back match demands, travel, and competition stress may alter glucose responses. **Objective:** This study aimed to characterize glucose responses during international competition among elite field hockey athletes. **Methods:** In this observational case series, three non-diabetic Malaysian male field hockey athletes (1 forward, 1 midfielder, 1 defender; age 27 ± 2 years, height 166 ± 1 cm, body weight 65 ± 3 kg) were monitored using CGM (FreeStyle Libre 2) for 6-12 days during international competition. Dietary intake was recorded using daily food logs to assess postprandial glycaemic responses and glycaemic variability. **Results:** All athletes demonstrated normal glycaemic control, with mean glucose ranging from 5.1 – 5.9 mmol/L, glucose variability (%CV) of 17.7-27.5%, and time in target range (TIR 4.0 – 10.0 mmol/L) of 92-100%. Despite similar carbohydrate intake per meal (1.3-1.5 g/kg), athletes consuming higher protein (~ 0.5 g/kg/meal) demonstrated better glycaemic stability (CV 17.7-20.5%; TIR 99-100%) than the athlete consuming lower protein (0.35 g/kg/meal; CV 28.2%; TIR 90%). Fasting days resulted in higher peak glucose and reduced TIR compared with non-fasting days. Position-specific differences were also observed, with the defender exhibiting elevated glucose (7.7 – 9.6 mmol/L), the midfielder maintaining stable glucose (5.7 – 6.6 mmol/L) and the forward demonstrating lower glucose levels (3.9 – 5.4 mmol/L). **Conclusion:** Adequate protein co-ingestion may support glycaemic stability, whereas fasting practices and position-specific demands may alter glucose control during competitions. CGM provide practical insights to optimize individualised fuelling strategies in elite field hockey athletes.

Effect of *Cosmos caudatus* supplementation on frailty, psychological well-being and cardiometabolic parameters among older adults with possible sarcopenia and sarcopenia

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Introduction: Sarcopenia and frailty are common among older adults which may contribute to functional decline and a poor quality of life. *Cosmos caudatus* (*C. caudatus*), a traditional Malaysian herb rich in antioxidants and bioactive compounds, may provide beneficial effects on health and well-being among older adults. **Objective:** This study aimed to determine the effectiveness of *C. caudatus* supplementation on frailty status, psychological well-being and cardiometabolic parameters among older adults with possible sarcopenia and sarcopenia. **Methods:** A 12-week randomised controlled trial was conducted among 92 community-dwelling older adults aged 60 years and above in Kelantan, Malaysia. Participants were randomly assigned into intervention ($n = 47$) and control ($n = 45$) groups. Sarcopenia was assessed using the Asian Working Group for Sarcopenia 2019 guideline. Assessments included physical frailty status, social frailty status, cognitive frailty, flourishing scale, body composition, physical performance, and cardiometabolic parameters. Repeated measures ANCOVA adjusted for age, education years and household income was performed to evaluate intervention effects over time. **Results:** No significant interaction effects were found for physical frailty, cognitive frailty, or cardiometabolic parameters ($p > 0.05$). Significant group effects were observed for social frailty ($p = 0.016$, $\eta^2 p = 0.065$) and flourishing scale scores ($p = 0.001$, $\eta^2 p = 0.115$). A significant time effect was also observed for flourishing scale scores ($p = 0.043$, $\eta^2 p = 0.036$). **Conclusion:** *C. caudatus* supplementation did not produce significant changes over time for frailty, psychological well-being and cardiometabolic outcomes. These findings suggest that future studies may extend the intervention duration and higher bioactive dosage to better determine the potential of *C. caudatus* for older adults with possible sarcopenia and sarcopenia.

Prevalence of cognitive frailty and its association with clinical outcomes among older outpatients in Malaysia

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Introduction: Cognitive frailty (CF), defined as the coexistence of physical frailty and cognitive impairment in the absence of dementia, is an emerging geriatric syndrome associated with adverse health outcomes. However, evidence on its prevalence and associated clinical outcomes among Malaysian older outpatients remains limited. **Objective:** This study aimed to determine the prevalence of CF and investigate its associations with adverse health outcomes among older outpatients. **Methods:** A cross-sectional study was conducted among 240 older adults (≥ 60 years) attending primary care and outpatient clinics at Hospital Canselor Tuanku Mukhriz (HCTM), Malaysia. Participants underwent comprehensive geriatric assessments encompassing cognitive function, frailty, nutritional status, sarcopenia, functional status, depressive symptoms, and disability. CF was identified using established diagnostic criteria. Logistic regression analyses were performed to examine the associations between CF and adverse health outcomes. **Results:** The prevalence of CF was 50.8%. Older adults with CF were significantly older, had fewer years of education, and were more likely to have diabetes mellitus, and a history of stroke ($p < 0.05$). After adjusting for the confounding factors, sarcopenia [Odd ratio (OR) =

3.89, 95% CI: 1.29-11.75, $p = 0.016$], functional disabilities (OR = 2.27, 95% CI:1.11-4.62, $p = 0.024$), depressive symptoms (OR = 2.25, 95% CI:1.20-4.23, $p = 0.012$), and disability (OR = 1.18, 95% CI:1.02-1.36, $p = 0.025$) remained independently associated with CF. **Conclusion:** CF is highly prevalent among Malaysian older outpatients and is independently associated with sarcopenia, functional disability, depressive symptoms, and disability. Early identification and targeted interventions addressing these modifiable factors may help reduce the burden of CF and support healthy ageing.

Young Researchers' Symposium

Syndemic-informed maternal vulnerability profiles among Malaysian pregnant women: A latent class analysis

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Introduction: Maternal nutritional, socioeconomic and psychosocial risk factors during pregnancy often co-occur rather than occurring in isolation. These risk factors may cluster into distinct profiles with implications to maternal wellbeing. Using a syndemic framework, this study aimed to identify maternal vulnerability profiles during pregnancy and examine the associations between the vulnerabilities profiles with perinatal and postpartum outcomes. **Methods:** Data from a prospective cohort study of pregnant women ($n=464$) aged 18 – 49 were analysed using latent class analysis with eight binary indicators: low income, low education, food insecurity, anxiety, depression, prenatal stress, poor sleep quality, and vitamin D deficiency. Associations between class membership and probable postnatal depression and maternal anaemia were examined using multivariable logistic regression adjusted for age, ethnicity, parity, and gestational age at recruitment. Postpartum QoL across physical, psychological, social, and environmental domains was assessed using multivariable linear regression adjusted for the same covariates. **Results:** Three latent classes were identified: “Lower overall vulnerability” ($n = 181$; 39.0%), “High psychosocial vulnerability” ($n = 106$; 22.8%), and “Socioeconomic and nutritional vulnerability” ($n = 177$; 38.1%). Compared with the lower-vulnerability class, women in the high psychosocial vulnerability class had higher odds of probable postnatal depression (adjusted OR 4.80, 95% CI 2.17-10.59), second-trimester anaemia (adjusted OR 2.59, 95% CI 1.37-4.87) and third-trimester anaemia (adjusted OR 2.77, 95% CI 1.27-6.08). This class also had significantly poorer postpartum QoL across all domains. **Conclusion:** High psychosocial vulnerability profile was consistently associated with poorer maternal outcomes. These findings support integrated antenatal strategies combining psychosocial and nutritional risk screening to identify pregnant women requiring targeted support in Malaysia.

Feasibility, efficacy, and cost-analysis of homemade oral nutrition supplements on patients on haemodialysis with protein-energy wasting: a parallel, open-labelled, randomised controlled trial

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Introduction: Protein-energy wasting (PEW) is highly prevalent among patients receiving haemodialysis (HD). Oral nutritional supplements (ONS) are recommended to improve energy and protein intake, but

adherence to commercial products is often limited by high cost and taste fatigue. Homemade ONS may provide a more affordable alternative. **Methods:** This six-month, open-labelled, parallel randomised controlled trial recruited 37 patients on HD with PEW. Participants were randomly assigned to receive either a commercial ONS (Nepro HP) or a homemade ONS. Clinical outcomes and cost-effectiveness were evaluated over the intervention period. **Results:** Both groups showed significant improvements in nutritional status. The mean reduction in Malnutrition Inflammation Score (MIS) was 3.19 (95% CI: 1.62–4.76; $p < 0.001$) in the commercial ONS group and 3.57 (95% CI: 2.24–4.91; $p < 0.001$) in the homemade ONS group, with no significant difference between groups ($p = 0.761$). Dry weight, skeletal muscle mass, handgrip strength, and energy and protein intake improved significantly in both groups ($P < 0.05$), while body fat mass, phase angle, serum albumin, potassium, and phosphorus remained stable. Cost analysis demonstrated that homemade ONS was more cost-effective, with a cost of RM404.54 per unit reduction in MIS (including labour) compared with RM592.48 for commercial ONS. **Conclusion:** Homemade ONS improved nutritional status in patients on haemodialysis with protein-energy wasting to a similar extent as commercial ONS while providing greater cost-effectiveness, supporting its potential as a practical and affordable nutritional intervention.

Smart and culturally adapted antenatal nutrition intervention for women with gestational diabetes mellitus in Malaysia: Findings from the M-FIGO randomised controlled trial

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Introduction: Gestational diabetes mellitus (GDM) is increasingly prevalent in Malaysia and is associated with adverse maternal outcomes. However, structured and culturally appropriate antenatal nutrition interventions remain limited in routine primary healthcare settings. **Methods:** A two-arm cluster randomised controlled trial was conducted across eight government Maternal and Child Health clinics in Penang, Malaysia. A total of 206 women newly diagnosed with GDM were allocated to either the intervention ($n = 103$) or control ($n = 103$) group. The intervention group received structured nutrition counselling using the Malaysian-adapted FIGO Nutrition Checklist and M-FIGO Module alongside routine antenatal care over four visits, while the control group received routine antenatal care only. Gestational weight gain was the primary outcome. **Results:** Women in the intervention group had significantly lower gestational weight gain than those in the control group (12.11 ± 1.95 kg vs. 13.30 ± 3.35 kg; $p = 0.002$). After adjustment for baseline body mass index, the intervention remained significantly associated with lower gestational weight gain (adjusted mean difference: -0.99 kg; $p = 0.003$). Improvements were also observed in selected postprandial blood glucose measurements and mid-pregnancy haemoglobin levels. **Conclusion:** The M-FIGO Nutrition Checklist and Module provide an effective, culturally adapted, low-resource antenatal nutrition intervention for women with GDM in Malaysia. The programme improved gestational weight gain and selected metabolic outcomes without adverse neonatal effects, supporting more accessible, culturally relevant, and integrated nutrition care within routine antenatal services.

Combating anaemia in Orang Asli children aged 24–59 months in Selangor: Potential use of *Moringa oleifera* in improving iron and growth status

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Introduction: Anaemia is a global health burden and its prevalence was higher among Orang Asli (OA) children under five compared to the general population. This study aimed to determine the nutritional profile of Moringa powder, anaemia prevalence and its efficacy in improving iron and growth status among OA children aged 24–59 months in Selangor. **Methods:** This study consisted of two phases. Phase 1 examined the proximate and anti-nutrients composition, iron and Vitamin C content of Moringa powder, followed by field screening of anaemia prevalence among 155 OA children in Selangor. In phase

2, a 3-month open-label cluster RCT was conducted among 64 anaemic OA children recruited from phase 1. Children in intervention group received baseline deworming and 3g of Moringa powder daily for 3 months, while children in control group only received baseline deworming. The primary and secondary outcomes were iron and growth parameters, respectively. GLMM analysis was used to examine the effectiveness of Moringa intervention while controlling for covariates. **Results:** Moringa powder was rich in protein, iron and Vitamin C. The prevalence of anaemia was 43.2%. In phase 2, the overall attrition rate was 10.9%. Results revealed the intervention group exhibited significant improvements in haemoglobin, serum ferritin, mean WAZ and BAZ over 3-month period than control group. **Conclusion:** Findings from this study demonstrated Moringa powder is a safe and effective food-based strategy to improve iron and growth status among vulnerable OA children. It is recommended to transform Moringa into self-sustaining dietary practice to reduce anaemia burden among OA children.

Beyond the plate: What shapes fruit and vegetable intake among Malaysian adolescents

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Introduction: Fruit and vegetable (FV) consumption is essential for adolescent growth and health, yet intake among Malaysian adolescents remains low. **Objective:** To identify personal, social, and environmental factors associated with FV intake among Malaysian adolescents aged 13–16 years.

Methods: A nationwide cross-sectional study involving 976 adolescents was conducted using self-administered questionnaires on FV intake and its determinants. Sociodemographic information and anthropometric measurements were collected. BMI-for-age z-scores (BAZ) and abdominal obesity were classified using WHO and waist circumference criteria. **Results:** Only 13.6% of adolescents consumed at least two servings of fruit daily, while 7.2% met the recommendation of three servings of vegetables daily. Fruit intake was significantly associated with age, ethnicity, region, and residential location, whereas vegetable intake was associated with ethnicity and mothers' educational level. No significant associations were observed between FV intake and BMI-for-age or abdominal obesity. Positive dietary habits and school availability increased the likelihood of fruit intake, while self-efficacy, positive habits, and peer modelling were associated with higher vegetable intake. Unexpectedly, parental encouragement was associated with lower vegetable consumption. **Conclusion:** Malaysian adolescents have low FV intake, with psychosocial and school environmental factors playing important roles in influencing dietary behaviours. Future interventions should focus on improving self-efficacy, promoting healthy eating habits, strengthening positive peer influence, and increasing fruit and vegetable availability in schools.

Navigating breastfeeding: Understanding galactagogue use among breastfeeding mothers in Malaysia

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Introduction: Galactagogues are substances that increase breast-milk production. Despite their widespread use, evidence of the factors associated with galactagogue use with mothers' breastfeeding experiences remains limited. Therefore, this study aims to identify the common galactagogues used by Malaysian mothers and the factors associated with their use among breastfeeding mothers in Klang Valley, Malaysia. **Methods:** A cross-sectional study online survey was conducted among 111 breastfeeding mothers (mean age 33.5 ± 3.8 years). Participants were recruited through social media platforms, word-of-mouth referrals and baby fairs. Data collected included socio-demographic characteristics, medical history, breastfeeding practices and difficulties, the use, and sources of

information regarding galactagogues. **Results:** One-third of participants (33.3%) were current users of galactagogues, while 68.5% reported previous use. Among current users, 92% delivered at term, 69% had previous breastfeeding experience, while 70% reported no breastfeeding difficulties. Food-based galactagogues were more commonly used than herbal galactagogues (85.6% vs. 53.2%). Among food-based galactagogues, the most frequently consumed were red dates (63.1%), oats (54.1%), and lactation cookies (30.6%). For herbal galactagogues, fenugreek (28.8%), ginger (14.4%), and garlic (14.4%) were most common. Information regarding galactagogues was mainly obtained from the internet (59.5%), lactation consultants (57.7%), family (46.8%) and friends (54.1%). Before turning to galactagogues to increase milk supply (16.2%), mothers reported increasing breastfeeding frequency (64.9%) and breast pumping (18.9%). Nevertheless, most mothers perceived galactagogues as effective in improving breast milk production (90% vs. 10%). Significant associations were observed between galactagogue use with mothers with no medical conditions (56.8% vs. 43.2%; $p < 0.05$), as well as dissatisfaction with breast milk supply (37.8% vs. 10.8%; $p < 0.001$). No significant associations found for maternal age, gestational age, household income, breastfeeding frequency, or breastfeeding difficulties with galactagogue use. **Conclusion:** Use of galactagogues was common among breastfeeding mothers, with food-based preferred over herbal-based. Mothers who perceived milk insufficiency and were influenced by informal sources were more likely to be galactagogue users. Given widespread use, further studies are warranted to evaluate their efficacy and effectiveness.

Effects of low-glycaemic index sweetened condensed creamer and digital nutrition education on blood glucose control among healthy Malaysian adults

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Introduction: The high prevalence of diabetes mellitus (DM) in Malaysia is driven by unhealthy dietary habits and poor knowledge, attitudes, and practices (KAP), highlighting the need for interventions. This study aimed to determine the effects of low glycaemic index (GI) and commercial sweetened condensed creamer (SCC) on postprandial blood glucose levels (PPBG), and the impact of a digital nutrition education programme on DM-related KAP among Malaysian adults. **Methods:** A single-blinded, crossover trial was conducted among 60 Malaysian adults aged 30-45 years. In Phase 1, subjects consumed both low GI and commercial SCC with a minimum of four days' washout period. PPBG was measured at 30-minute intervals over two hours. In Phase 2, subjects participated in a 10-week digital nutrition education programme based on the Health Belief Model. KAP was assessed pre- and post-intervention. **Results:** Low GI SCC resulted in significantly lower PPBG at 30 and 60 minutes. Significant effect of time ($p < 0.001$) and time with SCC type interaction ($p = 0.01$) were observed. Total and incremental area under the curve (AUC) were significantly lower for low GI SCC than commercial SCC (total AUC: 726.98 ± 69.81 vs. 754.33 ± 71.56 mmol·min/L; iAUC: 85.13 ± 37.90 vs. 111.40 ± 47.67 mmol·min/L; $p < 0.001$). The education modules demonstrated good content validity (content validity index > 0.80). Significant improvements were observed in all KAP domains following the intervention ($p < 0.001$), with knowledge scores increasing from 12.75 ± 3.85 to 19.32 ± 3.87 , attitude scores from 35.88 ± 5.69 to 53.22 ± 8.41 , and median practice scores from $43.00(11)$ to $45.00(8)$. **Conclusion:** Low GI SCC reduced PPBG responses, while digital nutrition education significantly improves DM-related KAP.

40th NSM Scientific Conference | Day 2

Keynote Lecture 2

The missing layer in precision health: Data integrity and the future of AI in health and nutrition

Carmen Tekwe, John & Carole Seffrin Endowed Professor of Public Health

Indiana University Bloomington, USA

The promise of AI-enabled precision health depends on the integrity of the data behind it. Yet many measurements used in personalised nutrition, digital health, and clinical decision-making are affected by measurement error, missingness, sensor variability, calibration differences, and population-specific bias. These limitations can alter predictions, scientific conclusions, and health recommendations, particularly when data reliability differs across devices, settings, or population groups. This keynote examines data integrity as a critical foundation for trustworthy AI in health and nutrition. Drawing on examples from dietary assessment, wearable technologies, digital biomarkers, and recent methodological work, the talk highlights approaches drawing on measurement error correction, uncertainty assessment, functional data methods, and AI to improve reliability, fairness, and

interpretability. It also considers how culturally relevant data, subgroup validation, and transparent communication of uncertainty can strengthen responsible precision health across diverse populations. The presentation concludes with a vision for AI systems that assess and communicate the reliability of the evidence behind their recommendations. Such systems can support more credible, equitable, and actionable health decisions.

Symposium 3: Public Health Nutrition

Eating Out in the Age of Compressed Malaysian Modernisation: Insights from Eating Out in Asia

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Eating out is treated as a lifestyle choice, yet in Malaysia it is a historically embedded social practice and a feature of everyday food systems. Drawing on the Eating Out in Asia research programme and three-day recalls from 15,211 adults across seven societies, this presentation examines how modernisation reorganises the spatial, temporal and social dimensions of eating. In Malaysia, 34% of meals are consumed outside the home and 43% are externally sourced when takeaway and delivery are included. Eating out is more common in urban than rural settings (35% versus 21%), but cross-national contrasts - 54% in Singapore and 11% in France - show that urbanisation alone is insufficient to explain these patterns. The Malaysian food environment - *mamak* restaurants, *kopitiams*, *warung*, hawker stalls, food courts, canteens and delivery platforms - makes culturally recognised meals available amid long workdays and changing households. These environments may support affordability, convenience, commensality and multicultural inclusion, while also raising public-health concerns related to diet quality, fruit and vegetable intake, micronutrient adequacy, portion size, sodium, sugar and non-communicable disease risk. The presentation therefore challenges the binary that equates home cooking with health and eating out with risk. It argues that public-health nutrition should focus less on moralising individual choices and more on designing healthier food environments. Priorities include better measurement of where food is prepared and consumed, vendor engagement, menu reformulation, healthier default portions, affordable fruit and vegetable options, public procurement strategies, delivery-platform accountability and sustained evaluation. Healthy eating out should mean healthier defaults - not fewer food cultures.

Approaching a decade of ToyBox Sarawak: Transforming child health by evolving from physical kits to sustainable, digital nutrition solutions for teachers, children, and parents

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The ToyBox Study Malaysia originated in Sarawak, adapting the evidence-based "ToyBox-approach" successfully implemented across Europe. Designed to prevent childhood obesity through healthy energy balance-related behaviours (EBRBs), the Sarawak chapter initially focused on culturally adapting physical intervention kits for local preschool settings. Early phases established the feasibility of the model, with outcomes extensively documented in peer-reviewed journals and international conferences. The onset of the COVID-19 pandemic served as a catalyst for innovation, transitioning the program from physical kits to a digital-first strategy. This evolution saw the development of the ToyBox Study Malaysia website and a dedicated Learning Management System (LMS) known as eToyBox. This digital transformation was rigorously tested in a private kindergarten intervention study, specifically evaluating the impact of eToyBox on child health when mediated through teacher-led digital modules. Building on the success of teacher-led digital interventions, ToyBox Sarawak is now entering a new phase that positions parents as the primary agents of change. This current study explores the efficacy of involving the home environment to further improve children's EBRBs. By integrating teachers, children, and parents into a unified digital ecosystem, ToyBox Sarawak continues to redefine sustainable, scalable, and community-driven nutrition solutions for the next decade.

Lunch Symposium

Evolvement of Modern Body Composition Technology into Boarder Clinical Applications and Real-Life Public Research

Dek Ng

TANITA Asia Pacific

With the breakthrough of Multi-Frequency BIA and advanced 4-Compartment (4C) validation models, modern Bioelectrical Impedance Analysis (BIA) nowadays provides a highly reliable, wider variety of metrics that offers clinical accuracy, from laboratory to public health centres. We will dissect TANITA's pioneering algorithm and the 4C Technology - the Gold Standard of body composition. Furthermore, this session shows how advanced bioimpedance data could be translated into real-life applications, from national-based health initiatives and clinical studies utilising TANITA's BIA technology. We will also explore how we can seamlessly adapt TANITA's technology into your current clinical or research frameworks to drive measurable, objective outcomes.

Invited Lecture 3

Protein intakes across Southeast Asia: Challenges and opportunities

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Introduction: Evaluating protein security is crucial to establishing resilience in health and nutrition across Southeast Asia (SEA). **Objective:** This regional report synthesizes the findings and recommendations from seven comprehensive SEA country reports [compiled by the ILSI-SEA working group], examines the landscape of protein intake, requirements, sustainable supply chains, and health outcomes of protein intake. **Methods:** A cross-country comparative review was conducted, analysing national dietary surveillance data as well as smaller food intake studies, localized requirement metrics, macro-level food balance statistics, and research linking protein intakes to health outcomes in specific population groups. **Results:** The synthesis reveals a critical regional core insight: while aggregate national protein availability is generally quantitative and sufficient across most nations, widespread disparities persist regarding equitable access to diverse, high-quality proteins. Across the lifecycle, infants undergoing complementary feeding, pregnant/lactating women, and older adults vulnerable to sarcopenia emerge as universal priority sub-groups. However, regional data translation is constrained by systemic methodological limitations, including outdated datasets, reliance on single 24-hour recalls, and limited use of advanced cellular-level protein quality metrics like DIAAS. Furthermore, macro-supplies remain fragile due to accelerating climate change impacts and heavy dependencies on imported strategic commodities like dairy, soy, or animal feed. Reflecting these regional patterns, Malaysia demonstrates robust quantitative protein adequacy yet faces crucial challenges in moving beyond a quantity-only framework to improve protein-source diversity, healthy aging initiatives, and supply resilience. **Conclusion:** To bridge these gaps, a transdisciplinary, multi-sector approach spanning government, academia, and industry is needed. Standardizing food-group metrics, updating national surveillance tools, and investing in climate-resilient, diversified protein ecosystems are vital actions needed to secure nutritional resilience across Southeast Asia.

Nutrition Update 3

Food environments, food insecurity, and nutritional outcomes in the urban fringe of Malaysia

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Introduction: Food insecurity, poor diet quality, and obesity are persistent and interrelated public health challenges in Malaysia. Peri-urban areas undergoing rapid urbanisation represent a critical but underexamined context where food retail landscapes are being reshaped faster than policy can respond, increasing residents' vulnerability to adverse nutrition outcomes. **Objective:** This study examines how

food environment exposure is associated with food insecurity, diet quality, and obesity outcomes among adults in Semenyih, a peri-urban subdistrict in Malaysia. **Methods:** This cross-sectional study recruited 438 adults using cluster sampling. Food insecurity was assessed using the FIES; diet quality via the Malaysian-Adapted Global Diet Quality Questionnaire; and nutritional status via BMI and waist circumference. Food availability was mapped through a systematic outlet census combining web-scraping, Google Search, and field verification, classified by relative healthiness and scored using a mRFEI. Food accessibility was derived from participant-mapped actual travel distances to food outlets. **Results:** Nutritional vulnerability was substantial: 35.0% experienced food insecurity, 43.8% were obese by BMI, and 64.2% had abdominal obesity. The food retail landscape was dominated by food service outlets (63.7%), mostly classified as relatively unhealthy (92.4%). Food insecurity was significantly associated with lower dietary diversity ($rs = -0.128, p = .008$) and dietary adequacy ($rs = -0.017, p = .015$), though not with BMI or waist circumference. Analysis of food environment associations with these outcomes is ongoing and will be presented. **Conclusion:** These findings suggest food insecurity is a meaningful pathway linking structural food environment to diet quality in peri-urban Malaysia, with implications for public health policy across the region.

Feeding difficulties among children with cow's milk protein allergy

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Introduction: Cow's milk protein allergy (CMPA) is a significant health concern that can impact child development. Despite its clinical importance, comprehensive data on CMPA prevalence and associated factors among Malaysian paediatric populations remain limited, highlighting the need for further local investigation. **Objective:** To determine CMPA prevalence and examine its associations with feeding difficulties among Malaysian children. **Methods:** A cross-sectional study was conducted at Hospital Sultan Abdul Aziz Shah, UPM, involving 247 children aged 6 months to 6 years. Data on anthropometric measurements, family history of food allergy, and feeding difficulties were collected via questionnaires and medical records. Chi-square tests were used to determine associations with CMPA ($p < 0.05$). **Results:** CMPA prevalence was 13.8% ($n = 34$). Weight-for-age z-score (WAZ) showed no significant association with CMPA ($\chi^2 = 0.600, p = 0.896$), with prevalence of 14.2%, 11.3%, 16.7%, and 11.8% in normal weight, underweight, severely underweight, and overweight children, respectively. Male sex was significantly associated with CMPA ($\chi^2 = 4.103, p = 0.043$), with higher prevalence in males (18.3%) than females (9.4%). Significant familial associations were observed for maternal ($\chi^2 = 7.759, p = 0.021$) and paternal ($\chi^2 = 6.983, p = 0.030$) food allergy history. Sibling history showed the strongest association, with 48.3% CMPA prevalence among affected siblings ($\chi^2 = 32.542, p < 0.001$). Feeding difficulties showed no significant association ($\chi^2 = 0.499, p = 0.480$). **Conclusion:** CMPA affected 13.8% of Malaysian children, with male sex and family history as significant associated factors. Incorporating these factors into routine screening may enhance early detection of CMPA in Malaysian children.

Bottom-up evidence on social-spatial inequalities in urban food environments: A quantitative participatory geospatial study in Kuala Lumpur

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Introduction: Malaysia's food environments are increasingly obesogenic, characterised by the widespread availability of energy-dense, nutrient-poor foods. **Objective:** This study aims to examine socio-spatial inequalities in food access, diet quality and body mass index (BMI) across socioeconomic status (SES) in Kuala Lumpur. **Methods:** 501 adults were recruited using stratified spatial random sampling to ensure spatial representation. This study integrated a participatory Geographic Information System with a quantitative survey to collect data on socio-demographic, food insecurity, food outlet utilisation and food intake. Dietary quality was assessed using the validated Diet Quality Questionnaire (DQQ) to derive the Dietary Diversity Score (DDS) and Global Dietary Recommendations (GDR) score. Weight and height were measured to calculate BMI. Participants mapped their homes, workplaces and frequently visited food outlets to generate food activity spaces using minimum convex hull analysis. A two-step cluster analysis classified participants into lower- (LSES; $n = 206$) and higher-SES (HSES; $n =$

241) groups. Kernel density estimation was used to identify "food hotspots", and Euclidean distances to food outlets were calculated. **Results:** LSES had significantly lower DDS than HSES. No significant differences were observed in GDR score or BMI, indicating poor adherence to recommended healthy diets in both groups. Spatial analysis revealed more clustered outlet utilisation among LSES, while HSES exhibited more dispersed utilisation. HSES reported significantly greater utilisation of full-service restaurants, fast-food outlets, and beverage shops. **Conclusion:** Linking lived experiences with spatial analysis revealed pronounced social-spatial inequalities in food access and consumption, highlighting the need to integrate nutrition into urban planning and food policies to promote equitable healthy food access.

Development of ready-to-drink protein milk shake formulated with overripe banana sweetener (RTD-PS-OBS)

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Introduction: Overripe bananas are often thrown away, even though they contain a high level of natural sugars, which makes them a valuable alternative sweetener for functional beverages. **Objective:** The objective of this research was to optimize the formulation of a Ready-to-Drink (RTD) protein shake formulated with Overripe Banana Sweetener (OBS) by using Response Surface Methodology (RSM). **Methods:** A central composite design (CCD) was applied to evaluate the effects of OBS and banana puree on pH, protein content, and sugar profile, with pH best described by a quadratic model, protein content by a linear model, and sugar profile by a two-factor interaction (2FI) model. **Results:** All models showed strong predictive ability ($R^2 > 0.980$). The optimal formulation was OBS: banana puree at 1:0 (w/w), with predicted values of pH 6.875, protein 52.26%, and sugar 1.3349 g/100 g (sucrose, glucose, fructose). Experimental validation yielded pH 6.84, protein 54.15%, and sugar 1.5833 g/100 g. These results confirm the significant effect of OBS and banana puree on pH, protein content, and sugar profile. **Conclusion:** This study highlights the significance of integrating RSM in optimizing RTD protein shakes with OBS. The optimal use of OBS and banana puree resulted in RTD protein shakes with elevated pH and protein content while minimising sugar levels. This approach encourages the development of high-value functional beverages and supports sustainability through the use of overripe bananas.

Poster Presentations

Group A: Nutritional Status, Consumption Pattern & Disease

P-1001 Maternal dietary fibre intake during the first trimester and infant personal-social skill development: a mother-infant cohort study

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Introduction: Maternal nutrition in early pregnancy plays a critical role in shaping infant neurodevelopment, but evidence linking specific dietary components, such as fibre, to infant personal-social development remains underexplored. **Objective:** This study examined the association between maternal dietary fibre intake during the first trimester and infant personal-social development across the first year of life. **Methods:** A prospective cohort study was conducted among 74 pregnant mothers and 37 infants in Selangor. Maternal dietary intake was assessed using 3-day 24-hour dietary recalls, with dietary fibre intake estimated from foods, beverages, and supplements. Infant personal-social development was assessed at 1, 4, 6, and 12 months using the Ages and Stages Questionnaire (ASQ-3). A linear mixed-effects model was used to analyse associations, with and without adjusting for maternal age, education level, and birth weight. **Results:** Higher maternal dietary fibre intake was positively associated with infant personal-social scores at 12 months in both unadjusted and adjusted models. The association demonstrated a time-dependent pattern, with weaker effects in early infancy and stronger effects emerging by late infancy at 12 months. These patterns persisted after covariate adjustment. Between-individual differences explained 26.2% – 27.1% of the variance in personal-social scores. **Conclusion:** Maternal dietary fibre intake during the first trimester is positively associated with infant personal-social development, with stronger associations observed in late infancy. These findings highlight that maternal diet may be a potentially modifiable factor in supporting infant personal-social development.

P-1002 Growing with the clock: How infant cortisol rhythms shape early growth trajectories

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Introduction: Early-life growth is a significant determinant of later health, which can be influenced by biological and environmental factors. Cortisol rhythmicity plays an important role in the regulation of physiological processes, yet its relationship with early growth trajectories remains understudied. **Objective:** This study aims to determine the association of infant cortisol rhythm with growth from birth to 6 months. **Methods:** This was part of a prospective cohort study involving mother-infant dyads recruited from maternal and child health clinics in Kuala Lumpur. A total of 28 infant saliva samples were collected to determine infant cortisol rhythmicity, with collection timing at awakening, 12:00, and 20:00. Infant anthropometry data were collected from clinic health records and growth indicator z-scores were determined using the WHO Anthro software. **Results:** Greater infant cortisol concentration at 12:00 was associated with reduced LAZ up to 6 months of age ($B = -0.002$, $p = 0.036$). In contrast, infants with higher cortisol concentration at 20:00 had greater WAZ ($B = 0.002$, $p = 0.009$) and LAZ ($B = 0.002$, $p = 0.014$) up to 6 months. Greater cortisol amplitude was positively associated with both WAZ ($B = 0.003$, $p = 0.021$) and LAZ trajectories ($B = 0.005$, $p = 0.017$) up to 6 months of age. Greater cortisol AUCI was associated with increased WAZ ($B = 0.0003$, $p = 0.041$) and LAZ ($B = 0.0004$, $p = 0.046$) up to 6 months. Steeper cortisol diurnal slope was also positively associated with WAZ ($B = 0.015$, $p = 0.011$) and LAZ ($B = 0.018$, $p = 0.048$) trajectories up to 3 months. **Conclusion:** Infant cortisol rhythmicity was associated with growth trajectories in early life, with time-specific indicators and dynamic pattern

variables having different growth outcomes. The findings highlight the importance of early circadian rhythm development in shaping infant growth.

P-1003 Preliminary findings of sustainable and healthy eating behaviours among higher education institution communities

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Introduction: Sustainable and healthy diets are increasingly recognised as important for improving human health while minimising environmental impacts. **Objective:** This study aimed to assess the level of sustainable and healthy eating behaviour and its associated factors among higher education institution communities. **Methods:** A cross-sectional study was conducted among 506 staff and students of Universiti Malaya between March to May 2026. Adherence was assessed using the cross-culturally adapted and validated Sustainable Healthy Diet-Malay (SHED-M) Index, which was self-administered. **Results:** Preliminary analyses indicated a moderate overall level of adherence. The mean SHED-M score was 63.2, with 30.8% of participants classified in the high adherence tertile. Females achieved significantly higher mean scores than males (70.09 vs 66.69, $p = 0.048$). There was higher adoption of plant-based diet and lower soft drinks consumption among females as compared to male. Significant differences in adherence scores were observed across race, marital status and education level. Indian participants scored significantly higher than Malay and Chinese participants. Additionally, married individuals showed a higher adherence level than single individuals. Those with degree-level education showed the strongest adherence to sustainable diet. No significant associations were found for age, income and body mass index. Among participants with access to recycling facilities, the mean self-reported recycling rates for paper, plastic, and glass ranged from 54.3% to 59.6%. **Conclusion:** This study provides baseline evidence on sustainable and healthy eating behaviours among higher education institution communities. Although positive dietary practices were observed, targeted promotional strategies may further support the adoption of healthier and more sustainable diets.

P-1004 Beyond the classroom: parental smoking exposure, lifestyle behaviours, and cognitive performance of Malaysian primary schoolchildren

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Introduction: Successful cognitive development in childhood is essential for long-term physical and mental well-being; however, evidence on modifiable factors influencing this process remains limited in Malaysia. **Objective:** This study investigated associations between parental smoking exposure and lifestyle behaviours with cognitive performance among Malaysian primary schoolchildren. **Methods:** Secondary analysis was performed using data from 1,620 children aged 6 to 12 years who participated in South East Asian Nutrition Surveys (SEANUTS I) Malaysia. Structured questionnaires assessed information on sociodemography, physical activity level, screen time, and parental smoking. Dietary quality was evaluated using mean adequacy ratio (MAR) of seven micronutrients. Raven's Progressive Matrices was used to evaluate non-verbal intelligence quotients (IQ). Complex samples multivariable logistic regression was employed to identify parental smoking exposure and lifestyle factors associated with IQ levels. **Results:** Majority of children (39.2%) demonstrated average cognitive performance, while

37.9% had above-average and 22.9% had below-average IQ levels. Adjusted logistic model showed children with low physical activity levels were 1.78 times more likely to demonstrate superior IQ (95%CI: 1.11-2.86). Notably, absence of parental smoking exposure was significantly associated with higher IQ level, with non-exposed children exhibiting higher odds (OR: 1.45; 95%CI: 1.04-2.02) of superior IQ compared to those exposed. **Conclusion:** Cognitive performance in Malaysian children is significantly associated with lifestyle factors. The findings suggest that parental smoking exposure and specific activity patterns may influence intellectual outcomes, highlighting the need for targeted public health strategies and parental education to optimise childhood cognitive potential.

P-1005 Associations between pregnancy and nutritional factors with blood pressure in the third trimester of pregnancy: A preliminary finding of the MYBIOTA cohort study

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Introduction: Elevated blood pressure during pregnancy is associated with adverse maternal and foetal outcomes. Identification of factors associated with elevated blood pressure during pregnancy is important for early risk detection and prevention of adverse pregnancy outcomes. **Objective:** This study aimed to examine the association between pregnancy and nutritional factors with blood pressure among pregnant women in their third trimester. **Methods:** A total of 52 pregnant women aged 21-41 years from a private clinic in Kajang and two government health clinics in Hulu Langat district completed a self-administered questionnaire on sociodemographic background, perceived stress, nausea and vomiting, and physical activity. Their dietary intake was obtained from 3-day dietary recalls and their body weight and blood pressure was obtained from their medical records. **Results:** The mean systolic and diastolic blood pressure of the pregnant women were 108.10 ± 10.89 mmHg and 69.80 ± 6.95 mmHg, respectively. Overall, 5.8% of participants were classified as having elevated blood pressure, while 11.5% were classified as having Stage 1 hypertension. Univariate logistic regression showed that physical activity and dietary intake were not significantly associated with elevated blood pressure. Multiple logistic regression analysis indicated that older maternal age was significantly associated with higher odds of elevated blood pressure, with each one-year increase in age increasing the likelihood by 1.24 times (95% CI: 1.02-1.51). **Conclusion:** Maternal age was significantly associated with elevated blood pressure among pregnant women in the third trimester. These findings highlight the importance of routine blood pressure monitoring and early risk identification during antenatal care.

P-1006 Dietary behaviours and nutritional outcomes in children with autism spectrum disorder: A comparison with typically developing children

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Introduction: Children with Autism Spectrum Disorder (ASD) exhibit atypical eating behaviours that may affect their nutritional status. However, findings comparing these outcomes with typically

developing (TD) children remain inconsistent. **Objective:** This study compared eating behaviours, dietary intake, and nutritional status between ASD and TD children, examining associations among variables. **Methods:** This cross-sectional comparative study involved 51 boys (ASD = 26, TD = 25) aged 4-8 years in Hospital Tuanku Ja'afar, Seremban. Parents completed self-administered questionnaires on socio-demographics and Children's Eating Behaviour Questionnaire. Nutritional assessments included weight, height, Subjective Global Nutrition Assessment (SGNA) and 3-day 24-hour dietary recalls. **Results:** Children with ASD had significantly higher median fat intake (43.8g vs. 36.8g, $p = 0.038$) and different adequacy distributions for fat ($\chi^2 = 7.215$, $p = 0.027$) and vitamin B12 ($\chi^2 = 7.428$, $p = 0.024$) compared to TD children. No group differences were observed in anthropometric z-scores, SGNA classifications, or any CEBQ subscale (all $p > 0.05$). In children with ASD, higher Satiety Responsiveness score was associated with lower weight ($r_s = -0.522$, $p = 0.006$) and lower BMI ($r_s = -0.500$, $p = 0.009$); higher Food Avoidant score was associated with lower weight ($r_s = -0.413$, $p = 0.036$) and lower height ($r_s = -0.392$, $p = 0.048$). In TD children, higher Enjoyment of Food score was associated with higher weight ($r_s = 0.455$, $p = 0.022$), higher weight z-score ($r_s = 0.513$, $p = 0.009$), and well-nourished SGNA status ($r_s = -0.488$, $p = 0.013$). **Conclusion:** Children with ASD showed higher fat intake but similar nutritional status compared to TD peers. Food avoidant behaviours were associated with poorer nutritional status in ASD, while food approach behaviours were associated with better outcomes in TD children. These findings highlight the need for tailored interventions.

P-1007 Prevalence of breakfast skipping among Malaysian shift workers in Klang Valley, Malaysia: A cross-sectional study

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Introduction: Breakfast skipping is a common dietary behaviour among shift workers due to irregular work schedules and circadian disruption. It has been highly associated with adverse metabolic outcomes, including obesity and cardiometabolic disorders. However, evidence on its prevalence among Malaysian shift workers remains limited. **Objective:** This study aimed to determine the prevalence of breakfast skipping and examine its association with gender. **Methods:** A cross-sectional study was conducted among 384 Malaysian shift workers in the Klang Valley, Selangor. Breakfast skipping was assessed using the validated Chrononutrition Profile Questionnaire (CPQ). Participants were classified as having good (≤ 1 day/week), fair (2 – 3 days/week), or poor (≥ 4 days/week) breakfast habits. Associations between breakfast skipping and gender were analysed using the chi-square test. **Results:** Breakfast skipping was highly prevalent, with 77.1% of participants reporting skipping breakfast at least twice weekly. Nearly half (46.1%, $n = 177$) skipped breakfast on ≥ 4 days/week, while 31.0% ($n = 119$) did so on 2 – 3 days/week. Only 22.9% ($n = 88$) consumed breakfast regularly (≤ 1 day/week). Although poor breakfast habits were more common among men (62.1%) than women (37.9%), no significant association was observed between gender and breakfast skipping ($\chi^2 = 2.94$, $p = 0.230$). **Conclusion:** The high prevalence of breakfast skipping among shift workers highlights a critical need for workplace health promotion. Understanding the factors contributing to breakfast skipping is essential for developing targeted nutrition interventions that encourage regular breakfast consumption and support long-term metabolic health.

P-1008 Prevalence of malnutrition and its associated factors among client of the Community-based Drug Treatment and Rehabilitation (CBTaR) in Kuala Terengganu

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Introduction: People who use drugs (PWUD) are vulnerable to malnutrition due to poor dietary behaviours, food insecurity, socioeconomic disadvantages, and lifestyle disruptions associated with substance use. **Objective:** This study aimed to determine the association between socioeconomic characteristics, drug profiles, food insecurity experiences, coping strategies, and malnutrition among respondents undergoing community-based drug treatment and rehabilitation in Terengganu. **Methods:** A cross-sectional study was conducted among 304 respondents aged 18-59 years undergoing community-based drug treatment and rehabilitation programs at selected National Anti-Drug Agency (NADA) centers in Terengganu. Data were collected using a structured questionnaire. Food insecurity experiences and coping strategies were assessed using the Malay versions of the COVID-19 Food Insecurity Experience Scale (FIES) and Malaysian Coping Strategies Index (MCSI), respectively. Body mass index was calculated to determine malnutrition status. **Results:** Among the respondents, 51.3% had normal BMI, 11.2% were underweight, 21.7% were overweight, and 15.8% were obese. Most respondents were food secure (59.5%), while 40.5% experienced food insecurity. No significant associations were observed between socioeconomic factors and malnutrition. Diabetes mellitus was the only comorbidity significantly associated with malnutrition ($p = 0.034$). No significant association between food insecurity and malnutrition ($p = 0.626$). The most commonly reported coping strategy for food insecurity was delaying bill payments (26.3%). **Conclusion:** Both undernutrition and overnutrition were observed in this population, indicating a double burden of malnutrition. Respondents who were food secured may be due to their living arrangement with their family members. Nutritional screening and management should be incorporated into community-based rehabilitation programs to improve health outcomes among PWUD.

P-1009 Students' perceptions, attitudes, and intention to purchase healthy snacks and beverages from vending machines on campus

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Introduction: Vending machines are an important part of the university food environment. They are convenient, strategically placed at locations such as libraries and student centres, and are available 24-hours. However, they are usually filled with low-nutrient and high-calorie snacks and beverages. **Objective:** By using the Theory of Planned Behaviour (TPB), this study aimed to determine students' perceptions, attitudes, and intention to purchase healthy snacks and beverages from vending machines on campus if they are made available. **Methods:** This cross-sectional study was conducted among 185 students aged 18-35 years at UCSI University, Kuala Lumpur. Socio-demographic background, frequency of vending machine use, perceptions and attitudes toward existing vending machines, TPB constructs (attitude, subjective norms, perceived behavioural control), health consciousness, and intention to purchase healthy snacks and beverages, were obtained through self-administered questionnaires. **Results:** About 20% of the students used vending machines at least once a week. The most common reasons for using vending machines were due to convenience (47.6%) and thirst (41.1%). More than half of the students agreed that the existing vending machines should offer healthy drink (66.5%) and snack (63.2%) options. Higher attitudes ($r = 0.784$, $p < 0.001$), subjective norms ($r = 0.795$, $p < 0.001$), perceived behavioural control ($r = 0.833$, $p < 0.001$), and health consciousness ($r = 0.725$, $p < 0.001$) scores were associated with higher scores on intention to purchase healthy snacks and beverages. **Conclusion:** Both psychological (attitudes and perceived behavioural control) and social (subjective norms and health consciousness) factors play an important role in influencing students' purchasing decisions. Availability of vending machines with healthier options may improve students' food habits.

P-1010 The Salt@Home Method: Development and validation of a novel method for determining salt intake and its associations with psychosocial and nutritional factors in adults from Malaysian households

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Introduction: This study integrated psychosocial, nutritional, and biomarker evidence to develop and validate a household-based salt assessment tool (Salt@Home) for Malaysian settings. **Objective:** To develop and validate a household-based salt assessment tool (Salt@Home) for Malaysian settings. **Methods:** A sequential mixed-methods design was conducted involving 40 participants in the qualitative phase, 251 adults in the quantitative phase, and 100 households in the Salt@Home validation study. **Results:** Salt intake among Malaysian adults was strongly influenced by sociocultural norms, taste preferences, household cooking habits, and the food environment. Mean sodium intake ranged from 2,880 to 3,602 mg/day substantially exceeding WHO recommendations. The Salt@Home method demonstrated good reliability ($ICC = 0.74$; $95\%CI: 0.69 - 0.78$) and criterion validity against 24-hour urinary sodium excretion ($r = 0.68$, $p < 0.001$). Bland-Altman analysis showed negligible bias (-0.02 g/day) and acceptable limits of agreement (-1.86 to $+1.82$ g/day). In adjusted analyses, overweight/obesity ($\beta = 0.42$ g/day; $p = 0.008$), abdominal obesity ($\beta = 0.51$ g/day $p = 0.002$), and hypertension ($\beta = 0.38$ g/day; $p = 0.017$) were independently associated with higher salt intake. Higher physical activity was associated with lower salt intake ($\beta = -0.33$ g/day; $p = 0.026$). Better salt-related practices and higher self-efficacy were associated with lower intake ($p \leq 0.001$), whereas perceived barriers were associated with higher intake ($p \leq 0.032$). Knowledge and attitude were not significant predictors after adjustment. **Conclusion:** This study demonstrates that excessive salt intake among Malaysian adults is driven by modifiable behavioural and environmental factors, and that the validated Salt@Home method provides a robust, culturally appropriate, and scalable tool to support effective salt-reduction interventions and policy actions.

P-1011 Factors associated with height-for-age z-score (HAZ) among children aged 6-36 months in Johor Bahru and Kulai, Johor

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Introduction: Stunting and poor linear growth in early childhood remain important public health concerns due to their adverse effects on child development and long-term health. **Objective:** This study aimed to determine factors associated with height-for-age z-score (HAZ) among children aged 6-36 months in Johor Bahru and Kulai, Johor. **Methods:** A cross-sectional study was conducted among 175 mother-child pairs attending eight health clinics in Johor Bahru and Kulai. Data on socio-demographic characteristics, maternal factors, parental feeding practices, parenting style, child eating behaviour, and dietary intake of mothers and children were collected using a self-administered questionnaire. Anthropometric measurements were obtained and HAZ was calculated. Variables with $p < 0.25$ in simple linear regression were entered into multiple linear regression analysis. **Results:** Most mothers were aged 30-39 years (59.4%), Malay (89.7%), employed (54.9%), and from B40 households (76.0%). The mean maternal BMI was 25.67 ± 4.93 kg/m². Among children, the mean HAZ was -0.50 ± 1.14 and 6.9% were stunted. The final regression model explained 29.2% of the variance in HAZ (adjusted $R^2 = 0.292$). Child energy intake (standardised $\beta = 0.392$, $p < 0.001$), restriction for health reasons ($\beta = 0.199$, $p = 0.004$), perceived cost of healthful food ($\beta = -0.208$, $p = 0.001$), teaching about nutrition ($\beta = 0.163$, $p = 0.017$), family fast-food purchasing ($\beta = -0.165$, $p = 0.013$), and emotional under-eating ($\beta = -0.155$, $p = 0.039$) were significantly associated with HAZ. **Conclusion:** Child energy intake, parental feeding practices, nutrition-related parenting, perceived cost of healthy food, family fast-food purchasing, and emotional under-eating were associated with HAZ among children aged 6-36 months. Growth promotion strategies

should address both child-level dietary and eating behaviour factors, as well as family-level feeding practices and food environment influences.

P-1012 Parental perspectives on food-related beliefs in childhood cancer: A qualitative study at Hospital Tunku Azizah, Kuala Lumpur

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Introduction: Parents of children with cancer often seek explanations for their child's illness and may develop food-related beliefs that influence dietary practices during treatment. **Objective:** This study aimed to explore parental perspectives on food-related beliefs in childhood cancer among parents of children undergoing cancer treatment. **Methods:** This qualitative study employed semi-structured, face-to-face interviews to gain in-depth understanding of participants' perspectives. Thirty-two parents of children undergoing cancer treatment at Hospital Tunku Azizah, Kuala Lumpur, between March 2023 and August 2024 participated in the study. Written informed consent and sociodemographic information were obtained before the interviews. All interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis. **Results:** Of the 32 participants interviewed, most were mothers (90.6%), aged 36-50 years (68.8%), and had attained secondary-level education (65.6%). Thematic analysis identified three major themes: (i) beliefs about causes of childhood cancer, including processed foods, food additives, and environmental exposures; (ii) perceived role and limitations of foods and supplements in cancer management, including concerns regarding both protective and harmful dietary factors; and (iii) sources of cancer-related information and their influence on shaping parental beliefs and practices. **Conclusion:** Parents' food-related beliefs encompassed both perceived causes of childhood cancer and dietary practices during treatment. Targeted nutritional education and clear communication from healthcare professionals are essential to support informed decision-making during treatment and avoid misconceptions and inappropriate dietary restrictions during treatment.

P-1013 Vitamin D status and its associated factors among children living in low-cost flats in Kuala Lumpur, Malaysia

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Introduction: Vitamin D deficiency remains important public health concerns among children worldwide, despite abundant sunlight exposure in tropical countries such as Malaysia. **Objective:** This study aimed to identify vitamin D status and its associated factors among urban low-income children in Kuala Lumpur. **Methods:** This cross-sectional study utilised baseline data from the PUTRA Community Nutrition Ambassador Programme (PUTRACNAP), collected between June and October 2022. A total of 156 children aged 7-12 years from 15 low-cost flats in Kuala Lumpur were included. Data collected comprised socio-demographic characteristics, dietary vitamin D intake assessed using a 24-hour dietary recall, physical activity levels measured using the Physical Activity Questionnaire for Older Children (PAQ-C), and total serum 25 hydroxyvitamin D [25(OH)D] concentrations determined through biochemical analyses. Multiple linear regression with stepwise selection was performed to identify factors associated with total serum vitamin D concentrations. **Results:** Vitamin D insufficiency was highly prevalent, affecting 69.2% of children, while 12.2% were classified as vitamin D deficient. The final regression model explained 23.8% of the variance in serum vitamin D concentrations. Maternal education level ($p < 0.001$), children's sex ($p < 0.001$), age ($p < 0.001$), dietary vitamin D intake ($p = 0.040$) and physical activity level ($p = 0.040$) were identified as significant predictors of total serum vitamin D concentrations. **Conclusion:** Vitamin D insufficiency is highly prevalent among children in low-cost flats in Kuala Lumpur. Interventions promoting adequate dietary vitamin D intake and active lifestyles may require improving vitamin D status in this population.

U-1001 The association between breastfeeding practices, dietary quality, and post-partum depression among mothers in Selangor, Malaysia

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Introduction: Postpartum depression (PPD) affects the mental health of newly delivered women. This disorder develops between 2 and 8 weeks after childbirth and lasts up to a year. **Objective:** This study aimed to investigate the association between breastfeeding practices, dietary quality, and PPD among mothers in Selangor, Malaysia. **Methods:** The cross-sectional study recruited 80 mothers in the first year postpartum from a confinement centre and online breastfeeding support groups. PPD was assessed using the validated Malay version of the Edinburgh Postnatal Depression Scale (EPDS), breastfeeding practices with the adapted Infant Feeding Practice Survey II (IFPS II), and diet quality using the Diet Quality Questionnaire (DQQ). **Results:** Results showed 25% of mothers had PPD. The majority were working mothers (83.8%), aged 31-35 years (43.8%), and from the M40 income group (47.5%). Socio-demographic variables had no significant associations with PPD. Although 65% of mothers were breastfeeding, 80% reported breastfeeding concerns, but no significant links to PPD were found. However, consumption of unprocessed red meat was significantly associated with higher PPD scores ($p = 0.003$), and the NCD-Protect Score (reflecting intake of protective foods like fruits and vegetables) was lower in mothers with higher depressive symptoms ($p = 0.029$). **Conclusion:** These findings suggest that while breastfeeding practices may not directly affect PPD, dietary quality, particularly unprocessed red meat consumption, plays a significant role in maternal mental health. Improving dietary habits and breastfeeding support may help reduce PPD risk.

U-1002 The role of intrinsic motivation in promoting sustainable dietary practices among university students

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Introduction: The global food system significantly contributes to environmental degradation, making sustainable dietary practices (SDP) increasingly important. However, SDP adoption among university students remains inconsistent. While previous studies often emphasised external barriers such as cost and inconvenience, this study applies self-determination theory (SDT) to examine the role of intrinsic motivation in promoting SDP among university students in Malaysia, along with perceived facilitators and barriers. **Objective:** To examine the association between intrinsic motivation and SDP among university students in Malaysia. **Methods:** A cross-sectional quantitative study was conducted among 155 students at a private university in Malaysia (62.6% female; mean age 21.8 ± 3.15 years). Data were collected through a structured online questionnaire using validated instruments, including adapted versions of the Treatment Self-Regulation Questionnaire (TSRQ) and Sustainable Diets Questionnaire (SDQ). Analysis included descriptive statistics, correlation analysis, multiple linear regression, independent t-tests, and one-way ANOVA. **Results:** Participants demonstrated moderate SDP engagement ($M = 37.68 \pm 7.53$), with food waste reduction as the most common behaviour (69.0%). Intrinsic motivation showed a strong positive correlation with SDP ($r = 0.660, p < 0.001$) and emerged as the only significant independent predictor ($\beta = 0.878, p < 0.001$). Perceived facilitators were positively associated with SDP, while perceived barriers showed no significant relationship. Gender, residence, and religion revealed significant demographic differences. **Conclusion:** Intrinsic motivation was the strongest predictor of SDP, outweighing external facilitators and barriers. These findings suggest that interventions should prioritise fostering internalised environmental values rather than focus solely on reducing practical barriers.

U-1003 Relationship between risk perception of type 2 diabetes mellitus and physical activity level among young adults in Malaysia

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Introduction: This cross-sectional study investigated the relationship between risk perception of type 2 diabetes mellitus (RPDM) and physical activity level (PAL) among 268 Malaysian young adults aged 18-29 years, with a mean age of 24 years. Focusing on the global rise of non-communicable diseases, the research assessed how perceived risk of diabetes mellitus influences preventive health behaviours.

Objective: This study aimed to assess RPDM and its association with PAL among young adults in Malaysia. **Methods:** Data were collected using validated bilingual questionnaires administered through an online Google Form. The data were analysed using the Mann-Whitney U test, Kruskal-Wallis test, and Spearman's rank correlation. **Results:** The respondents were predominantly female (69.4%), single (79.9%), Malay (48.9%), with a family history of diabetes (51.5%), and tertiary-educated (66.4%), with 54.5% maintaining a normal body mass index (BMI). Overall, the results revealed relatively high PAL (6535.5 ± 5548.4 MET-minutes/week) and moderate-to-high RPDM scores (142.0 ± 26.6). Significant differences in PAL were observed across sex, ethnicity, employment status, marital status, and education level ($p < 0.05$). However, the study found no significant correlation between RPDM scores and PAL ($r = -0.053$, $p = 0.390$), nor did BMI significantly correlate with PAL. **Conclusion:** Although participants generally possessed a strong awareness of diabetes risk and maintained high activity levels, risk perception alone did not translate into physical activity behaviour. Therefore, these findings suggest that public health strategies should shift from solely increasing risk awareness towards targeted interventions that encourage sustainable behavioural changes and active lifestyles to effectively mitigate the global burden of diabetes.

U-1004 Cross-sectional study on phytoestrogen intake and mood variability in perimenopausal and postmenopausal women

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Introduction: Mood changes are common during the menopausal transition and can adversely affect quality of life. Phytoestrogens, plant-derived compounds with oestrogen-like activity, have been suggested to influence mood; however, evidence remains limited, particularly among Malaysian women. **Objective:** This study aimed to examine the association between dietary phytoestrogen intake and mood variability among perimenopausal and postmenopausal women. **Methods:** A cross-sectional study was conducted among 95 women aged 40-60 years (perimenopausal $n = 43$; postmenopausal $n = 52$). Dietary phytoestrogen intake was assessed using a modified Malaysian food frequency questionnaire. Mood variability was evaluated using the Profile of Mood States-16 and Depression Anxiety Stress Scale-21. Mann-Whitney U tests, Spearman's rank correlation, and bootstrap multiple linear regression analyses adjusted for age, body mass index, and physical activity were performed. **Results:** Perimenopausal women demonstrated significantly higher phytoestrogen intake than postmenopausal women ($p = 0.022$), while mood scores did not differ significantly between groups. Higher phytoestrogen intake was inversely associated with several negative mood outcomes, with stronger and more consistent correlations observed among postmenopausal women. Among overall participants, bootstrap regression showed that higher phytoestrogen intake remained significantly associated with lower confusion ($B = -0.400$, 95% CI: $-0.616, -0.258$), anxiety ($B = -2.822$, 95% CI: $-4.612, -1.730$), and stress scores ($B = -3.214$, 95% CI: $-5.358, -1.785$) (all $p < 0.001$). **Conclusion:** Higher phytoestrogen intake was associated with lower mood disturbance and psychological distress, with stronger associations observed among postmenopausal women, suggesting a potential role in supporting psychological wellbeing during midlife.

U-1005 A cross-sectional study on phytoestrogen intake and mood variability in menstruating and perimenopausal women

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Introduction: Hormonal fluctuations across women's reproductive stages may influence mood variability through alterations in neurotransmitter regulation. Dietary phytoestrogens possess oestrogen-like properties and may modulate mood-related outcomes. However, evidence linking phytoestrogen intake and mood variability remains limited among Malaysian women. **Objective:** To compare dietary phytoestrogen intake and mood outcomes between menstruating and perimenopausal women, and to examine the association between phytoestrogen intake and mood outcomes among Malaysian women. **Methods:** This cross-sectional study included 87 participants (44 menstruating, 43 perimenopausal). Data were collected using an online questionnaire, comprising a modified 20-item food frequency questionnaire (FFQ) and validated mood assessment tools, namely the Profile of Mood States (POMS-16) and Depression, Anxiety Stress Scales (DASS-21). Data were analysed using Mann-Whitney U tests, Spearman's correlation, and bootstrapped multiple linear regression in SPSS 31.0. **Results:** Perimenopausal women demonstrated significantly lower phytoestrogen intake and higher total mood disturbance (TMD), depression, anxiety, and stress scores than menstruating women ($p < 0.05$). In bootstrapped multiple regression models adjusted for age, body mass index, and reproductive

stage, higher phytoestrogen intake was significantly associated with TMD ($B = -1.05$, $p = 0.007$), depression ($B = -1.68$, $p = 0.003$), and stress scores ($B = -1.29$, $p = 0.023$). Although an inverse association was observed with anxiety scores, the adjusted association was not statistically significant ($B = -0.83$, $p = 0.067$). **Conclusion:** This study provides preliminary evidence of an association between higher dietary phytoestrogen intake and better mood-related outcomes among women across reproductive stages. Further longitudinal and intervention studies are needed to clarify causality and underlying mechanisms.

U-1006 eHealth literacy and its association with digital nutrition tool use and perceived dietary changes among Malaysian adults

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Introduction: Rapid growth in digital health technologies has transformed how individuals access nutrition information. However, limited eHealth literacy (eHL) may reduce effective engagement with digital nutrition tools (DNTs). **Objective:** This study aimed to assess eHL levels among Malaysian adults and examine its association with DNT use and perceived dietary behaviour changes. **Methods:** A cross-sectional study involving 475 Malaysian adults aged 18-59 years was conducted using online convenience sampling. A bilingual (Bahasa Melayu/English) self-administered questionnaire assessed demographics, eHL, DNT use, and perceived dietary behaviour changes. Data were analysed using descriptive statistics, independent t-tests, one-way ANOVA, chi-square tests, and multiple logistic and linear regression analyses. **Results:** Most participants were female (67.8%), aged 18-25 years (50.9%), Chinese (52.4%), and had tertiary education (69.9%). Lifestyle and fitness applications were the most commonly used DNTs (65.3%). Overall engagement with DNTs was moderate, while DNT use was generally intermittent. Mean eHEALS scores were significantly higher among females ($p = 0.042$) and participants with tertiary education ($p = 0.021$). Sex was significantly associated with the use of diet management tools ($p = 0.048$). Higher eHEALS scores were significantly associated with frequent DNT use ($AOR = 1.032$, 95% $CI = 1.000 - 1.065$, $p = 0.049$) and perceived dietary behaviour changes ($\beta = 0.185$, 95% $CI = 0.150 - 0.221$, $p < 0.001$). **Conclusion:** Higher eHL was positively associated with frequent DNT use and perceived dietary behaviour changes. Improving eHL may enhance the effectiveness of digital nutrition interventions and support healthier dietary behaviours among Malaysian adults.

U-1007 Association between binge eating disorder, psychological wellbeing, and weight status among university students

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Introduction: Emerging data reveals that binge eating disorder (BED) usually coexists with psychological discomfort, such as depression, anxiety, and stress, and may lead to weight fluctuations. University students are especially exposed to these worries because of academic, social, and lifestyle constraints. **Objective:** To examine the association between binge eating disorder, and weight status among university students. **Methods:** A convenience sample approach was used to perform a cross-sectional study among university students aged 18-25. Data were obtained using an online self-administered questionnaire that included sociodemographic information, the Binge Eating Scale (BES), and the Depression, Anxiety, and Stress Scale-21 (DASS-21). The weight status was assessed by calculating body mass index (BMI) using self-reported height and weight. **Results:** The survey included 324 university students from various universities around Malaysia, with the biggest representation coming from UCSI University (17.4%) and Universiti Teknologi Malaysia (13.9%). The mean BES score was 22.81, the subjects' mean scores for stress, anxiety, and depression were 20.70, 20.48, and 20.32, respectively, indicating significant psychological distress. A weak but statistically significant positive link between BMI and BES score was found using Pearson's correlation analysis ($r = 0.175$, $p = 0.002$). One-way ANOVA, however, revealed no significant variations in stress ratings ($F(3,316) = 0.88$, $p = 0.449$), anxiety ($F(3,316) = 0.62$, $p = 0.603$), or depression ($F(3,316) = 1.36$, $p = 0.254$) among BMI categories. **Conclusion:** BMI was strongly correlated with symptoms of binge eating, but there was no significant correlation between weight status and stress, anxiety, or depression.

U-1008 Association between emotional eating, sleep quality, and weight status of Malaysian undergraduate students in UCSI University

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Introduction: Unhealthy weight status, particularly overweight and obesity, has become increasingly prevalent among Malaysian university students and may be influenced by behavioural factors such as emotional eating and sleep quality. **Objective:** This study aimed to investigate the association between emotional eating, sleep quality, and weight status among undergraduate students at UCSI University. **Methods:** A cross-sectional study was conducted among 124 undergraduate students aged 18–24 years. Data were collected using a self-administered questionnaire, including sociodemographic and lifestyle characteristics, the Emotional Eating subscale of the Dutch Eating Behaviour Questionnaire (DEBQ), and the Pittsburgh Sleep Quality Index (PSQI). BMI was calculated from self-reported height and weight. Data were analysed using IBM SPSS Statistics Version 27.0. **Results:** The prevalence of overweight and obesity was 12.1% and 13.7%, respectively. Poor sleep quality was reported by 66.1% of participants, while 14.5% were identified as emotional eaters. Gender, ethnicity, and smoking status were significantly associated with BMI in bivariate analysis, but only gender remained a significant predictor in multiple linear regression ($\beta = -0.188$, $p = 0.033$). Emotional eating and sleep quality showed weak but significant positive correlations with BMI ($r = 0.181$, $p = 0.044$; $r = 0.180$, $p = 0.046$, respectively). Sleep disturbances were significantly higher among obese participants ($p = 0.002$). **Conclusion:** Emotional eating and poor sleep quality were associated with BMI among university students. These findings suggest that BMI is influenced by multiple factors, highlighting the need for further longitudinal research incorporating additional behavioural and lifestyle variables.

U-1009 Association between breakfast skipping and gut health among university students in Klang Valley

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Introduction: Breakfast is important for gastrointestinal (GI) health and overall well-being. Irregular breakfast consumption has been associated with altered bowel habits and GI discomfort, but evidence among Malaysian university students remains limited. **Objective:** This study aimed to determine the association between university students' breakfast consumption patterns and GI health effects in the Klang Valley, Malaysia. **Methods:** A cross-sectional study was conducted, and data on breakfast consumption habits and sociodemographic factors were collected. GI outcomes were assessed using the Bristol Stool Form Scale, stool frequency, the Birmingham IBS Questionnaire, and the Gastrointestinal Symptom Rating Scale (GSRS). **Results:** A total of 229 university students participated, with 98.3% being Chinese and 85.2% being female. Breakfast consumers (> 3 days/week) ate breakfast consistently across days, with and without classes, compared with skippers ($p < 0.001$). Skipping breakfast was associated with decreased stool frequency ($p = 0.012$), but there was no significant association with stool form ($p = 0.436$). The Birmingham IBS Questionnaire revealed no significant correlations between breakfast frequency and IBS symptoms ($p > 0.05$). Breakfast skippers had significantly higher GSRS scores for reflux, diarrhoea, and constipation ($p < 0.05$). **Conclusion:** Skipping breakfast among university students was associated with reduced stool frequency and increased GI discomfort, as measured by the GSRS. Regular breakfast consumption may help to improve GI health in young adults. More longitudinal studies with larger samples and extensive dietary assessments are necessary for future research.

U-1010 Prevalence of anaemia and associated factors among young women aged 18 - 25 years in Klang Valley, Malaysia

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Introduction: Anaemia remains a major public health concern among women of reproductive age, who are vulnerable due to menstrual blood loss, increased physiological iron requirements, and lifestyle-related factors that may compromise nutritional status. **Objective:** This study aimed to determine the

factors associated with anaemia among young women aged 18-25 years in Klang Valley, Malaysia. **Methods:** This is a cross-sectional study comprising 704 Malaysian young women aged 18-25 years recruited from three higher education institutions in Klang Valley. Sociodemographic characteristics, menstrual characteristics, dietary intake, dietary quality, dietary patterns, body mass index (BMI), sleep quality, psychological status, muscle strength, and haemoglobin concentration were analysed. **Results:** The prevalence of anaemia was 60.1%, indicating a severe public health burden among young women in Klang Valley. Most participants demonstrated poor dietary quality (66.2%) and poor sleep quality (56.3%). Logistic regression analysis revealed that dietary quality was significantly associated with anaemia status. Participants with moderate-to-good dietary quality exhibited significantly lower odds of anaemia compared with those reporting poor dietary quality (adjusted OR = 0.72, 95% CI: 0.52-0.99, $p < 0.05$). Muscle strength was also significantly associated with anaemia, with non-anaemic participants demonstrating higher mean handgrip strength than anaemic participants (21.08 ± 6.12 kg vs. 19.74 ± 5.58 kg; $p = 0.004$). **Conclusion:** This study highlights the need for targeted prevention and early intervention strategies. This study advances existing knowledge by integrating nutritional, lifestyle, psychological, and functional factors within a single analytical model, thereby providing a more comprehensive understanding of anaemia among Malaysian young women.

U-1011 Association between academic stress, physical activity and eating behaviours among undergraduate students in Klang Valley, Malaysia

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Introduction: Academic stress has been identified as a predictor of maladaptive eating behaviours, while declining physical activity further threatens student well-being. **Objective:** To study the association between academic stress, physical activity, and eating behaviours among undergraduate students in Klang Valley, Malaysia. **Methods:** A cross-sectional study was conducted among 122 undergraduate students aged 18 to 25 years from private universities. Data were collected using a self-administered questionnaire comprising the Dutch Eating Behaviour Questionnaire (DEBQ), Perception of Academic Stress Scale (PAS), and International Physical Activity Questionnaire-Short Form (IPAQ-SF). Descriptive statistics, independent t-tests, and Pearson's correlation were used to analyse the data. **Results:** The majority of participants were female (59.8%), Chinese (95.9%), with a mean age of 21.75 ± 1.05 years. External eating showed the highest mean score ($M = 3.55 \pm 0.63$), followed by restrained eating ($M = 2.75 \pm 0.89$) and emotional eating ($M = 2.65 \pm 0.76$). Most students (65.6%) reported moderate academic stress, while 40.1% were moderately active, with walking as the most common activity. Females reported significantly higher restrained eating ($t = -5.759$, $p < 0.001$), external eating ($t = -2.287$, $p = 0.024$), and academic stress ($t = -2.433$, $p = 0.016$). Correlation analyses showed that academic stress was weakly but significantly associated with restrained eating ($r = 0.193$, $p = 0.033$), but not with emotional or external eating. Physical activity was not significantly associated with any eating behaviour subscales. **Conclusion:** The study highlights the need for interventions that promote healthier coping strategies for managing academic stress and reducing the risk of maladaptive eating behaviours among undergraduate students.

U-1012 Diet quality and protein source patterns among women of reproductive age in Universiti Kebangsaan Malaysia, Kuala Lumpur campus

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Introduction: Diet quality and protein intake are important determinants of reproductive health among women of reproductive age. However, limited evidence exists among Malaysian university students. **Objective:** This study aimed to assess diet quality, protein source patterns, and their associations with anthropometric indicators among women at Universiti Kebangsaan Malaysia Kuala Lumpur Campus. **Methods:** A cross-sectional study was conducted among 168 women aged 18-49 years from the UKMKL campus using random sampling. Dietary intake was assessed using three-day online food records. Anthropometric and body composition measurements were obtained using bioelectrical impedance analysis. Diet quality was assessed using the Standardised Malaysian Healthy Eating Index (S-MHEI). Protein sources were identified using frequency count and classified into animal and plant sources. Data were analysed using Spearman's rho correlation, Kruskal-Wallis H test, and Chi-square test.

Results: Most participants had diet quality classified as needing improvement (57.9%) or poor (40.6%), while only 1.5% had good diet quality. The median S-MHEI score was 53.69 (IQR 16.86), indicating moderate diet quality. Plant protein sources were consumed more frequently than animal sources, with chicken and eggs being the main animal proteins. Intake of whole grains, fruits, legumes, and dairy products was low. Protein adequacy was significantly associated with body mass index category and body fat percentage ($p < 0.05$). S-MHEI score was significantly associated with protein and fat intake ($p < 0.05$). **Conclusion:** Diet quality was suboptimal, with imbalanced protein intake driven by poor dietary variety, low legumes and dairy intake, and reliance on chicken and eggs. Targeted nutrition strategies are needed to support long-term metabolic and reproductive health.

U-1013 Health-related quality of life with musculoskeletal symptoms and sarcopenia among middle-aged women in Kuala Lumpur and Selangor

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Introduction: Women are at risk of developing musculoskeletal symptoms and sarcopenia with aging, which subsequently affects their health-related quality of life (QoL). **Objective:** This study aims to determine health-related QoL and its relationships with musculoskeletal symptoms and sarcopenia among middle-aged women in Kuala Lumpur and Selangor. **Methods:** This cross-sectional study included 401 middle-aged women aged 52.6 ± 7.2 years recruited from seven community halls in Kuala Lumpur and Selangor, with a mean BMI of 28.6 ± 5.9 kg/m². QoL was self-administered using the World Health Organization Quality of Life-Brief (WHOQOL-BREF-M). Sarcopenia prevalence was assessed via handgrip strength tests and 5-time Chair Stand Test using the Asian Working Group for Sarcopenia 2025 criteria. Presence of musculoskeletal symptoms was self-reported using the Nordic Musculoskeletal Questionnaire. **Results:** Average QoL scores were moderate for physical (69.4 ± 14.0), psychological (69.5 ± 14.1), social (69.5 ± 18.6), and environmental domains (68.8 ± 14.7). Musculoskeletal symptom and sarcopenia prevalence were 85.0% and 3.4% respectively. Musculoskeletal symptoms were significantly associated with QoL ($p < 0.05$), while a significant decline in QoL was observed as the number of symptom sites increased ($p < 0.05$). Subjects with multisite musculoskeletal symptoms had the lowest QoL, especially in the physical domain. There were significant declines in QoL scores across the sarcopenia spectrum for physical and environmental domains ($p < 0.05$). The at-risk sarcopenia group showed the lowest QoL, suggesting an association between worsening sarcopenia and limited daily activities in surroundings. **Conclusion:** Overall, QoL was significantly lower among individuals with multisite musculoskeletal symptoms and those at-risk of sarcopenia. Early screening for musculoskeletal symptoms and sarcopenia is important to mitigate bodily pain and improve physical performance.

U-1014 The association of exposure to food and beverages marketing and purchasing behaviour via social media with food choice and body mass index status among university students in Malaysia

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Introduction: Food labels serve as a vital communication link between manufacturers and consumers, yet their utility among older adults remains underexplored. **Objective:** This study explored the factors and barriers influencing food label reading practices among older adults in Klang Valley. **Methods:** This qualitative study employed purposive sampling to select older adults aged 60 years and above residing in Klang Valley. Data was collected through face-to-face focus group discussions, which were audio-recorded and transcribed verbatim using Clipto software. The transcript was uploaded into Taguette software, where it was coded and thematically analysed. **Results:** The findings revealed that food label reading practices were influenced by both internal and external factors. Internal factors included the desire to know food content and health-related motivations. External factors included changes in food packaging and curiosity towards new products. Key barriers identified were reliance on prior purchasing experience, difficulty understanding label information due to technical terminology, and poor label design, particularly small font sizes and low colour contrast that reduce readability. **Conclusion:** The findings indicate that food label reading practices among older adults are influenced by a combination of internal and external factors, while several practical barriers limit consistent engagement with food labels. Future studies should focus on designing clearer, older adults-friendly food label designs and

targeted nutrition education to enhance comprehension and support informed food choices. In addition, these findings highlight the need for better policy-level action, such as revising national food labelling guidelines to better accommodate the needs of ageing populations.

U-1015 Facilitators and barriers to food label reading among older adults in Klang Valley

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Introduction: Food labels serve as a vital communication link between manufacturers and consumers, yet their utility among older adults remains underexplored. **Objective:** This study explored the factors and barriers influencing food label reading practices among older adults in Klang Valley. **Methods:** This qualitative study employed purposive sampling to select older adults aged 60 years and above residing in Klang Valley. Data was collected through face-to-face focus group discussions, which were audio-recorded and transcribed verbatim using Clipto software. The transcript was uploaded into Taguette software, where it was coded and thematically analysed. **Results:** The findings revealed that food label reading practices were influenced by both internal and external factors. Internal factors included the desire to know food content and health-related motivations. External factors included changes in food packaging and curiosity towards new products. Key barriers identified were reliance on prior purchasing experience, difficulty understanding label information due to technical terminology, and poor label design, particularly small font sizes and low colour contrast that reduce readability. **Conclusion:** The findings indicate that food label reading practices among older adults are influenced by a combination of internal and external factors, while several practical barriers limit consistent engagement with food labels. Future studies should focus on designing clearer, older adults-friendly food label designs and targeted nutrition education to enhance comprehension and support informed food choices. In addition, these findings highlight the need for better policy-level action, such as revising national food labelling guidelines to better accommodate the needs of ageing populations.

U-1016 Comparison of nutritional status and physical functional capacity among paediatric cancer patients at diagnosis and after receiving treatment at Hospital Tunku Azizah Kuala Lumpur

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Introduction: Malnutrition and impaired physical functional capacity are common concerns among paediatric cancer patients, particularly during active treatment. **Objective:** This study aimed to compare nutritional status and physical functional capacity among paediatric cancer patients at diagnosis and after 6 months of treatment. **Methods:** A longitudinal study was conducted at Hospital Tunku Azizah, Kuala Lumpur, involving 58 paediatric cancer patients aged 2-15.9 years. Sociodemographic and clinical characteristics, anthropometry, and physical function, including handgrip strength and 6-minutes walk test (6MWT), were assessed. **Results:** No significant changes were observed in body mass index-for-age (BAZ) over 6 months of treatment, with mean BAZ changing from -0.6 ± 1.8 to -0.7 ± 2.0 after 6 months of treatment, indicating that overall nutritional status remained within normal range despite a declining trend. However, mid-upper arm circumference increased significantly from 19.8 ± 5.0 cm to 20.8 ± 5.1 cm ($p < 0.001$). Nevertheless, proportion of patients with normal BAZ decreased from 62.1% to 53.4%, alongside increases in both underweight and obesity categories, suggesting a shift in nutritional status distribution despite the relative stability of overall anthropometric indicators. For physical functional capacity, significant improvements in handgrip strength were observed among subjects aged 7-9 years ($p < 0.005$) and 10-12 years ($p < 0.047$). No significant changes were observed in 6MWT after 6 months of treatment. **Conclusion:** Paediatric cancer patients experience persistent nutritional and functional challenges throughout 6 months of treatment. These findings underscore the importance of integrated nutritional support and functional rehabilitation strategies to enhance treatment outcomes and quality of life.

U-1017 Usability of nutrition screening tool for childhood cancer in determining nutritional status of paediatric cancer patients at Hospital Tunku Azizah, Kuala Lumpur

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Introduction: Malnutrition is a common complication in paediatric cancer patients that can adversely affect treatment outcomes, growth, and survival. Early identification of nutritional risk using appropriate screening tools is therefore essential in paediatric oncology care. **Objective:** This study aimed to evaluate nutritional status of paediatric cancer patients at Hospital Tunku Azizah, Kuala Lumpur using the Nutrition Screening Tool for Childhood Cancer (SCAN). **Methods:** A cross-sectional study was conducted among 72 newly diagnosed paediatric cancer patients aged 2.0-15.9 years. Nutritional risk was assessed using SCAN, which evaluates factors such as weight loss, reduced dietary intake, and gastrointestinal symptoms. Patients were categorised into risk groups based on total scores. Anthropometric measurements included body mass index-for-age Z-score (BAZ) and mid-upper arm circumference (MUAC). Dietary intake was assessed using a three-day dietary record and compared with Malaysian Recommended Nutrient Intakes (2017). **Results:** Based on SCAN classification, overall prevalence of patients at nutritional risk was 58.3%. A high proportion of patients did not meet recommended energy and nutrient intakes, such as calcium, iron and vitamin C, indicating high risk of malnutrition. No significant associations were found between SCAN risk categories and BAZ ($p = 0.246$), MUAC ($p = 0.633$), or dietary intake ($p = 0.233$). However, total SCAN scores were significantly associated with BAZ ($p < 0.05$), suggesting that higher scores reflect poorer nutritional status. **Conclusion:** SCAN shows potential as an early nutritional risk screening tool, particularly when using continuous scores. It is best used alongside anthropometric and dietary assessments as a complementary tool in paediatric oncology settings.

U-1018 Musculoskeletal symptoms and its association with age and weight status among middle-aged women in Kuala Lumpur and Selangor

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Introduction: Musculoskeletal symptoms (MSS) are subjective experiences of pain, discomfort, or complaint reported by individuals. Middle-aged women are particularly vulnerable to MSS due to hormonal changes, aging, and lifestyle factors. **Objective:** This study aimed to determine the association between age and weight status with MSS and multisite pain among middle-aged women in Kuala Lumpur and Selangor. **Methods:** A cross-sectional study was conducted among 401 middle-aged women between 40-64 years (mean age of 52.3 ± 7.2 years, BMI 28.6 ± 5.9) recruited via convenience sampling from community centers. Height and body weight were measured to determine body mass index, while MSS were self-reported using the Nordic Musculoskeletal Questionnaire. **Results:** Overall, 85% women reported MSS in the past 12 months. The most commonly affected sites were the knee (43.9%), shoulder (43.4%), and lower back (37.2%). More than three-quarters (77.7%) women reported pain in two or more body regions. No significant association was observed between age and MSS prevalence. However, weight status was significantly associated with MSS in the past 7 days ($p < 0.01$). Specifically, a higher weight status was positively associated with MSS in the past 7 days ($p < 0.01$) and with symptoms preventing normal work ($p < 0.05$). **Conclusion:** MSS are highly prevalent among middle-aged women in Kuala Lumpur and Selangor. A higher weight status was associated with recent symptoms and work limitations, with women living with obesity being the most affected. Targeted interventions focusing on lifestyle, nutrition, and physical activity may help in preventing and managing MSS within this population.

U-1019 Association between eHealth literacy and dietary behaviours among university students and staff: A cross-sectional study

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Introduction: The rising prevalence of non-communicable diseases linked to poor dietary behaviours in Malaysia highlights the need to identify modifiable determinants. As digital technology increasingly influences how individuals access and evaluates nutrition information, eHealth literacy has emerged as a potentially relevant factor in shaping dietary behaviours. **Objective:** Therefore, this study aimed to determine the association between eHealth literacy and dietary behaviours among university students and staff. **Methods:** A cross-sectional study was conducted from March 2025 to January 2026 involving 305 participants recruited via convenience sampling from Universiti Malaysia Sabah. eHealth literacy was assessed using the eHealth Literacy Scale while dietary behaviours across seven domains was assessed using the Modified Malay Eating Behaviour and Pattern Questionnaire. Data were analysed using Chi-square test and binary logistic regression. **Results:** Significant differences were observed between students and staff in emotional influence ($p = 0.011$), snacking behaviour ($p < 0.001$), haphazard planning ($p < 0.001$), meal skipping ($p < 0.001$), and snacking patterns ($p = 0.001$), with students demonstrating poorer dietary behaviours. A greater eHealth literacy level was significantly associated with healthier dietary behaviours in two domains, namely low-fat intake ($AOR = 2.06$, 95% CI: 1.278, 3.321, $p = 0.003$) and positive lifestyle practices ($AOR = 2.15$, 95% CI: 1.334, 3.472, $p = 0.002$), while no significant associations were found for the remaining five domains. **Conclusion:** eHealth literacy is associated with selected dietary behaviours but shows limited association across all domains, suggesting that structural and environmental factors may also play a role in shaping dietary behaviours among university students and staff.

U-1020 Associations of sociodemographic characteristics, pregnancy-related variables and gastrointestinal symptoms with iron supplementation compliance scores among pregnant women in 5 selected health clinics in Selangor

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Introduction: Iron deficiency anaemia (IDA) among pregnant women remains a public health concern due to its association with adverse maternal and foetal outcomes. Although routine daily iron supplementation is recommended and subsidised in public antenatal clinics in Malaysia, compliance remains low hence, limiting its effectiveness. **Objective:** This study aimed to determine factors associated with iron supplementation compliance among pregnant women in five selected health clinics. **Methods:** A cross-sectional study was conducted among 135 pregnant women aged 19-40 years in their second or third trimester who could communicate in English or Malay. Women with contraindicating medical conditions, pregnancy complications or those receiving intravenous iron were excluded. Structured questionnaires were used to collect data on sociodemographic characteristics, pregnancy-related variables, compliance behaviour, and gastrointestinal (GI) symptoms. Data were analysed using IBM SPSS Statistics using Pearson's correlation and chi-square tests. **Results:** Most participants were Malay (83.7%) with a mean age of 31.27 ± 4.69 years. The majority had higher education (72.6%) and 54.1% were formally employed, while 45.9% were informal workers. The mean compliance score was 49.04 ± 7.92 , with 64.4% classified as having poor compliance. Monthly income ($r = 0.21$, $p = 0.016$) and occupation ($p = 0.045$) were significantly associated with compliance, with poorer compliance among informal workers (74.2%) than formal workers (56.2%). Despite reported GI symptoms, particularly nausea (34.8%), no significant association was found between symptom characteristics and compliance. **Conclusion:** Iron supplementation compliance remains low despite existing initiatives, highlighting the need for targeted interventions and exploration of factors such as cultural beliefs, perceptions, and nutrition knowledge.

U-1021 Late-night eating among late-night eaters in the Klang Valley: A Theory of Planned Behaviour study

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Introduction: Late-night eating is increasingly prevalent among adults in Malaysia due to lifestyle changes, prolonged working hours, and widespread accessibility of late-night food outlets. In this study, late-night eating was defined as any food consumption occurring between 22:00 and 06:00. **Objective:** This cross-sectional study applied the Theory of Planned Behaviour to identify factors associated with late-night eating among late-night eaters in the Klang Valley. **Methods:** A total of 431 participants (mean age 25.02 ± 5.62 years) were recruited from 26 randomly selected late-night eateries, including mamak and fast-food restaurants. Participants completed self-administered questionnaires on sociodemographic, attitude, subjective norm, perceived behavioural control (PBC), intention, frequency

and patterns of late-night eating. **Results:** Participants reported a mean late-night eating frequency of 2.56 ± 1.74 days/week mostly between 22:00 and 01:00 (77.9%), with mamak restaurants as the primary setting (71.2%). Hunger or cravings (79.6%) was the most common reported reason. Multiple linear regression showed that subjective norm ($\beta = 0.226, p < 0.001$) and PBC ($\beta = 0.050, p < 0.001$) significantly predicted intention to reduce late-night eating, while subjective norm ($\beta = 0.015, p = 0.022$) PBC ($\beta = 0.012, p < 0.001$), and intention ($\beta = 0.011, p = 0.015$) were significantly associated with lower frequency of eating out late at night. Attitude was not a significant predictor in adjusted models. **Conclusion:** These findings suggest that interventions should prioritize strengthening PBC and leveraging social norms to reduce late-night eating.

U-1022 Factors associated with the frequency of online food delivery services usage among university students

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Introduction: The rapid growth of Online Food Delivery Services (OFDS) has increased their use among university students due to convenience and variety. While frequent use may influence dietary behaviours, limited research has examined OFDS usage in Malaysia. **Objective:** This cross-sectional study investigated factors associated with the frequency of OFDS usage among undergraduate students in Universiti Putra Malaysia. **Methods:** A total of 394 respondents (67.8% female, mean age 21.37 ± 1.33 years) were recruited from three randomly selected faculties. Anthropometric data were collected on site, while self-reported data on sociodemographic, OFDS usage, nutrition literacy, food security, eating habits, food choices, and perceptions of healthy food availability were obtained via an online questionnaire adapted from previous studies. **Results:** Most students ordered occasionally: 36.8% ordering once weekly and 17.8% twice weekly; 33.0% were frequent OFDS users (≥ 2 times/week). FoodPanda (72.6%) and GrabFood (53.8%) were the most frequently used platforms, with fast food being the most ordered food (65.0%). The most commonly reported reasons were food variety (67.5%), time saving (58.9%), effort saving (57.6%), and convenience (50.3%). Gender, age, faculty, eating habits, and perception of healthy food availability were significantly associated with OFDS usage ($p < 0.05$). No significant associations were observed for living arrangement, monthly allowance, BMI, nutritional literacy, food security, and food choices. **Conclusion:** Strengthening the availability, visibility, and appeal of healthier options on OFDS platforms together with targeted campus-level interventions is essential to guide healthier food choices. Future longitudinal and intervention studies are needed to clarify causal pathways and assess long-term nutritional impacts.

U-1023 Factors associated with constipation among community-dwelling older adults in the Klang Valley

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Introduction: As Malaysia's population rapidly ages, common geriatric conditions like constipation require increased attention. **Objective:** This cross-sectional study aimed to determine the association between sociodemographic characteristics, lifestyle factors, and health-related factors with constipation among community-dwelling older adults in the Klang Valley. **Methods:** A total of 226 respondents were recruited via convenient sampling from eleven Pusat Aktiviti Warga Emas (PAWE) centres. Data on sociodemographic characteristics, dietary fibre intake, total fluid consumption, physical activity level, sleep quality, chronic diseases, depressive symptoms, oral health, constipation symptoms and stool form were collected through face-to-face interviews; while height, weight, and body fat percentage were measured physically using standard instruments. **Results:** The mean Wexner Constipation Scoring System (WCSS) score was 4.63 ± 3.63 , with 11.1% of respondents experiencing moderate-to-severe constipation. This was supported by the Bristol Stool Form Scale (BSFS), which reported 11.4% constipated respondents. Higher WCSS scores were significantly associated with poor oral health ($r = -0.328, p < 0.001$), greater depressive symptoms ($r = 0.297, p < 0.001$), bad sleep quality ($r = 0.224, p < 0.001$), lower dietary fibre intake ($r = -0.221, p = 0.003$), reduced physical activity ($r = -0.179, p = 0.007$), higher BMI ($r = 0.162, p = 0.015$) and body fat ($r = 0.145, p = 0.033$), multi-comorbidities ($F = 5.679, p = 0.004$), diabetes mellitus ($t = 2.749, p = 0.007$), hypertension ($t = 2.063, p = 0.040$), and Malay ethnicity ($t = 2.179, p = 0.030$). However, no significant associations were found between sex, age, educational level, marital status, living arrangement, monthly household income, and total fluid consumption with WCSS score ($p > 0.05$). **Conclusion:** In conclusion, targeted community interventions focusing on

modifiable factors, particularly oral care, mental health, sleep hygiene, fibre intake, and physical activity are essential to mitigate constipation burden in Malaysia's aging population.

U-1024 Association between ultra-processed food consumption with sociodemographic characteristics and body weight status among higher education students in Kuala Nerus, Terengganu

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Introduction: Consumption of ultra-processed foods (UPFs) is increasing in developing countries, including Malaysia, and may contribute to the rising prevalence of obesity. However, studies examining the association between UPF consumption and body weight among Malaysian higher education students remain limited. **Objective:** Thus, this study aimed to examine the relationship between UPF consumption with sociodemographic characteristics and body weight status among higher education students in Kuala Nerus, Terengganu. **Methods:** A cross-sectional study was conducted among 358 Malaysian higher education students aged 18-26 years from UniSZA, UMT, and IPG Dato' Razali in Kuala Nerus, Terengganu. Data were collected using a researcher-administered questionnaire, a two-day 24-hour dietary recall, and anthropometric measurements. Food and beverage intake was classified using the NOVA system into unprocessed or minimally processed foods, processed culinary ingredients, processed foods, and ultra-processed foods. Energy intake was analysed using Nutritionist Pro version 6.2, and data were analysed using SPSS version 27 ($p < 0.05$). **Results:** The results indicated that the median daily energy intake was 1099.56 kcal (IQR: 826.28). Processed foods and ultra-processed foods contributed the largest proportions of total energy intake, accounting for 39.4% and 39.1%, respectively. Nearly half of the respondents had normal body weight (46.4%), while 38.5% were classified as overweight and obese. No significant association was observed between ultra-processed food consumption and body weight status. **Conclusion:** In conclusion, ultra-processed food consumption was prevalent among higher education students in Kuala Nerus. Although no significant association with body weight status was identified, the findings reflect students' dietary patterns and underscore the importance of promoting healthier food choices to reduce the risk of nutrition-related non-communicable diseases.

U-1025 Parental Feeding Practices and Weight Status among Children with Learning Disabilities in Kuala Terengganu, Terengganu

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Introduction: Children with learning disabilities are more vulnerable to overweight and obesity due to differences in eating behaviours and lifestyle patterns. However, limited studies in Malaysia have explored the relationship between parental feeding practices and weight status among this population. **Objective:** This study aimed to determine the association between parental feeding practices and weight status among children with learning disabilities in Kuala Terengganu. **Methods:** A cross-sectional study was conducted among 320 children with learning disabilities from 14 primary schools implementing the Special Education Integration Programme in Kuala Terengganu, Terengganu. Purposive sampling was used to recruit participants who fulfilled the inclusion criteria. Parents completed the Malay version of the Comprehensive Feeding Practices Questionnaire. Anthropometric measurements were obtained to assess weight status using body mass index-for-age z-scores (BAZ). Multiple linear regression analysis was performed to determine the association between parental feeding practices and BAZ. **Results:** Most parents practiced modelling feeding behaviours toward their children. Whereas for the BMI-for-age classification, 13.1% of participants were overweight, 5.9% were obese, 8.4% were underweight, and 5.9% were severely thin, while the remaining participants had normal weight status. Multiple linear regression analysis showed that higher restriction for weight control was significantly associated with higher BAZ. Lower levels of monitoring and pressure to eat were also associated with higher BAZ among participants. **Conclusion:** Parental feeding practices were significantly associated with weight status among children with learning disabilities. These findings highlight the need for culturally tailored intervention programs to promote healthy feeding practices and improve health outcomes among this vulnerable population.

U-1026 Association between breakfast consumption and cognitive performance among B40 children in Kuala Nerus, Terengganu

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Introduction: Regular breakfast consumption has been associated with improved attention and academic performance. Nevertheless, breakfast skipping remains a concern among children from low-income households due to factors such as household food insecurity and limited availability of nutritious foods. **Objective:** Aimed to assess the relationship between breakfast consumption and cognitive performance among B40 children aged 7 to 11 years old. **Methods:** This cross-sectional study was conducted among 350 primary school students in Kuala Nerus, Terengganu. Breakfast frequency was assessed using questionnaires. Participants were categorised according to breakfast frequency as breakfast skippers (0 – 2 days/week), irregular breakfast eaters (3 – 4 days/week), and regular breakfast eaters (≥ 5 days/week). Cognitive performance was classified based on percentile scores obtained from Raven's Coloured Progressive Matrices. Scores ≥ 95 th percentile were categorised as Intellectually Superior (IS), 75th – 94th percentile as Above Average (AA), 25th – 74th percentile as Average (A), 5th – 24th percentile as Below Average (BA), and ≤ 5 th percentile as Intellectually Impaired (II). The association between breakfast frequency and cognitive performance was analysed using Fisher's Exact Test. **Results:** Most children were regular breakfast eaters, with 98.3% consuming breakfast on at least five days per week, particularly on school days. The majority of participants demonstrated average to above-average cognitive performance. Statistical analysis showed no significant association between breakfast frequency and cognitive performance (Fisher's Exact Test, $p = 1.000$). **Conclusion:** Breakfast frequency was not significantly associated with cognitive performance among B40 children, suggesting that cognitive outcomes are influenced by multiple nutritional and socio-environmental factors. Further studies should examine breakfast quality and overall dietary intake in relation to cognitive performance.

U-1027 Double burden malnutrition and its association with diet quality and meal patterns among working adults in Terengganu

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Introduction: Malnutrition remains a public health concern in Malaysia, driven by urbanisation and dietary transitions that contribute to both under- and overnutrition. **Objective:** This study investigated the prevalence of the double burden of undernutrition (DBM) and its associations with diet quality and meal patterns among working adults in Terengganu. **Methods:** In this cross-sectional study, 347 non-academic staff from two public universities in Terengganu were recruited using stratified random sampling. Dietary intake was assessed using a semi-quantitative food frequency questionnaire to derive the Malaysian Healthy Eating Index, while meal patterns were evaluated using a validated Meal Pattern Questionnaire. Nutritional status was classified as DBM, overnutrition, undernutrition, or normal based on anthropometric and body fat measurements. **Results:** Most participants (99.4%) had moderate-to-poor diet quality, with low intakes of whole grains, fruits, vegetables, legumes, nuts, and dairy products. Meal regularity was suboptimal for breakfast (43.8%), lunch (56.2%) and dinner (53.9%). Undernutrition was reflected by short stature (56.8%) and underweight (3.5%), while overnutrition was indicated by overweight/obesity (81.2%), high body fat (72.7%), and abdominal obesity (52.7%), with 46.1% experiencing DBM. Chi-squared analysis showed that overnutrition or DBM were significantly associated with higher intakes of total grains ($\chi^2 = 19.01$, $p = 0.004$) and meat, poultry, and eggs ($\chi^2 = 12.95$, $p = 0.044$), and greater reliance on outside-home sources for dinner ($\chi^2 = 19.44$, $p = 0.003$) and supper ($\chi^2 = 15.84$, $p = 0.011$). **Conclusion:** Malnutrition remains prevalent among working adults. The coexistence of undernutrition and overnutrition is associated with higher intake of staple grains and animal-source foods, and frequent eating out, highlighting the need to promote healthier dietary choices.

U-1028 Correlation between macronutrient intake and happiness among overweight and obese female adults

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Introduction: Obesity is a major public health issue linked to adverse physical and psychological outcomes, including reduced happiness. While dietary macronutrients are known to affect emotional health through neurotransmitter synthesis and brain function, evidence linking specific macronutrient to happiness in overweight and obese adults remains limited. **Objective:** Therefore, this study aimed to determine the correlation between macronutrient intake and happiness among overweight and obese female adults. **Methods:** A cross-sectional study was conducted among 283 overweight and obese female adults aged 18-59 years, recruited through convenience sampling based on body mass index classification. Macronutrient intake was assessed using a validated Food Frequency Questionnaire, while happiness was measured using the validated Malay version of the Oxford Happiness Questionnaire. Spearman's correlation analysis was performed to determine the correlation between macronutrient intake and happiness scores. **Results:** Findings showed that the median (IQR) intakes of carbohydrate, protein and fat were 311.64 (239.71-378.85) g/day, 85.91 (71.81-107.73) g/day, and 72.90 (55.31-96.37) g/day, respectively. The mean happiness score was 4.23 ± 1.12 , indicating that participants were generally somewhat happy. No significant correlations were observed between happiness scores and carbohydrate, protein or fat intake ($p > 0.05$). **Conclusion:** Findings from this study suggest that psychological well-being is influenced by factors beyond the quantity of macronutrients consumed. Future research and interventions should focus on the quality and sources of macronutrients, alongside lifestyle behaviours and psychosocial factors, as these may have a greater influence on happiness among overweight and obese women than total macronutrient intake alone.

U-1029 Association between diet quality and nutritional status among children in B40 households in Kuala Nerus, Terengganu

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Introduction: Childhood is a crucial period for growth and development that requires adequate nutrition for optimal health. Children from low-income (B40) households are more vulnerable to poor diet quality due to financial constraints and limited access to nutritious foods. However, evidence regarding diet quality and its association with nutritional status among B40 children in Kuala Nerus, Terengganu, remains limited. **Objective:** This study aimed to assess diet quality, determine nutritional status, and examine the association between diet quality and nutritional status among children aged 7-11 years from B40 households in Kuala Nerus, Terengganu. **Methods:** A cross-sectional study involving 385 children was conducted in three public primary schools using a two-stage sampling approach. Anthropometric measurements were analysed using WHO AnthroPlus software to determine weight-for-age (WAZ), height-for-age (HAZ), and body mass index-for-age (BAZ) z-scores. Dietary intake was assessed using a three-day food diary, and diet quality was evaluated using the Standardised Malaysian Healthy Eating Index (S-MHEI 2021). Data were analysed using IBM SPSS Statistics version 27. **Results:** Most children had normal nutritional status; however, 6.0% were underweight, 9.4% were stunted, 8.8% were thin, 12.7% were overweight, and 9.3% were obese. Overall diet quality was poor, with a mean S-MHEI score of 46.96 ± 5.40 , and 78.2% of children were classified as having poor diet quality. No significant association was found between diet quality and nutritional status. **Conclusion:** Despite generally normal anthropometric status, children from B40 households demonstrated poor diet quality. Targeted nutrition interventions are needed to improve dietary diversity and promote healthier eating practices among low-income children.

U-1030 Lifestyle behaviours, psychological health, and nutritional status among working adults in Terengganu

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Introduction: Lifestyle and psychological health are important factors influencing nutritional status among working adults. The double burden of malnutrition (DBM) is an emerging public health issue, where early-life undernutrition (short stature) coexists with adult overnutrition, such as elevated body mass index, increased waist circumference, and excess body fat. **Objective:** This study assessed the prevalence of DBM and its associations with lifestyle behaviours and psychological health among working adults in Terengganu. **Methods:** In this cross-sectional study, 347 eligible non-academic staff from Universiti Sultan Zainal Abidin and Universiti Malaysia Terengganu were recruited through stratified random sampling. Physical activity and sedentary behaviour were assessed using the International Physical Activity Questionnaire, sleep quality using the Pittsburgh Sleep Quality Index,

and psychological health using the 21-item Depression Anxiety Stress Scale. Nutritional status was assessed using anthropometric measures and body composition, and classified into DBM, overnutrition, undernutrition, and normal categories. **Results:** The prevalence of DBM was 46.1%, while 37.2% of participants were classified as overnourished. Most participants reported moderate-to-high physical activity (88.5%), low sedentary behaviour (99.4%), and good sleep quality (80.7%). The majority had normal levels of depression (83.9%), anxiety (76.9%), and stress (91.9%). However, no significant associations were found between lifestyle behaviours, psychological health, and nutritional status ($p > 0.05$). **Conclusion:** A high prevalence of DBM and overnutrition was observed among working adults in Terengganu, yet these outcomes were not significantly linked to lifestyle or psychological factors. Broader structural, dietary, and environmental determinants may underlie DBM, highlighting the need for comprehensive, multi-level workplace health strategies.

U-1031 Association between mental health, psychological well-being and food security among mothers in B40 households in Terengganu

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Introduction: Women from low-income households are vulnerable to food insecurity and related health outcomes. In Malaysia, mothers from B40 households often face difficulties accessing sufficient nutritious food, which may negatively influence their mental health and psychological well-being. **Objective:** This study aimed to examine the association between food security, mental health, and psychological well-being among mothers from B40 households in Terengganu. **Methods:** A cross-sectional study using convenience sampling was conducted among 205 mothers who met the inclusion criteria. Data on sociodemographic characteristics, food security, mental health and psychological well-being were collected through structured interview using validated Malay versions of Food Insecurity Experience Scale (FIES), Depression Anxiety and Stress Scale-21 (DASS-21) and validated Malay version of Psychological Well-Being (PWB) scale. Descriptive statistics and Fisher's exact test were used for data analysis. **Results:** The mean age of mothers was 33.80 (5.69) years, with mean household income of RM 2070.24 (969.47). Most mothers were food secure (74.6%), while 25.4% experienced food insecurity. The majority reported normal mental health, 9.3% reported depression and 4.4% with stress, whereas anxiety affected 17.6% of mothers. Majority mothers demonstrated high levels of psychological well-being, particularly in self-acceptance (92.2%) and environmental mastery (95.1%), while 10.2% reported low levels of autonomy. Food insecurity was significantly associated with higher anxiety ($p < 0.05$) and lower autonomy ($p < 0.05$) but not with depression, stress, self-acceptance, or environmental mastery. **Conclusion:** Food insecurity remains a significant concern among B40 mothers and may negatively influence maternal anxiety and autonomy, highlighting the need for integrated nutrition and psychosocial support interventions.

U-1032 Infant and young child feeding practices and nutritional status among infants aged 6-15 months in Hulu Langat and Sepang District, Selangor

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Introduction: Inappropriate infant and young child feeding (IYCF) practices are the leading cause of malnutrition in children. However, limited data are available on the prevalence and underlying determinants for IYCF practices in Malaysia. **Objective:** This study aimed to investigate the prevalence of appropriate feeding practices and their associations with sociodemographic factors and nutrition status among infant and young children aged 6-15 months in the Hulu Langat and Sepang districts. **Methods:** This study is part of a prospective cohort in which 396 pregnant women were recruited and followed up 6-15 months after delivery. IYCF practices assessed using a structured questionnaire. Anthropometry measurements, including weight and length, were retrieved from Child Health Record and nutritional status was assessed using WHO Anthro. Potential determinants for IYCF and feeding behaviours were collected in the baseline and follow-up questionnaires. **Results:** The study found that 62.9%, 91.6% and 61.1% of children met Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF) and Minimum Acceptable Diet (MAD), respectively. Non-Malay children were significantly associated with reduced odds of meeting MMF ($AOR = 0.234$; 95% $CI = 0.066 - 0.830$; $p = 0.006$) and infants older than 8 months were significantly associated to meeting MMF requirements ($AOR = 5.256$; 95% $CI = 1.619 - 17.063$; $p = 0.025$). No significant associations were found between MDD and MAD and other variables. Additionally, IYCF indicators did not show a significant association with infant growth outcomes. **Conclusion:** Ethnicity and infant age emerged as key predictors of MMF.

U-2048 Food choice motives, body weight status, and body image perception among UCSI University students

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Introduction: Food choice motives encompass an individual's motivation in food selection, and can be influenced by psychological, environmental, and lifestyle factors. **Objective:** This study aimed to determine the associations between food choice motives, body weight status, and body image perception among UCSI University students. **Methods:** A cross-sectional study was conducted among 194 students aged 18–24 years at UCSI University, Kuala Lumpur. Data were collected using self-administered questionnaires comprising Food Choice Questionnaire (FCQ) to assess food choice motives and Figure Rating Scale (FRS) to assess body image. Body mass index (BMI) was calculated based on the self-reported weight and height and classified using the Asia-Pacific BMI classification. **Results:** The prevalence of underweight, overweight, and obesity was 22.2%, 12.4%, and 5.7%, respectively. Most of the students were dissatisfied with their body image (77.3%). Price ($M=3.04$, $SD=0.96$), sensory appeal ($M=2.77$, $SD=0.88$), and convenience ($M=2.67$, $SD=0.81$) were among the most influential food choice motives. Food choice motives were not associated with BMI and body image perception ($p>0.05$). **Conclusion:** Food choices among university students were mainly influenced by price, sensory appeal, and convenience rather than BMI or body image perception. These findings highlight the importance of considering economic and environmental factors when developing nutrition interventions to encourage healthy eating behaviours among university students.

X-2001 Prevalence and factors associated with stunting among children in Projek Perumahan Rakyat (PPR) Pak Mahat, Kuantan, Pahang

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Introduction: Stunting, a form of chronic malnutrition, remains a significant global public health problem, including in Malaysia. Understanding its prevalence and associated factors is essential for developing effective interventions; however, evidence among children residing in low-cost housing communities remains limited. **Objective:** This study aimed to determine the prevalence of stunting and its associated factors among children living in Projek Perumahan Rakyat (PPR) Pak Mahat, Kuantan, Pahang. **Methods:** A validated Malay version of the Radimer/Cornell Hunger and Food Insecurity Instrument was used to assess household food insecurity. Children's height was measured, and height-for-age z-scores were calculated to determine stunting status. Sociodemographic and socioeconomic information was collected using a structured questionnaire. **Results:** A total of 120 children were included in the study. The prevalence of stunting was 10.8%, comprising 8.3% stunting and 2.5% severe stunting, while 89.2% of children had normal growth. Multivariable logistic regression analysis showed that birth weight [AOR: 0.049; 95% CI: 0.003-0.713; $p = 0.027$] was significantly associated with stunting, with higher birth weight associated with lower odds of stunting. **Conclusion:** The prevalence of stunting among children residing in PPR Pak Mahat was considerable, highlighting the need for targeted nutritional and public health interventions. Birth weight was identified as a significant factor associated with stunting. Further research is warranted to better understand the multifactorial determinants of stunting and to inform effective prevention strategies in low-cost housing communities.

X-2002 Recommendations on national food availability through the Nutrition Enhancing Agriculture-Food Supply Calculator (NEA-Calculator) based on the Malaysian Dietary Guidelines 2020

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Introduction: Malaysia is facing complex nutrition challenges, including the double burden of malnutrition, micronutrient deficiencies, and food insecurity. Poor dietary practices, together with limited access to healthier food options, contribute to poor health outcomes and increased healthcare burden. **Objective:** To address these issues, the Ministry of Health Malaysia and the Ministry of Agriculture and Food Security developed the Nutrition-Enhancing Agriculture-Food Supply Calculator

(NEA-Calculator), which identifies gaps between food availability and population nutritional needs based on the MDG 2020. **Methods:** The calculator was developed using national references including the Recommended Nutrient Intakes (RNI) for Malaysia 2017, MDG 2020, national food consumption surveys and agrifood statistics. Its development involved four main steps: identifying food items and serving sizes, estimating food requirements based on MDG 2020, compiling food production and trade data and comparing food availability with population nutritional needs. The calculator includes 117 selected food items across five food groups in the Malaysian Food Pyramid. **Results:** Findings showed adequate availability of rice (126%), eggs (110%), and fish and seafood (82%). However, vegetables (54%), fruits (56%), legumes (60%), and fresh milk (16%) remained insufficient, while beef, chicken, and pork exceeded recommended levels due to high population demand. These findings highlight the need to strengthen public nutrition literacy, particularly regarding appropriate servings and portion sizes. Multisectoral collaboration and stronger policy measures are needed to encourage healthy eating, improve availability of healthier foods and create a supportive food environment. **Conclusion:** NEA-Calculator serves as an innovative tool to support nutrition-sensitive food system planning towards improved food and nutrition security in Malaysia.

X-2003 Dietary fat-to-carbohydrate ratio is associated with body mass index independent of socio-economic factors in multi-ethnic Malaysian women

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Introduction: The prevalence of obesity among Malaysian women is a critical public health concern. While excessive fat intake is associated with weight gain, the influence of dietary fat-to-carbohydrate (Fat:CHO) ratio remains unclear across diverse cultural and socio-economic contexts. **Objective:** This cross-sectional study examined whether Fat:CHO ratio is independently associated with body mass index (BMI) among women in Selangor after adjusting for total energy intake (kcal) and socio-economic factors. **Methods:** The Fat:CHO ratio was derived from food frequency questionnaires data collected from 303 healthy, non-pregnant women aged 30-56 years. Multivariable linear regression models were performed using RStudio to assess the association between Fat:CHO ratio and BMI. Model 1 adjusted for kcal and ethnicity. Model 2 further adjusted for maternal education, family size, and income level. Variance Inflation Factors (VIF) evaluated multicollinearity. **Results:** In Model 1, a higher Fat:CHO ratio was significantly associated with higher BMI ($\beta = 4.32$, $p = 0.001$, $R^2 = 0.50$). After socio-economic adjustment in Model 2, the association remained significant ($\beta = 4.06$, $SE = 1.31$, $p = 0.002$). The kcal was also strongly associated with BMI ($\beta = 0.008$, $p < 0.001$). Socio-economic variables did not significantly alter model fit (adjusted $R^2 = 0.49$), and low VIF values (< 1.72) indicated no multicollinearity. **Conclusion:** A higher dietary Fat:CHO ratio independently associates with higher BMI among women in Selangor across diverse ethnic and socio-economic groups. While kcal remains a primary factor, these results suggest that Fat:CHO ratio may also be relevant in future obesity-related research.

X-2004 Parental and child eating behaviours, household food insecurity, and their associations with weight status among Malay children aged 7-12 years in the Klang Valley, Malaysia

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Introduction: Childhood obesity is influenced by behavioural, parental, and environmental factors, but evidence examining these factors together remains limited in Malaysia. **Objective:** This study aimed to examine the associations between parental eating behaviours, child eating behaviours, household food insecurity, and weight status among Malay school-aged children in the Klang Valley, Malaysia. **Methods:** A cross-sectional study of 60 Malay parent-child dyads was conducted using stratified random sampling.

Children's anthropometric measurements were taken using standardised procedures, and weight status was classified using BMI-for-age z-scores (BAZ) based on the WHO Growth Reference 2007. Data were collected using a socio-demographic questionnaire and validated instruments: the Adult Eating Behaviour Questionnaire (AEBQ), Child Eating Behaviour Questionnaire (CEBQ), and Radimer/Cornell Household Food Insecurity Questionnaire. **Results:** The prevalence of overweight and obesity was 28.3%. Household food insecurity, individual food insecurity, and child hunger were reported in 20.0%, 16.7%, and 35.0% of participants, respectively. In univariate analysis, child enjoyment of food was associated with overweight/obesity ($OR = 1.24$, 95% CI: 1.01-1.52, $p = 0.036$). This association remained significant after adjustment for covariates ($AOR = 1.40$, 95% CI: 1.05-1.87, $p = 0.023$). No significant associations were observed between parental eating behaviour traits or household food insecurity and child weight status. **Conclusion:** Child enjoyment of food was positively associated with overweight/obesity among Malay school-aged children, whereas no significant associations were observed for parental eating behaviours or household food insecurity. These findings suggest that child eating behaviour traits may be relevant to weight status in this population.

X-2005 Association between academic stress, adverse childhood experiences and eating behaviour among university students in Klang Valley, Malaysia

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Introduction: Adverse childhood experiences (ACEs) and academic stress have been increasingly linked to unhealthy eating behaviours. **Objective:** This study aimed to investigate the association between academic stress, adverse childhood experiences and eating behaviour among university students in Klang Valley, Malaysia. **Methods:** A cross-sectional study was conducted among undergraduate students aged 18 to 25 years at universities in the Klang Valley. Data were collected using a self-administered questionnaire comprising the Dutch Eating Behaviour Questionnaire (DEBQ), Adverse Childhood Experiences Questionnaire (ACE-Q) and Perception of Academic Stress Scale (PAS). **Results:** Of the 110 participants, most reported moderate academic stress (64.5%), while one-fifth reported high ACE exposure (≥ 4), with emotional abuse (40.9%) as the most prevalent form. Males reported significantly higher academic stress ($p = 0.029$) and emotional eating ($p = 0.003$) than females. Academic stress was significantly associated with emotional eating ($r = 0.375$, $p < 0.001$), external eating ($r = 0.370$, $p < 0.001$) and restrained eating ($r = 0.335$, $p < 0.001$). ACEs were significantly associated with emotional eating ($r = 0.465$, $p < 0.001$) and restrained eating ($r = 0.276$, $p = 0.004$), but not external eating. **Conclusion:** Both academic stress and ACEs were associated with maladaptive eating behaviours, with emotional eating emerging as a shared link between the two. These findings highlight the importance of university-based initiatives promoting healthier eating behaviours and coping strategies to support student wellbeing and reduce long-term health risks.

X-2006 Unhealthy dietary behaviours and psychological distress among Malaysian school-going adolescents: a national cross-sectional study

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Introduction: Psychological distress among adolescents is a critical public health issue. Unhealthy dietary habits are prevalent and may negatively impact mental health. **Objective:** This study investigated the association between psychological distress and unhealthy dietary behaviours among Malaysian school-going adolescents. **Methods:** Data from 33,492 adolescents in the National Health

and Morbidity Survey (NHMS) 2022 were analysed. Five psychological indicators (loneliness, anxiety, suicidal ideation, planning, and attempts) were assessed via self-administered questionnaires. Psychological distress was defined as having ≥ 2 indicators. Dietary variables included inadequate fruit (< 2 times/day) and vegetable (< 3 times/day) intake, daily soft drink consumption, and weekly fast-food intake. Multivariable logistic regression, accounting for complex sampling and confounders, was performed. **Results:** Prevalence rates were loneliness (16.2%), anxiety (12.9%), suicidal ideation (13.1%), suicide planning (10.0%), and attempts (9.5%). Inadequate intake of fruit (62.7%) and vegetables (73.0%) was high; 32.4% consumed soft drinks daily, and 64.6% consumed fast food weekly. Adjusted analyses showed inadequate fruit intake ($AOR = 1.36$; 95% CI: 1.24-1.48) and daily soft drink consumption ($AOR = 1.52$; 95% CI: 1.43-1.62) were significantly associated with psychological distress. Inadequate vegetable intake was inversely associated ($AOR = 0.83$; 95% CI: 0.75-0.91), while fast food intake was not significant. **Conclusion:** Inadequate fruit intake and daily soft drink consumption are independently associated with psychological distress. Integrated school-based interventions addressing both nutrition and mental health are essential to improve adolescent well-being.

X-2007 Handgrip strength predicts cardiometabolic risk among children aged 6 to 12 years: findings from SEANUTS II Malaysia

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Introduction: Handgrip strength (HGS) is increasingly recognised as simple indicator of muscular fitness that may reflect cardiometabolic health in children. However, limited local evidence is available on the association between HGS and cardiometabolic risk (CMR) markers among Malaysian children. **Objective:** Thus, the present study aimed to assess association between HGS and CMR markers among children aged 6 to 12 years. **Methods:** This study is part of a nationwide cross-sectional study, South East Asian Nutrition Surveys (SEANUTS II) Malaysia. A sub-sample of 231 children (mean age = 9.5 ± 1.7 , 54% female) with completed HGS and CMR data was included in this analysis. HGS was assessed using handgrip dynamometer, with two measurements taken for each hand; the highest value was recorded, and mean of both hands was calculated for analysis. CMR markers included waist circumference (WC), mean arterial pressure (MAP), high-density lipoprotein (HDL), triglyceride, and fasting blood glucose (FBG), while cardiometabolic cluster risk score (siMS) was calculated using these CMR markers. **Results:** Overall, one-third of children were categorised as overweight and obese. Mean HGS was 12.5 ± 4.1 kg, with no differences between the sexes. Boys were found to have significantly higher MAP and FBG, but lower siMS score, compared with girls. In regression models adjusted for age and sex, HGS was independently associated with WC, MAP, HDL and siMS score. **Conclusion:** HGS predicts several CMR markers, and overall cardiometabolic risk among Malaysian children aged 6 to 12 years. Future studies should consider body weight status when interpreting handgrip strength as cardiometabolic marker in children.

X-2008 Contribution of energy and nutrients across meals and snacks among Malaysian schoolchildren: Findings from SEANUTS II

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Introduction: Children's growing tendency toward unhealthy food choices during meals, including frequent consumption of high-calorie foods, underscores importance of understanding their meal patterns to address contemporary diet-related challenges. **Objective:** Therefore, this study aimed to map energy and nutrient intakes across meals among primary schoolchildren aged 6.0-12.9 years in Peninsular Malaysia. **Methods:** This cross-sectional study analysed data from 1,102 children recruited in South East Asian Nutrition Surveys (SEANUTS II) across Peninsular Malaysia through multistage cluster sampling. Children's nutrient intake was collected using single-day triple-pass 24-hour dietary recall. Mapping of nutrient intake across meals was determined using repeated-measures ANOVA for parametric data, while Friedman test was employed for non-parametric data. **Results:** Among main

meals, breakfast contributed least energy [289 ± 177 kcal (18%)] and macronutrients [carbohydrates: 40.1 ± 25.0 g (19%); protein: 9.4 ± 7.2 g (16%); fat: 10.0 ± 7.8 g (19%)], while dinner had the highest contribution [(energy: 391 ± 191 kcal (25%); carbohydrates: 50.7 ± 25.7 g (24%); protein: 17.3 ± 10.6 g (29%); fat: 13.4 ± 9.9 g (25%); $p < 0.05$]. In terms of essential micronutrients, including thiamine, riboflavin, niacin, calcium, iron, and vitamin D, the highest contributions were observed at breakfast ($p < 0.05$). Moreover, approximately 25-33% of total daily energy and nutrient intake was contributed by snacking, ranging from 25% for cobalamin to around 33% for calcium and thiamine. **Conclusion:** Malaysian schoolchildren tended to consume more nutrient-dense foods at the first meal of day, while snacking remained an important contributor to energy and nutrient intake. Thus, mapping these nutrient intake patterns is a first step in guiding development of evidence-based healthy eating interventions.

X-2010 Sociodemographic differences in sweet taste perception and hedonic responses among Malaysian adults

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Introduction: Sweet taste perception influences food preference and dietary behaviour; however, sociodemographic variations in sweet taste perception among Malaysian adults remain limited in the Malaysian context. **Objective:** This study investigated differences in sweet taste sensitivity, perceived sweetness intensity, and hedonic preference across age, sex, and ethnicity among Malaysian adults. **Methods:** A cross-sectional study using purposive sampling was conducted among 350 Malaysian adults (mean age: 28 ± 10 years; 73.1% female). Sweet taste sensitivity was assessed using detection threshold (DT) and recognition threshold (RT) according to ISO3972:2011. Perceived sweetness intensity and hedonic preference were evaluated at three suprathreshold sucrose concentrations (100mM, 200mM, and 400mM). Comparisons were performed across age group, sex, and ethnicity. **Results:** Women (2.62 ± 2.60 mM) exhibited significantly lower DT concentrations than men (3.23 ± 4.19 mM, $p < 0.01$), indicating greater sweet taste sensitivity. Older adults aged 31-59 years had higher RT concentrations than younger adults aged 18-30 years (7.78 ± 8.63 mM vs 6.60 ± 6.35 mM, $p < 0.01$). Perceived sweetness intensity increased with sucrose concentration ($p < 0.001$), whereas hedonic preference decreased significantly ($p < 0.001$). Younger adults reported significantly higher preference for higher sweet solutions (400mM) compared to older adults (3.39 ± 2.18 vs 2.38 ± 1.97 , $p < 0.01$). Ethnic differences were observed, with Chinese participants demonstrating lower preference scores at 200mM and 400mM compared to Malays and Indians/others ($p < 0.01$). **Conclusion:** Sweet taste perception and hedonic responses vary by age, sex, and ethnicity among Malaysian adults. These findings suggest that sociodemographic variations in sweet taste perception and hedonic responses may contribute to differences in dietary behaviours and long-term metabolic health outcomes.

X-2011 Nutritional vulnerabilities and socio-economic barriers among marginalised children in Sabah's Alternative Learning Centres

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Introduction: Alternative Learning Centres (ALCs) educate marginalised children falling outside Sabah's formal school systems. **Objective:** To conduct a needs assessment identifying the nutritional vulnerabilities, dietary challenges, and educational support requirements of families and teachers within Sabah's Alternative Learning Centres. **Methods:** Focus group interviews were conducted with one teacher group and four parent groups at a selected ALC. Transcripts were then thematically analysed. **Results:** Participants were aware of nutrition's importance, and teachers struggle to dissuade parents from providing processed food in meals brought to school. Three themes were identified: (1) nutritional knowledge and barriers, (2) health practices and needs, and (3) socio-economic barriers. Diets consist mainly of rice, eggs, fish, and chicken. Despite parents' intentions to include vegetables, children prefer processed foods (nuggets, instant noodles) and sugar-sweetened beverages. Milk consumption is largely limited to sweetened boxed varieties. Regarding health practices, basic hygiene is maintained, but dental care is frequently neglected. Notably, parents requested educational support

to independently monitor their children's BMI and height. Finally, socio-economic barriers severely impact family stability; financial constraints dictate reliance on affordable, processed foods over optimal nutrition. **Conclusion:** ALCs serve as vital family support systems. Although teachers and parents prioritize child well-being, overcoming nutritional vulnerabilities to improve disease immunity remains deeply intertwined with pervasive financial constraints.

X-2012 Where Malaysians drink most: A national study of sugar-sweetened beverages across mealtimes

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Introduction: Eating out is increasingly common in Malaysia and contributes to higher consumption of sugar-sweetened beverages. Although national surveys highlight high-sugar beverages frequently consumed by adults, limited evidence exists on where these beverages are obtained. **Objective:** This study aimed to (1) identify the top three foodservice operations most frequently visited across five mealtimes, and (2) determine the most consumed beverages purchased from these outlets. **Methods:** A cross-sectional study was conducted among Malaysian adults aged ≥ 18 years residing in non-institutionalised living quarters. A total of 2,092 individuals were recruited using stratified random sampling across six geographical zones, and 1,814 completed the survey (86.7% response rate). A bilingual questionnaire adapted from MANS 2014 assessed sociodemographic characteristics, frequency of eating out, foodservice operations visited, and beverages consumed at breakfast, lunch, teatime, dinner, and supper. Descriptive statistics were applied. **Results:** Respondents most frequently ate out for breakfast (mean 3.87 days/week) and lunch (3.84 days/week). The most visited foodservice operations were restaurants (38.5%), stalls/hawkers (20.6%), and coffee shops (15.3%). Sugar-sweetened beverages dominated consumption patterns: tea with sugar (15.6%), tea with condensed milk (11.3%), coffee with sugar (8.8%), coffee with condensed milk (6.3%), and malt chocolate drink (5.2%) were the top prepared beverages consumed when eating out. Tea-based drinks consistently ranked highest across all mealtimes. **Conclusion:** Malaysian adults frequently obtain meals and beverages from restaurants, hawker stalls, and coffee shops, with sweetened tea and coffee being the most preferred beverages. These findings highlight the need for targeted public health strategies to reduce sugar intake within food service environments.

X-2013 Dysmenorrhea and its associated factors among secondary school students in Manjung, Perak

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Introduction: Dysmenorrhea, characterized by painful uterine contractions, is highly prevalent in early adolescents due to post-menarche hormonal fluctuations. Untreated, it negatively impacts well-being and future fertility. While widespread in this age group, the factors associated with adolescent dysmenorrhea remain unclear. **Objective:** This study aimed to determine the associations of sociodemographic, anthropometric measurements, lifestyles, and sociocultural factors with dysmenorrhea among female secondary school student in Manjung, Perak. **Methods:** A cross-sectional study recruited 253 adolescents (mean age: 14.50 ± 1.10 years) in October 2025. A Malay self-administered questionnaire assessed sociodemographic, dysmenorrhea, dietary habits, physical activity, sedentary behaviour, and menstrual restrictions. Anthropometric data were retrieved from Ujian SEGAK records. Data were analysed using IBM SPSS Statistics 30. Chi-square and Pearson correlation tests evaluated associations between independent variables and dysmenorrhea, with statistical significance set at $p < 0.05$. **Results:** Dysmenorrhea prevalence was 30%. It was significantly associated with age at menarche ($p = 0.043$), family history ($p < 0.001$), and physical activity ($p = 0.039$). Conversely, age, household income, BMI, dietary habits, sedentary behaviour, and personal restrictions showed no significant association. **Conclusion:** These findings highlight that dysmenorrhea affects 30% of adolescents and correlates with menarche age, family history, and physical activity. Interventions should prioritize early identification, menstrual health education, and basic counselling to improve students' understanding, coping strategies, and help-seeking behaviour.

X-2014 Scrolling into unhealthy diets? Associations between social media use and dietary behaviours among Malaysian young adults

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Introduction: Excessive social media use has emerged as a potential contributor to unhealthy dietary behaviours among young adults, increasing the risk of obesity and diet-related non-communicable diseases (NCDs). **Objective:** Therefore, this study aimed to examine the association between social media use, dietary habits, and body mass index (BMI) among university students in Selangor, Malaysia. **Methods:** A cross-sectional study was conducted among 100 students aged 18-25 years using an online questionnaire. Data collected included socio-demographic characteristics, self-reported anthropometry, social media use, and food frequency intake. Social media use was categorised as moderate (1 – 6 hours/day) or heavy (> 6 hours/day). Chi-square tests and Spearman correlation analyses were performed, with significance set at $p < 0.05$. **Results:** Heavy social media use was reported by 37% of participants. Significant positive correlations were observed between social media time and fast-food consumption ($\rho = 0.297$, $p = 0.003$) and confectionary intake ($\rho = 0.370$, $p < 0.001$), while fruit intake was negatively correlated ($\rho = -0.236$, $p = 0.018$). Female BMI was positively associated with social media use ($\rho = 0.399$, $p = 0.002$). Males had significantly higher mean BMI than females (22.51 ± 4.02 vs 20.20 ± 3.04 kg/m², $p = 0.003$). Overall, dietary patterns reflected low fruit intake and increased consumption of energy-dense foods. **Conclusion:** High social media engagement is significantly associated with unhealthy dietary behaviours and increased obesity risk among young adults. Public health strategies should prioritise digital-based nutrition education, strengthen food environment policies, and regulate online promotion of unhealthy foods to mitigate diet-related NCD risks in this population.

Group B: Community Nutrition Promotion, Education & Interventions

P-1016 Empowering young lives: Evaluating the eToyBox LMS for promoting energy balance-related behaviours among preschoolers, a non-randomised controlled trial

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Introduction: Preschools offer a critical window to promote healthy energy balance-related behaviours (EBRBs). The eToyBox learning management system was developed to support teachers' professional development in delivering healthy EBRBs. **Objective:** This study evaluated its effectiveness in improving teachers' knowledge, attitudes, and self-efficacy related to EBRBs and in supporting the delivery of these behaviours to children in private kindergarten settings. **Methods:** A non-randomised controlled trial was conducted in two private kindergartens in Sarawak, Malaysia. Intervention teachers were exposed to eToyBox and implemented four behavioural modules over 24 weeks. Teachers were assessed using self-administered questionnaires pre- and post-training. Children's knowledge, attitudes, practices, and anthropometric measurements were examined at baseline, post-intervention, and six-month follow-up. **Results:** A total of 19 teachers (100% retention) and 193 children were recruited, with 167 completing six-month follow-up (attrition: 14.4%). Intervention teachers demonstrated significant improvements in knowledge, attitudes, and self-efficacy ($p < 0.05$). Children in the intervention group showed higher knowledge scores than the control group ($F(1,159) = 39.09$, $p < .001$, $\eta_p^2 = .197$), although the time-by-group interaction was not significant ($F(2,318) = 2.76$, $p = .065$, $\eta_p^2 = .017$). Attitudes improved significantly over time in the intervention group ($F(2,318) = 4.28$, $p = .015$, $\eta_p^2 = .026$). There were no significant time-by-group changes in BMI-for-age z-scores and other EBRB practices, except for fruit intake (Wald $\chi^2(2) = 6.59$, $p = .037$). Significant gender and household income disparities in dietary patterns and sedentary behaviours were observed. **Conclusion:** The learning management system demonstrates potential as a scalable platform for teacher professional development to promote healthy behaviours in preschool settings. Effective programmes require multi-level strategies to promote and sustain healthy EBRBs among children.

P-1017 Exploring dietary acculturation among first-generation Turkish immigrants in Malaysia: A qualitative study

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Introduction: Understanding immigrants' dietary acculturation experiences is essential to assess health risks and guide culturally tailored interventions. Yet, no culturally tailored dietary acculturation scale exists for Turkish immigrants. **Objective:** Therefore, this study aimed to explore the dietary acculturation experiences of first-generation Turkish immigrants in Malaysia as the foundational phase of scale development. **Methods:** Satia's Dietary Acculturation Model guided the interview questions, with additional exploration of food neophobia as an extended construct. Semi-structured in-depth interviews via Zoom were conducted with 28 Turkish immigrants (females $n = 24$, males $n = 4$) who had resided in Malaysia for a minimum of six months, recruited through purposive sampling. All sessions were audio recorded, transcribed verbatim, and translated from Turkish into English. Data were analysed using thematic analysis. **Results:** Three major themes emerged. Changes in taste preferences: most participants reported marked shifts in their palate, including increased tolerance for spicy foods and incorporation of local Malaysian dishes into their diet. Food neophobia and willingness to try new foods: participants demonstrated a wide spectrum from highly neophilic to strongly neophobic attitudes, with social integration and religious dietary considerations identified as key influencing factors. Food-related cultural beliefs and attitudinal shifts: participants reported strong culturally rooted food beliefs, particularly around breakfast norms and aversions toward local ingredients such as sambal, which were gradually modified through acculturation experiences. **Conclusion:** These findings provide foundational qualitative evidence to guide the development of a culturally appropriate dietary acculturation scale for Turkish immigrants globally. Such a scale could support targeted public health interventions and culturally tailored nutritional guidance in host countries.

P-1018 Barriers to healthier food retail environment in Malaysia: Stakeholder perspectives from a needs assessment

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Introduction: Food retail environment is shaped by interactions across policy, commercial practices, and consumer factors, influencing availability, accessibility, convenience, and desirability of food choices. **Objective:** This study aimed to identify perceived barriers affecting healthier food retail environment among relevant stakeholders in Malaysia, as a needs assessment to inform subsequent Participatory Action Research (PAR) and co-creation of health-enabling food retail initiatives. **Methods:** This qualitative study used a participatory consultation process through a roundtable discussion with 11 stakeholders representing government ministries, non-governmental organizations, food industry associations, and food retailers. Barriers to healthier food retail environment were discussed, audio-recorded, transcribed verbatim, and analysed thematically. **Results:** Five key themes (and subthemes) were identified: (1) Knowledge and Awareness Gaps (limited school and public awareness of healthier food consumption, difficulties interpreting food labels, and misleading marketing practices); (2) Policy and Regulatory Gaps (under-regulated marketing of unhealthy food, inadequate school enforcement, limited public-private partnerships, and financial policy constraints); (3) Supply and Demand Dynamics (digital promotion of unhealthy choices, limited availability, high cost, and low consumer demand for healthier options); (4) Food Supply Chain Constraints (sustainability requirements, logistical and storage limitations, retail placement challenges, and limited locally sourced product); and (5) High Food Prices (healthier choices perceived as premium-priced, with additional costs for substitutions). **Conclusion:** Barriers to shaping healthier food retail environment in Malaysia extend beyond individual choice, suggesting future interventions should be developed participatively across individual, policy, and environmental levels. These findings will support the development of PAR and other stakeholder-driven strategies to improve food retail environments.

P-1019 Assessing informal food vendor motivations and challenges for healthier food environments: A qualitative study in Kuala Lumpur, Malaysia

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Introduction: Informal food vendors play an important role in shaping diets within the urban food environment. Despite rapid urbanisation and economic development, informal food vendors continue to thrive due to high consumer demand for their affordable, accessible and convenient food options. Operating outside formal policy, this sector is frequently excluded from public health initiatives such as fresh produce subsidies and healthy cooking workshops. **Objective:** To include vendors in healthy food environment transformations, this qualitative study assesses the motivations and challenges vendors face in supplying healthier diets within an urbanised setting. **Methods:** In-depth face-to-face interviews were conducted with 16 informal food vendors. A semi-structured interview guide was used to probe vendors' underlying motivations, challenges, and perspectives on healthy diets. Data underwent inductive thematic analysis. **Results:** Thematic analysis identified both economic and sociocultural factors influencing vendor practices. Key enablers for providing healthier options included guaranteed consumer demand and the potential for economic incentives, such as subsidised ingredients. Operational barriers primarily include the high cost and poor shelf life of fresh produce. Vendors also highlighted strong sociocultural barriers driven by perceptions that healthier meals are less palatable and lack cultural relevance. **Conclusion:** While vendors are willing to supply healthier food if demand and subsidies exist, they are constrained by produce costs, spoilage, and cultural perceptions of taste. These findings imply that addressing public health requires moving beyond restrictive policies to structural support. Inclusive planning should integrate vendors such as providing targeted subsidies, cold storage, and collaborative efforts to culturally adapt healthy recipes.

P-1020 Effects of a six-day whole-diet salty taste intervention on taste perception, dietary behaviour, and individual differences in young adults

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Introduction: Public health recommendations commonly assume that reducing salty food intake lowers salt preference through sensory adaptation; however, whole-diet experimental evidence remains limited. **Objective:** This randomised controlled trial tested whether six days of increased, decreased, or maintained salty food intake alters pleasantness, desire to eat, and saltiness intensity ($N = 99$). **Methods:** Taste perception was assessed at baseline and post-intervention using 0-10 scales for salty and non-salty foods. Secondary outcomes included sodium intake, food weight, sodium density, and adherence. **Results:** No significant Group x Time interactions were detected for pleasantness ($F = 1.73$, $p = 0.182$), desire to eat ($F = 2.01$, $p = 0.140$), or saltiness intensity ($F = 1.93$, $p = 0.151$). Time x Food Type interaction for desire to eat ($F = 5.02$, $p = 0.027$) reflected reduced desire for non-salty foods in the Increase group ($\Delta = -0.73$, $p < 0.01$) consistent with sensory-specific satiety. The Decrease group reduced sodium intake ($\Delta = -317.7$ mg, $p = 0.016$) and food weight ($\Delta = -87.2$ g, $p = 0.007$) without altering sodium density, indicating volumetric rather than compositional change. Thirst rose selectively in the Increase group ($\Delta = +1.20$, $p < 0.001$). Baseline ratings were the strongest predictors of Day 7 outcomes ($\beta = 0.35 - 0.46$, all $p < 0.001$). Nationality, income, and central adiposity were associated with post-intervention taste ratings. **Conclusion:** Six days of whole-diet salty taste manipulation were insufficient to produce detectable hedonic or perceptual adaptation, suggesting taste preferences are more stable over short intervals than public health adaptation models imply.

P-1021 Feasibility of a Train-the-Trainer (TTT) programme to enhance digital health literacy and youth empowerment among nutrition students

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Introduction: The Digital Food Environment (DFE) is increasingly shaping dietary behaviours through algorithmically personalised feeds that may prioritize convenience over nutritional quality. Despite nutrition students being digital natives, they often lack critical evaluation skills necessary to navigate this environment. **Objective:** This study aimed to assess the feasibility of a Train-the-Trainer (TTT) programme designed to strengthen digital health literacy, youth empowerment, and health promotion competencies among university nutrition students navigating the DFE. **Methods:** A quasi-experimental one-group repeated-measures feasibility study was conducted among 30 nutrition students (Mean age = 22.87 ± 1.332 years) from 11 Malaysian universities. The intervention included an online webinar and a 3-day physical workshop. Baseline DFE exposure was described using descriptive statistics. Longitudinal changes in core competencies were analysed using repeated-measures ANOVA across three time points, while programme feasibility and acceptability were assessed post-intervention. **Results:** Significant improvements over time were observed in digital critical literacy ($F = 13.324$, $p < 0.001$, $\eta^2 = 0.322$), youth empowerment ($F = 12.724$, $p < 0.001$, $\eta^2 = 0.312$), and health promotion competencies ($F = 21.881$, $p < 0.001$, $\eta^2 = 0.489$). The programme showed high feasibility and acceptability with a satisfaction score of 4.64 ± 0.477 out of 5.0, and 93.1% of participants recommending the module for future youth leaders. **Conclusion:** The TTT programme is a feasible and effective model for equipping nutrition students with the critical skills needed to advocate for a healthier digital food environment.

P-1022 Body composition and cardiometabolic risk among primary school children with excess weight in Selangor

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Introduction: Childhood overweight and obesity are forms of malnutrition that may mask early cardiometabolic risk. Body composition indicators may identify risk beyond BMI. **Objective:** This study examined associations of body fat percentage (BF%) and skeletal muscle mass (SMM) with metabolic risk factors among primary school children with excess weight. **Methods:** This cross-sectional analysis used baseline data from six primary schools in Selangor. Of 772 children aged 10-11 years screened, 136 classified as overweight or obese by WHO 2007 BMI-for-age and with complete data were included. Sociodemographic data were obtained using child-parent self-administered questionnaires. Body weight, BF% and SMM were measured using InBody 270; height using SECA 213; waist circumference using Lufkin W606PM steel tape; and blood pressure using Omron HEM-7011-C1. Following a 10-hour fast, blood samples were collected for glucose, triglycerides and HDL-cholesterol. Correlation and multiple linear regression analyses were conducted. **Results:** BF% was positively correlated with waist circumference ($r = 0.573$, $p < 0.001$), systolic BP ($r = 0.257$, $p = 0.002$) and diastolic BP ($r = 0.392$, $p < 0.001$). SMM correlated with waist circumference ($r = 0.468$, $p < 0.001$), systolic BP ($r = 0.180$, $p = 0.036$) and diastolic BP ($r = 0.226$, $p = 0.008$). Glucose, triglycerides and HDL were not significantly associated. In multivariable models, waist circumference and diastolic BP predicted BF%, while waist circumference predicted SMM. **Conclusion:** Waist circumference was consistently associated with BF% and SMM, while diastolic BP predicted BF%. These findings support incorporating waist circumference and blood pressure screening alongside BMI to improve early detection of malnutrition-related cardiometabolic risk.

P-1023 Relationship between dietary intake, physical activity and postpartum weight gain among urban Malaysian mothers

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Introduction: Postpartum weight gain is an important contributor to maternal overweight and obesity, increasing the risk of long-term metabolic complications and adverse health outcomes. **Objective:** This study aimed to determine the prevalence of postpartum weight gain and examine the association between dietary intake, physical activity, and postpartum weight gain among mothers in Petaling District, Selangor, Malaysia. **Methods:** A cross-sectional study was conducted among 113 postpartum mothers within six months after delivery attending six government health clinics in Petaling District. Data were collected using an interviewer-administered questionnaire. Anthropometric data were obtained from maternal clinical records and direct measurements. Dietary intake was analysed using Nutritionist Pro software, while statistical analyses were performed using SPSS. **Results:** The mean postpartum weight gain was 3.19 ± 5.37 kg. Based on tertile classification, 38.0% of mothers were categorised as having high postpartum weight gain, 36.0% low postpartum weight gain, and 26.0% moderate postpartum weight gain. No significant associations were observed between socio-demographic characteristics and postpartum weight gain ($p > 0.05$). Carbohydrate intake ($r = 0.204$, $p = 0.031$) and protein intake ($r = 0.215$, $p = 0.022$) were positively associated with postpartum weight gain. Conversely, total physical activity ($r = -0.219$, $p = 0.020$), light-intensity physical activity ($r = -0.338$, $p < 0.001$), and household or caregiving activities ($r = -0.320$, $p = 0.001$) were inversely associated with postpartum weight gain. **Conclusion:** Dietary intake and physical activity were significantly associated with postpartum weight gain among mothers in Petaling District. Promoting healthy dietary practices and maintaining adequate physical activity during and after pregnancy may support healthier postpartum weight outcomes and contribute to long-term maternal health.

P-1024 Nutritional knowledge, attitudes, and practices of people living with Human Immunodeficiency Virus (HIV): a systematic review protocol

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Introduction: Nutrition education and counselling have been proven to help manage diet and illness. Knowledge, attitude, and practices (KAP) studies regarding HIV/AIDS were well established while quantitative evidence investigating specifically nutritional KAP of PLHIV remains scarce and highly variable. Synthesizing this data is crucial for developing targeted nutritional interventions to improve patient outcomes. **Objective:** Thus, to synthesize evidence on the nutritional knowledge, attitude and practices (KAP) of people living with Human Immunodeficiency Virus. **Methods:** Comprehensive electronic searches will be conducted from 2010 to May 15, 2026. Databases include Medline, Embase, CINAHL, Web of Science, Scopus, Global Health, AJOL and LILACS. Study types to be included are cross-sectional, case-control, RCTs, Quasi-experimental and pre-post intervention studies with control groups while qualitative studies without quantitative KAP measurements will be excluded. Reviewers will extract study identification, characteristics (design, setting) population demographical/clinical status, and specific KAP instrument details and outcomes from all included studies using a standard electronic form (Excel), with a second reviewer independently verifying all selected studies. Two reviewers will independently assess risk of bias using design-specific tools; JBI Critical Appraisal checklist, NOS and Cochrane RoB 2 tool. Disagreements will be resolved by a third reviewer. **Results:** Narrative Synthesis following SwiM (Synthesis without Meta-Analysis) guidelines will be used for KAP outcome. Quantitative Synthesis with meta-analysis will be conducted if at least three studies report comparable outcomes. **Conclusion:** Heterogeneity Assessment will be evaluated using the chi-squared test (Q statistic), I^2 statistic and 95% prediction intervals will also be calculated.

U-1033 Engagement with digital nutrition platforms and its association with changes in dietary behaviours of adult Internet users in Malaysia

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Introduction: Despite high internet penetration in Malaysia, evidence on how digital nutrition platforms (DNPs) drive dietary change remains inconsistent. **Objective:** This study identifies commonly used DNPs, analyses sociodemographic influences on their use, and evaluates the impact of engagement on perceived improvement in dietary behaviour. **Methods:** This cross-sectional study surveyed 873

Malaysian adults (aged 18-59) via an online questionnaire. Engagement was assessed across multiple dimensions (frequency, duration, type, and features), while dietary changes were measured using a Likert-scale composite score. Data were analysed using descriptive statistics, chi-square tests, and multiple logistic regression analyses (IBM SPSS 29.0), with statistical significance set at $p < 0.05$. **Results:** The most common DNPs were smart devices (38.8%), diet trackers (31.0%), and calorie trackers (27.4%). Participants (mean age = 29.1 ± 8.5 years) were predominantly female (67.9%), urban (65.1%), tertiary educated (62.7%), and 50.8% were Malays. Engagement frequency, duration, and tool type were significantly associated with education, marital status, ethnicity, employment, and sex (all $p < 0.05$). After adjusting for confounders, the number of tools ($AOR = 1.722$, $p = 0.008$) and the features used ($AOR = 1.864$, $p = 0.003$) remained significant predictors of perceived improvements in dietary behaviour. **Conclusion:** Engagement with DNPs correlates with dietary improvement, particularly when utilising a broader range of tools and features. This suggests that the depth and variety of engagement are more influential than mere frequency or duration. These insights emphasise the need for targeted, multi-featured digital interventions to effectively promote sustained dietary behaviour change in Malaysia.

U-1034 Association between utilisation, perceived benefits, challenges, and health outcomes of using digital health tools among adult internet users in Malaysia

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Introduction: In recent years, the use of digital health tools (DHTs) has become increasingly popular among the public for health monitoring purposes. **Objective:** This study investigated different types of non-specific DHTs, usage patterns, and perceptions of benefits, challenges, and health outcomes among Malaysian internet users. **Methods:** A cross-sectional study design was used with convenience sampling. Data were collected via a bilingual (English and *Bahasa Melayu*) self-administered online questionnaire, pilot-tested with 30 participants. Measures included demographics, DHT categories, and validated scales for perceptions. Analysis was conducted using IBM SPSS Statistics V29.0, using independent t-tests and ANOVA (significance set at $p < 0.05$). **Results:** Mobile health apps (MHA), wearable devices (WD), and home smart devices (HSD) were the most used DHTs. Significant differences were observed in perceived benefits for MHA use and perceived health outcomes for digital health record (DHR) use ($p < 0.05$). No significant differences were found for perceived challenges across overall use, frequency, or duration of use. **Conclusion:** The study consisted of primarily young, highly educated, urban-dwelling females who perceived themselves as healthy. MHA (79.50%), WD (66.80%), and HSD (67.00%) were the most used DHTs. MHA and DHR use showed significantly higher perceived health outcomes scores. Notably, non-users of MHA reported higher perceived benefits than users, suggesting a gap between expectations and actual experience. Usage frequency and duration were not associated with any significant differences in user perceptions. Future research should focus on qualitative and longitudinal approaches to evaluate efficacy of long-term DHT-based interventions and better understand user perceptions.

U-1035 Relationship between risk perception of type 2 diabetes mellitus and mindful eating behaviour among young adults in Malaysia

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Introduction: Type 2 diabetes mellitus (T2DM) is highly prevalent in Malaysia, with increasing concern among young adults. While risk perception may influence preventive behaviours and mindful eating is associated with healthier dietary patterns, their relationship remains unclear. **Objective:** This study aimed to assess the risk perception of T2DM and its correlation with mindful eating behaviour among young adults aged 18-29 years in Malaysia. **Methods:** A cross-sectional study was conducted among 353 young adults. Data were collected using a bilingual self-administered online questionnaire, including the Malay version of the Risk Perception of Diabetes Mellitus (RPDM) questionnaire and the Malay-translated Mindful Eating Questionnaire (MEQ-M). Data were analysed using Spearman's rank correlations, Mann-Whitney U test, and Kruskal-Wallis test. **Results:** The median RPDM score was 142.45 (IQR 26.64), while the median MEQ-M score was 2.66 (IQR 0.36). Females demonstrated significantly higher MEQ-M scores than males ($p = 0.002$), and BMI categories differed significantly in MEQ-M scores ($p = 0.038$). No significant correlation was found between overall RPDM and mindful eating behaviour ($r_s = 0.003$, $p = 0.951$). Perceived self-efficacy showed a weak positive correlation ($r_s = 0.252$, $p < 0.001$) and perceived barrier showed a weak negative correlation ($r_s = -0.364$, $p < 0.001$) with mindful eating behaviour. **Conclusion:** Risk perception of T2DM alone is not a strong determinant of

mindful eating behaviour among Malaysian young adults. It is likely influenced by multiple factors beyond risk perception, highlighting the need for targeted, behaviour-focused interventions in diabetes prevention strategies.

U-1036 Understanding awareness, barriers, and challenges to Mediterranean diet adherence among adults in Malaysia: A qualitative study

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Introduction: The feasibility of Mediterranean Diet (MedDiet) within Malaysia's multicultural context remains largely unexplored. **Objective:** This qualitative study aimed to explore awareness, barriers, and challenges related to MedDiet adherence among the Malaysian public. **Methods:** A semi-structured interview design was utilised for the data collection, and 45 adult participants were recruited via convenience sampling. The data collected was then processed in NVivo 15 and analysed using thematic analysis. **Results:** The results revealed a clear knowledge gap, with participants recognising key Mediterranean Diet ingredients such as olive oil and fish but demonstrating limited awareness of its health benefits or existence prior to the study. Information was obtained primarily from informal sources, while healthcare professionals played a minimal role, suggesting limited institutional promotion. Economic and environmental barriers were prominent, as participants perceived the MedDiet as more expensive than local diets, particularly because of the high cost of imported staples such as extra-virgin olive oil. Limited accessibility, with MedDiet food outlets concentrated in upscale urban areas, further restricted adoption. Cultural factors also influenced acceptance, as Malaysian communal dining practices were viewed as less compatible with the diet. Although the food is generally perceived as Halal-compliant, the absence of visible Halal certification reduced trust. Additionally, misconceptions regarding palm oil as an equivalent substitute for olive oil may compromise dietary effectiveness. **Conclusion:** The study suggests that successful integration of the MedDiet in Malaysia will require targeted public health education to deepen awareness of the MedDiet and introduce adaptations to the diet to address local economic and cultural constraints.

U-1037 Understanding the Impact of a Culinary Medicine Workshop on Nutrition Knowledge and Dietary Behaviour: A Qualitative Study

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Introduction: Culinary medicine integrates evidence-based nutrition with practical culinary skills to promote healthier dietary behaviours and chronic disease prevention. **Objective:** This study aimed to explore participants' understanding of culinary medicine, perceived health benefits, cultural and social acceptance, implementation barriers, and future directions for healthcare integration. **Methods:** A qualitative study was conducted among 40 adults who participated in culinary medicine programmes. Semi-structured interviews were conducted and analysed using deductive thematic analysis. Data were coded and managed using NVivo to identify recurring patterns and participant perspectives. **Results:** Five major themes emerged: understanding and perceptions of culinary medicine, benefits and impact on health and lifestyle, cultural, social and patient acceptance, barriers and challenges in implementation, and future directions and measuring effectiveness. The findings showed that participants perceived culinary medicine as an important strategy for chronic disease prevention and management and highlighted that patient acceptance depended on taste preferences, affordability, and compatibility with existing dietary practices. Nearly all participants emphasized the need for hands-on culinary medicine training for healthcare professionals to improve implementation, and recognised its value as a multidisciplinary approach that complements dietetics, nutrition, medicine, and lifestyle healthcare. The participants recommended evaluating culinary medicine interventions using both behavioural outcomes and clinical indicators to demonstrate long-term effectiveness. **Conclusion:** Culinary medicine was perceived as a practical and sustainable approach to improving dietary behaviour and supporting chronic disease prevention. Strengthening professional training, culturally appropriate implementation strategies, multidisciplinary collaboration, and evidence-based evaluation may facilitate wider integration of culinary medicine into Malaysian healthcare and community settings.

U-1038 Awareness, barriers, and challenges towards Mediterranean diet adherence among cardiovascular patients in Malaysia: A qualitative study
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Introduction: The awareness and feasibility of adopting the Mediterranean diet (MedDiet) among Malaysian cardiovascular disease (CVD) patients remain poorly understood. This study explored awareness, perceived health benefits, barriers, and environmental challenges influencing MedDiet adherence among Malaysian CVD patients. **Objective:** To understand the awareness, barriers, and challenges influencing Mediterranean Diet adherence among cardiovascular disease (CVD) patients in Malaysia. **Methods:** A qualitative study using semi-structured interviews was conducted with 30 adults with CVD representing the three major ethnic groups in Malaysia, recruited through purposive sampling. Interviews were transcribed verbatim and analysed using thematic analysis in NVivo 15. **Results:** One-third of participants (33.3%) had never heard of the MedDiet before the interview. Participants most frequently associated the MedDiet with vegetables (60.0%), olive oil (56.7%), fruits (40.0%), fish and seafood (40.0%), nuts and seeds (33.3%), and healthy cooking methods (33.3%). Although participants generally perceived the MedDiet to improve cardiovascular health through cholesterol reduction, blood pressure control, and reduced heart disease risk, understanding of the dietary pattern remained fragmented. Major barriers to adoption included the perceived high cost of Mediterranean foods, particularly extra-virgin olive oil; limited access to MedDiet products; cultural preferences; taste preferences; and difficulties in changing long-established eating habits. Environmental challenges, including busy lifestyles, reliance on convenience foods, and limited healthy food choices outside the home, further reduced adherence. Most participants considered adopting selected MedDiet principles to be more feasible. **Conclusion:** The findings emphasize the need for culturally adapted nutrition education and greater involvement of healthcare professionals to improve the adoption of MedDiet for CVD management in Malaysia.

U-1039 Association between social media addiction, eating behaviours and body image dissatisfaction among Malaysian undergraduates in Klang Valley

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Introduction: Social media addiction (SMA), eating behaviours (EB), and body image dissatisfaction (BID) are emerging psychosocial concerns among Malaysian undergraduates, with potential interrelated effects on health and well-being. This study examined the association between SMA, EB, and BID among undergraduates in Klang Valley. **Objective:** The aim of this study is to determine the association between social media addiction, eating behaviour and body image dissatisfaction among Malaysian undergraduate university students in Klang Valley, Malaysia. **Methods:** A cross-sectional study was conducted among 111 students recruited from public and private universities. Data were collected using validated instruments: the Bergen Social Media Addiction Scale (BSMAS), Dutch Eating Behaviour Questionnaire (DEBQ), and Body Shape Questionnaire (BSQ). **Results:** The mean SMA score was 18.93 ± 4.99 , with 55.0% classified as having high SMA. For eating behaviours, mean scores were 0.41 ± 0.49 for emotional eating (41.4%), 0.69 ± 0.46 for external eating (69.3%), and 0.35 ± 0.48 for restrained eating (35.1%). The mean BSQ score was 91.98 ± 44.28 , with 42.3% reporting no concern, 27.9% mild concern, 16.2% moderate concern, and 13.5% marked concern for BID. Correlation analysis showed significant positive associations between BID and SMA ($r = 0.599$, $p < 0.001$), emotional eating ($r = 0.601$, $p < 0.001$), external eating ($r = 0.444$, $p < 0.001$), and restrained eating ($r = 0.795$, $p < 0.001$). Restrained eating demonstrated the strongest association. **Conclusion:** These findings highlight the importance of addressing social media use and eating behaviours to reduce the risk of body image dissatisfaction among Malaysian undergraduates.

U-1040 Nutritional awareness and health consciousness: Do they affect consumer wine consumption pattern and choices? - A qualitative study
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Introduction: Global shifts toward health consciousness and nutritional awareness are reshaping consumer attitudes across food and beverage categories, yet understanding remains limited for alcoholic drinks such as wine. Despite market growth, research on health perceptions and wine consumption in

Malaysia remains limited. **Objective:** To explore the perspective of wine consumers on nutritional awareness and health consciousness in relation to wine. **Methods:** A qualitative study was conducted to understand Malaysian wine consumers' perceptions of nutritional awareness, health consciousness, and decision-making processes. Twenty-five non-Muslim adults were purposively recruited via social networks and interviewed using semi-structured protocols. Interviews examined motivations, consumption habits, health perceptions, wine choice determinants, and responses to health-related labelling. Thematic analysis was conducted in NVivo, supported by descriptive profiling of consumption patterns. **Results:** Findings from 25 non-Muslim wine drinkers in Malaysia showed that respondents initiated and maintained wine consumption for hedonic enjoyment, social interaction, and relaxation. While health awareness, particularly around antioxidants (92%) and cardiovascular benefits (72%), was evident, health considerations rarely drove choices (12%), remaining secondary to sensory appeal, price, and social context. Perceptions of health risks were common, especially regarding alcohol content (80%) and sulphites (56%), but nutritional understanding was limited, constrained by inadequate labelling and lack of consumption guidelines. Most participants relied on informal and media sources (84%) for wine knowledge, with fewer citing health professionals (28%) or scientific articles (16%). **Conclusion:** The findings reveal a gap between awareness and behaviour, with consumption decisions shaped more by enjoyment than health considerations. Enhanced education and communication strategies may promote informed consumption.

U-1041 Household food insecurity and their association with food safety knowledge, attitude, and practices (KAP) among urban poor mothers in Kuala Lumpur

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Introduction: Food insecurity and poor food safety practices are major public health concerns among low-income households. This study examined the prevalence of household food insecurity and food safety knowledge, attitudes, and practices (KAP) and their associations among urban poor mothers in Kuala Lumpur. **Objective:** This study determined the prevalence of food insecurity and poor food safety KAP among urban poor mothers in Kuala Lumpur and examined associations with sociodemographic characteristics. **Methods:** A cross-sectional study was conducted among 230 mothers selected using random sampling from 12 People's Housing Programmes (PPR) in Kuala Lumpur. Household food insecurity was assessed using the HFIAS, FIES, and MCSI, while food safety KAP was measured using a validated questionnaire. Data were analysed using SPSS. **Results:** Food insecurity prevalence was 60.9%, 58.7%, and 66.5% based on the Household Food Insecurity Access Scale (HFIAS), Food Insecurity Experience Scale (FIES), and Malaysian Coping Strategy Index (MCSI), respectively. Poor food safety knowledge and practices were reported by 18.3% and 8.3% of mothers. Chi-square analysis demonstrated significant associations between food insecurity and food safety practices for HFIAS ($p < 0.001$) and MCSI ($p = 0.016$), but not with food safety knowledge or attitudes. Kruskal-Wallis analysis showed that higher education level and age were significantly associated with better food safety knowledge, attitudes, and practices. **Conclusion:** Food insecurity was highly prevalent and significantly associated with food safety practices among urban poor mothers. Strategies addressing both food insecurity and food safety education are needed to improve household food safety and health outcomes.

U-1042 Development and Evaluation of a recipe-based education guide for salt reduction strategies

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Introduction: Excessive salt intake is a major public health concern linked to hypertension and other non-communicable diseases. Despite recommendations, reducing salt consumption remains difficult due to the lack of practical and culturally relevant educational materials that translate guidelines into daily food practices. **Objective:** This study aimed to develop a recipe-based education guide for salt reduction and evaluate its content validity among healthcare professionals. **Methods:** This developmental study was conducted in Malaysia in three phases. Phase I involved a literature review and identification of key content requirements. Phase II focused on developing a 32-page A5 e-book guide using Canva. Phase III evaluated the guide's content validity. Ten healthcare professionals formed an expert panel and assessed the guide using the Patient Education Materials Assessment Tool for Print Materials (PEMAT-P), focusing on understandability and actionability. Data were analysed descriptively using percentage agreement. **Results:** The guide demonstrated high content validity, with mean

agreement scores of 94.4% for understandability and 95.7% for actionability. These results indicate that the guide is clear, user-friendly, and provides practical, actionable information. It includes infographics, information on hidden dietary salt sources, salt reduction strategies, natural flavour alternatives, and low-salt recipes with nutrition information, supporting both knowledge translation and real-life application. **Conclusion:** A recipe-based education guide for salt reduction was successfully developed and validated, showing high expert agreement. It has strong potential as a practical resource to support community-based salt reduction efforts and promote healthier cooking practices.

U-1043 The For You Page (FYP) trap: adolescents' exposure to unhealthy food and unregulated supplement marketing on TikTok

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Introduction: Digital marketing of unhealthy foods and beverages on social media, particularly TikTok, contributes to poor dietary behaviours and increases the risk of non-communicable diseases among adolescents. **Objective:** This study aimed to identify the types of food, beverage and supplement promotions encountered by adolescents on TikTok, examine their perceptions and responses, and explore influencing factors. **Methods:** A mixed-method study was conducted using purposive sampling among adolescents aged 17-19 years in Kuala Lumpur and Selangor. Participants captured screenshots of all food, beverage and supplement promotions viewed on TikTok over one week. Food and beverages were classified as permitted or non-permitted based on the WHO Nutrient Profile Model (NPM) for the Western Pacific Region (WPRO). Supplements were categorized as registered, unregistered or not regulated according to the National Pharmaceutical Regulatory Agency (NPRA) Malaysia. Semi-structured in-depth interviews were also conducted online and audio recorded. Data were transcribed verbatim and analysed using thematic analysis. **Results:** Eighteen participants submitted 157 screenshots. Of these, 66.4% of food and beverage promotions did not meet WHO NPM criteria, while 53.2% of supplements were not regulated by NPRA. Adolescents' perceptions and responses were both positive and negative. Influencing factors included frequent exposure on the For You Page (FYP), seller credibility, affordability, alignment with student lifestyle, peer influence and health concerns. **Conclusion:** Adolescents are widely exposed to unhealthy food promotions and unregulated supplements on TikTok. Stronger regulatory and enforcement measures and further research are urgently needed to safeguard adolescent health in the digital environment.

U-1044 Development and validation of a questionnaire on motivation and challenges towards healthy ageing among cancer survivors in Malaysia

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Introduction: As cancer survivorship rates rise in Malaysia, healthcare priorities must shift from acute recovery to sustaining long-term nutritional health and functional longevity. However, the lack of culturally tailored assessment tools limits the delivery of targeted interventions. **Objective:** This study aimed to develop a comprehensive questionnaire to assess motivations and challenges related to healthy ageing among Malaysian cancer survivors. **Methods:** The instrument was developed based on the Self-Determination Theory, Biopsychosocial Model, and WHO Healthy Ageing Framework. A multi-phase process produced a 30-item questionnaire comprising 16 motivation items and 14 challenge items. Content validity was evaluated by six experts in nutrition and gerontology, while face validity was assessed by ten cancer survivors to ensure cultural and linguistic appropriateness. A pilot study ($n = 30$) was conducted to determine internal consistency using Cronbach's Alpha. **Results:** Psychometric evaluation demonstrated strong validity and reliability. The Scale-level Content Validity Index (S-CVI/Ave) was 0.92 for motivation and 0.93 for challenges, indicating excellent domain relevance. The Scale-level Face Validity Index (S-FVI/Ave) for both domains was 1.00, exceeding the acceptable threshold of 0.83 for clarity and relevance. Cronbach's Alpha values were 0.90 for motivation and 0.76 for challenges, reflecting good internal consistency. **Conclusion:** A preliminary, theory-based questionnaire with good validity and acceptable reliability was successfully developed. This tool provides a foundation for assessing motivations and challenges related to healthy ageing among cancer survivors. Further large-scale validation, including Exploratory Factor Analysis, is required to confirm its structure before wider application in nutrition interventions and public health programmes in Malaysia.

U-1045 What Generation X and Millennial parents think about the effect of unhealthy food marketing on social media among adolescents in Kuala Lumpur and Selangor?

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Introduction: Marketing of unhealthy food on social media contributes to unhealthy eating habits and increasing obesity risk among adolescents. Parents from different generations may perceive and respond to these influences differently. **Objective:** Therefore, this study explored the perceptions of Generation X (born in 1965-1980) and Millennial parents (born in 1981-1996) regarding the effects of unhealthy food marketing on social media, their responses to adolescents' food requests, and suggestions to protect adolescents. **Methods:** This qualitative study used purposive sampling in Kuala Lumpur and Selangor. Parents aged 29-60 years who had children aged 10-19 years who were active on social media were recruited. Data were collected through in-depth interviews, either face-to-face or online. Interviews were audio recorded, transcribed verbatim, coded, and analysed thematically. **Results:** A total of 25 parents participated in the study. Parents perceived that unhealthy food marketing encouraged adolescents to try new foods, influenced behaviour, and could contribute to an unhealthy future generation, although some believed not all adolescents were affected. Parental responses included monitoring, making decisions based on family context, and rejecting requests. Suggested protective strategies included strengthening parental roles, enhancing government regulations, increasing public awareness, and involving other stakeholders. **Conclusion:** Both generations recognised the influence of social media marketing on adolescents' eating behaviours. Millennial parents show higher digital literacy, while Generation X parents emphasise health concerns, parental control, and regulation. These findings can inform education intervention, support advocacy, and enhance policy efforts to strengthen food marketing regulations and reduce adolescent obesity risk in Malaysia.

U-1046 Development and validation of a knowledge, attitude, and practice questionnaire on healthy ageing among cancer survivors in Malaysia

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Introduction: As cancer survival rates rise globally, integrating survivors into healthy ageing paradigms is a critical public health priority. However, there remains a lack of culturally adapted, validated metrics to assess survivorship trajectories. **Objective:** This study addresses this gap by developing and validating a Knowledge, Attitude, and Practice (KAP) questionnaire for healthy ageing among Malaysian cancer survivors. **Methods:** A four-phase psychometric validation protocol was implemented, including item generation, content validity, face validity and pilot testing. A multidisciplinary panel of six experts evaluated content validity (CVI), while ten cancer survivors assessed face validity (FVI). A pilot cohort of 30 survivors was utilised to establish internal consistency using Cronbach's alpha. **Results:** The 35-item instrument exhibited robust psychometric validity and reliability. Expert consensus yielded high Scale-Level Content Validity Indices (S-CVI/Ave: Knowledge = 0.90, Attitude = 0.90, Practice = 0.87). Patient comprehension was near-perfect, with Scale-Level Face Validity Indices (S-FVI/Ave) of 0.98 for knowledge and 1.00 for both attitude and practice. The tool demonstrated strong internal consistency across domains (Cronbach's alpha: Knowledge = 0.90, Practice = 0.81, Attitude = 0.73). Crucially, findings identified a knowledge-to-action gap: while 90.0% of survivors demonstrated high knowledge, only 53.3% exhibited high attitudes and 83.3% reported moderate practice. **Conclusion:** This study delivers a reliable, context-specific KAP instrument that measures the dissonance between health awareness and behavioural execution. By providing an empirical method for tracking survivorship behaviours, this tool offers a robust metric for designing, evaluating, and scaling targeted interventions, ultimately advancing cancer survivorship towards active, healthy ageing.

U-1047 Food selection, photography and validation of food images for the Malaysian version of the Leeds Food Preference Questionnaire

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Introduction: The Leeds Food Preference Questionnaire (LFPQ) is a computer-based platform used to assess food reward through liking and wanting measures. Food reward is closely linked to appetite regulation and energy intake, particularly in populations with high overweight and obesity prevalence. However, a culturally appropriate Malaysian version of the LFPQ (LFPQ-MY) has not yet been established. **Objective:** This study aimed to select, photograph, and validate culturally relevant food images for LFPQ-MY development. **Methods:** Food items were selected from Malaysian and Singaporean food composition databases and commercial products. Standardised photography was performed, followed by expert panel review, questionnaire translation, and validation using a structured survey. A total of 222 subjects (69.8% females; mean age of 29.0 ± 11.0 years; 50.5% Malay) were recruited. **Results:** Sixty food images were initially selected and classified into four categories based on fat content and taste: high-fat savoury (HFSA; 262 kcal/100g, 55.4% fat, 22.1% protein, 21.6% carbohydrate), low-fat savoury (LFSA; 95 kcal/100g, 8.0% fat, 23.6% protein, 64.2% carbohydrate), high-fat sweet (HFSW; 367 kcal/100g, 53.1% fat, 6.7% protein, 40.4% carbohydrate), and low-fat sweet (LFSW; 142 kcal/100g, 7.2% fat, 8.4% protein, 84.3% carbohydrate). Following expert review, 40 images were shortlisted. Subsequently, 16 main food images with 8 alternatives were validated based on recognition, frequency of consumption, pleasantness, perceived fat content, taste, and time appropriateness. **Conclusion:** A total of 16 validated food images with 8 alternatives were developed and are ready for phase 2 LFPQ-MY validation. The LFPQ-MY shows strong potential to support eating behaviour research and inform interventions to improve appetite regulation in Malaysian populations.

U-1048 Effectiveness of a one-day sodium reduction workshop on sodium intake and knowledge, attitudes, and practices (KAP) among Malaysian adults: A quasi-experimental study

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Introduction: Excess dietary sodium intake is a significant contributor to non-communicable diseases, particularly hypertension and cardiovascular disease. In Malaysia, sodium intake remains above the World Health Organization recommendation of < 2000 mg/day, yet evidence on brief community-based behavioural interventions for sodium reduction is limited. **Objective:** This study aimed to evaluate the effectiveness of a sodium-reduction educational intervention in reducing sodium intake and improving knowledge, attitudes, and practices (KAP) among Malaysian adults. **Methods:** A quasi-experimental pre-post study without control group was conducted among 24 adults aged 19-59 years. Baseline assessments (pre-intervention) included sociodemographic characteristics, health status, anthropometric measurements, dietary sodium intake assessed using validated Food Frequency Questionnaire (FFQ), and sodium-related KAP measured using a structured questionnaire. The intervention comprised one-day educational workshop addressing the health consequences of excessive sodium consumption and practical behavioural strategies for sodium reduction. Outcome measures were reassessed four weeks post-intervention to determine changes in sodium intake and KAP scores. **Results:** Mean sodium intake significantly decreased from 5135.9 ± 2176.0 mg/day to 3995.9 ± 2654.0 mg/day ($p = 0.047$), representing an approximately 22% reduction. Practice score improved significantly from 10.5 ± 2.8 to 12.4 ± 1.8 ($p < 0.001$), and overall KAP score increased from 25.2 ± 5.0 to 27.1 ± 4.7 ($p = 0.032$). Knowledge and attitude scores showed non-significant improvements ($p > 0.05$). At baseline, 58.3% of participants demonstrated a moderate level of KAP. **Conclusion:** A brief sodium-reduction workshop was associated with reduced sodium intake and improved practices. Short community-based educational interventions may be a feasible strategy to support sodium reduction, warranting further evaluation in larger controlled studies.

U-1049 Development and content validity evaluation of nutrition and lifestyle e-book for women experiencing infertility

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Introduction: Female infertility is a growing reproductive health issue influenced by modifiable factors such as diet and lifestyle. Despite available medical treatments, evidence-based educational materials on nutrition and lifestyle for supporting female fertility remain limited, particularly in Malaysia. **Objective:** Therefore, this study aimed to develop and evaluate the content validity of a nutrition and lifestyle intervention module for women experiencing infertility. **Methods:** A developmental research

design comprising three phases was employed. Phase I involved a critical analysis of previous studies and a comprehensive literature review to identify dietary and lifestyle factors associated with female infertility. Phase II focused on developing a culturally appropriate intervention module based on findings from Phase I. Phase III evaluated the content validity of the module through assessment by five healthcare professionals using the Malay version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P[M]). **Results:** Three main themes were identified: unhealthy diet, abnormal Body Mass Index (BMI), and unhealthy lifestyle. Poor dietary patterns and inadequate intake of key nutrients such as folate, iron, and antioxidants were associated with reduced fertility potential, while balanced diets supported hormonal balance and ovulatory function. An e-book titled "Modul HAWA: Harapan Kesuburan Wanita" was developed, comprising 24 pages and covering nutrition and lifestyle components. Content validity evaluation demonstrated high levels of understandability (90.4%) and actionability (88.6%). **Conclusion:** In conclusion, the developed module demonstrates satisfactory content validity and potential as a health education resource for women experiencing infertility, highlighting the importance of modifiable factors, particularly diet and lifestyle, in improving reproductive health outcomes.

U-1050 Assessment of food environment based on availability of healthy and unhealthy foods at night markets in Kuala Lumpur and Kedah
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Introduction: The food environment strongly influences food availability and food choices, yet studies on characteristics of informal night market food environment in Malaysia remain limited. **Objective:** This study aimed to assess night market food environment based on availability of healthy and unhealthy foods. **Methods:** A cross-sectional field survey using direct observation was conducted at seven-night markets involving three locations in Kuala Lumpur and four locations in Kedah. Food and beverage stalls were assessed through direct observation using a modified MAPP-S tool, including on-site measurement of selling space allocation. Food items were classified into healthy and unhealthy based on WHO South-East Asia Region food classification and NOVA framework. **Results:** A total of 489-night market stalls were recorded, with only 466 stalls selling foods and beverages while the rest sold non-food products. Unhealthy foods dominated night market food environment, accounting for 71.3% ($n = 318$) of all food items compared to only 28.7% ($n = 128$) healthy foods and occupied significantly greater proportion of total selling space than healthy foods ($p < 0.05$). Snacks ($n = 78$) and beverages ($n = 37$) were classified entirely as unhealthy, while fruits and vegetables were the highest proportion of healthy items (87.1%) although a small proportion was classified as unhealthy due to processing or added ingredients. **Conclusion:** Overall, night markets in Kuala Lumpur are characterised by a predominance of unhealthy food options and disproportionate allocation of selling space to these items. These findings highlight the need for targeted policies and interventions aimed at promoting healthier food environments in informal food retail settings.

U-1051 Prevalence of sarcopenia and its association with age and weight status among middle-aged women in Kuala Lumpur and Selangor

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Introduction: Sarcopenia is increasingly recognised as an important public health concern not only among older adults, but also among middle-aged women. However, local evidence regarding early signs of sarcopenia and related functional impairments remains limited. **Objective:** This study aimed to determine prevalence of sarcopenia and its association with age and weight status among middle-aged women in Kuala Lumpur and Selangor. **Methods:** A cross-sectional study was conducted among 401 community dwelling women aged 40-64 years recruited through convenience sampling. Body composition was assessed using bioelectrical impedance, while handgrip strength and five-times chair stand tests were used to assess muscle strength and physical performance, respectively, according to Asian Working Group for Sarcopenia (AWGS) 2025 criteria. **Results:** Among women with complete data ($n = 386$), 15.8% were classified as having at-risk sarcopenia, while 3.4% had sarcopenia based on AWGS 2025 criteria. Low physical performance was the most prevalent impairment (38.4%), followed by low muscle strength (19.2%), and low muscle mass (11.4%). Significant age-related trends were observed for low muscle strength, low muscle mass, low physical performance, and at-risk sarcopenia ($p < 0.05$). Prevalence of low physical performance increased from 34.2% to 48.0%, while low muscle

strength increased from 11.0% to 24.7% among women aged 40-44 and 55-64 years. No cases of sarcopenia were observed among overweight and obese women, although low physical performance was more prevalent among obese women. **Conclusion:** Despite low prevalence of sarcopenia, impairments in muscle strength and physical performance were evident among middle-aged women, supporting the need for early screening and prevention strategies to promote healthier ageing.

U-1052 Maternal characteristics-related determinants of exclusive breastfeeding among mothers in Kota Kinabalu, Sabah: A cross-sectional study
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Introduction: Exclusive breastfeeding (EBF) is a key health strategy for promoting optimal infant growth and development during the first six months of life. Despite ongoing public health initiatives in Malaysia, EBF prevalence in Sabah has declined with limited evidence on its determinants in Kota Kinabalu. **Objective:** This study aims to determine the prevalence of EBF and identify maternal characteristics as determinants of EBF practice. **Methods:** A cross-sectional study was conducted among 232 mothers with infants aged 6 to 30 months, recruited via convenience sampling from clinics and childcare centres. Data were collected using a validated self-administered questionnaire consisting of sociodemographic and maternal characteristics, obstetric and breastfeeding-related factors. Simple and multiple logistic regression were used to identify factors associated with EBF practice. **Results:** The prevalence of EBF was 53.0% ($n = 123$), which is below the national target of $\geq 70\%$ under the National Nutrition Action Plan of Malaysia (NPANM III 2016-2025). Among participants, 24.1% were housewives and 50.9% had vaginal delivery. The mean EBF-related knowledge score was 76.3 ± 16.9 , with 48.3% demonstrating high knowledge. Multiple logistic regression analysis identified employment status and mode of delivery as significant determinants of EBF practice. Unemployed mothers (adjusted $OR = 2.254$, $p = 0.013$) and those who had vaginal delivery (adjusted $OR = 1.929$, $p = 0.015$) had higher odds of practicing EBF. **Conclusion:** This study highlights that EBF prevalence remains suboptimal in Kota Kinabalu. Employment status and mode of delivery were significant determinants. Targeted interventions addressing workplace support and delivery practices may improve EBF rates.

U-1053 Support system-related determinants of exclusive breastfeeding among mothers in Kota Kinabalu, Sabah: A cross-sectional study

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Introduction: Exclusive breastfeeding (EBF) provides optimal nutrition for infants during the first six months of life but prevalence of EBF in Sabah has declined, highlighting the need to examine determinants influencing sustained breastfeeding practices. **Objective:** This study aimed to determine the prevalence of EBF and identify support system-related determinants, including family, healthcare providers and workplace support among mothers in Kota Kinabalu, Sabah. **Methods:** A cross-sectional study was conducted from March to December 2025 at clinics and childcare centres in Kota Kinabalu. A total of 232 mothers with infants aged six to 30 months were recruited using convenience sampling. Data were collected using online semi-structured questionnaire developed from previous studies and reviewed by four experts for content validity. Descriptive statistics, simple and multiple logistic regression were performed to examine the associations between support system determinants and EBF. **Results:** The prevalence of EBF up to six months was 53.0% ($n = 123$). After adjusting for confounders, positive determinants included practical support from others (Adjusted $OR = 4.89$; $p = 0.009$), postnatal home visit by healthcare providers (Adjusted $OR = 4.12$; $p = 0.003$) and workplace breastfeeding facilities (Adjusted $OR = 3.33$; $p = 0.006$). Conversely, practical support from family members (Adjusted $OR = 0.29$; $p = 0.003$) and breastfeeding education (Adjusted $OR = 0.42$; $p = 0.038$) were negatively associated. **Conclusion:** The prevalence of EBF in Kota Kinabalu remains low. Coordinated support from family, healthcare providers and workplace is crucial for sustaining EBF. Strengthening postnatal service, improving the quality of breastfeeding support and enhancing workplace facilities may improve EBF rates and guide integrated multisectoral interventions to promote EBF in Sabah.

U-1054 Factors associated with sustainable food consumption behaviour among foundation students in Universiti Putra Malaysia

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Introduction: Sustainable food consumption (SFC) behaviour refers to eating behaviours that promote human health and environmental sustainability, including selecting local or organic foods, supporting fair trade, and reducing food waste. Increasing environmental impacts of food systems highlight the urgency of promoting SFC. However, research on SFC among Malaysian late adolescents remained limited, despite this group being at a critical stage of developing independent and long-term dietary habits. **Objective:** This study aimed to determine factors associated with SFC behaviour among foundation students in Universiti Putra Malaysia. **Methods:** A cross-sectional study was conducted among 263 foundation students (mean age: 18.27 ± 0.29 years) using an online questionnaire to assess sociodemographic background, perceived value, attitude, perceived effectiveness, intention, health consciousness, environmental concern, knowledge on SFC, food security, social norm, perceived availability of sustainable food, and SFC behaviour. **Results:** The mean SFC score was 23.76 ± 7.31 out of 42, with a greater engagement in practices related to local food sourcing (64.3%) and fair trade (51.3%). Multiple linear regression analysis revealed that social norms ($\beta = 0.187, p = 0.002$), knowledge ($\beta = 0.184, p = 0.002$) and health consciousness ($\beta = 0.198, p = 0.001$) were significantly associated with SFC behaviour. **Conclusion:** SFC behaviour among foundation students is primarily driven by social norms, health consciousness, and sustainability knowledge, highlighting the influence of social environment and individual awareness in shaping sustainable eating behaviours. Therefore, future interventions should integrate practical health and sustainability education while leveraging peer-led initiatives to foster positive social environments and promote long-term SFC behaviours.

U-1056 Association of maternal, obstetric and lifestyle factors with maternal psychological distress among postpartum mothers in Klinik Kesihatan in Klang Valley, Malaysia

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Introduction: The postpartum period is a critical phase during which mothers may experience psychological distress that affects both maternal well-being and infant care. **Objective:** This cross-sectional study examined the associations of maternal, obstetric and lifestyle factors with maternal psychological distress among postpartum mothers in the Klang Valley. **Methods:** This cross-sectional study involved 110 postpartum mothers attending selected Klinik Kesihatan. Participants completed self-administered questionnaires on sociodemographic characteristics, obstetric history, infant sleep and feeding patterns, breastfeeding difficulties, and mother-infant bonding. Maternal psychological distress was assessed using the Edinburgh Postnatal Depression Scale (EPDS) and the Perceived Stress Scale (PSS-10). **Results:** A total of 11.8% of mothers screened positive for postpartum depression, while 53.7% reported moderate stress levels. Postpartum depression was significantly associated with infant night awakenings ($r = 0.342, p < 0.001$), breastfeeding problems ($r = 0.256, p = 0.007$), and mother-infant bonding ($r = 0.416, p < 0.001$). Maternal stress was significantly associated with breastfeeding problems ($r = 0.243, p < 0.001$), mother-infant bonding ($r = 0.433, p < 0.001$), and breast milk cortisol levels ($r = 0.202, p = 0.038$). No significant associations were observed between maternal psychological distress and maternal age, ethnicity, educational level, employment status, monthly household income, gestational age at birth, mode of delivery, or infant feeding method. **Conclusion:** These findings highlight the importance of early screening for both stress and depression, as well as targeted support addressing modifiable factors such as feeding difficulties, infant sleep disturbances, and bonding problems to improve maternal mental health outcomes.

U-1057 Factors associated with iron compliance scores among pregnant women in 5 selected health clinics in Selangor

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Introduction: Iron deficiency anaemia (IDA) remains a persistent nutritional challenge among pregnant women, driven by physiological iron demands that often exceed dietary intake. In Malaysia, iron supplementation is routinely provided through antenatal care services to mitigate anaemia risk; however, widespread non-compliance continues to limit the effectiveness of this intervention. **Objective:** The study aimed to assess factors associated with iron supplementation compliance among pregnant women in 5 selected health clinics in Selangor. **Methods:** This cross-sectional study involved 140 pregnant women of various ethnicities, aged 19 to 40, currently in their second or third trimesters. Data were

collected via self-administered questionnaires covering sociodemographic characteristics, perceived benefits and barriers, and family support. Pregnancy-related variables were retrieved from maternal health records, while compliance was measured using the MyMAAT-12 tool. **Results:** Data analysis was conducted using IBM SPSS Statistics-30 where two-thirds of the participants (64.3%) were non-compliant with iron supplementation. Compliance was significantly associated with education level ($p = 0.039$), monthly income ($r = 0.197$, $p = 0.021$), and occupation ($p = 0.049$). Perceived barriers emerged as key factor influencing noncompliance ($r = -0.378$, $p < 0.001$), while family support also showed a significant positive association with compliance ($r = 0.194$, $p = 0.021$). These results indicate that iron supplementation practices during pregnancy were shaped by both socioeconomic states and psychosocial influences. **Conclusion:** Non-compliance remains common despite the free provision of supplements in Malaysia. Efforts to improve adherence should focus on reducing perceived barriers, strengthening family support, and delivering targeted health education tailored to women's socioeconomic circumstances.

U-1058 Associations of maternal characteristics, lifestyle and psychological factors with total polyunsaturated fatty acids (PUFA) levels in breast milk of lactating women in Klang Valley

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Introduction: Polyunsaturated fatty acids (PUFAs) are essential fatty acids which play a crucial role in infant brain development and immune function, contributing to cognitive and retina development. **Objective:** Thus, this cross-sectional study aimed to identify the associations between maternal characteristics, lifestyle, and psychological factors with total PUFA levels in the breast milk of lactating mothers in the Klang Valley. **Methods:** A total of 99 lactating mothers, with a mean age of 32.4 ± 4.6 years, were recruited from four health clinics. A self-administered questionnaire was used to collect data on sociodemographic characteristics, nutritional status, dietary intake, confinement dietary practices, postpartum depression, and stress levels. 5 mL of breast milk was collected, and PUFA levels were analysed using gas chromatography-flame ionisation detection (GC-FID). PUFA level was expressed as a percentage of total fatty acids. **Results:** The mean PUFA level in breast milk was $12.83 \pm 2.46\%$. Spearman correlation showed a positive association between non-leafy vegetable intake during the confinement period and PUFA levels in breast milk; however, this finding requires further investigation ($p < 0.05$). No significant associations were found between PUFA levels and sociodemographic characteristics, pre-pregnancy BMI, current BMI, dietary intake, confinement diet, postpartum depression, or stress levels, based on Pearson and Spearman correlation. **Conclusion:** PUFA levels in breast milk were relatively low compared with other countries, highlighting the importance of adequate PUFA intake from pregnancy through lactation. Future studies should explore dietary intake during pregnancy and its association with breast milk PUFA levels for comprehensive understanding.

U-1059 Factors associated with preconception health attitude among individuals attending premarital course in Klang Valley

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Introduction: Preconception health is a critical component of reproductive health that influences maternal and neonatal outcomes. However, attitudes toward preconception health among unmarried individuals remain insufficiently explored in Malaysia. **Objective:** This cross-sectional study aimed to determine the prevalence of preconception health attitude and its associated factors among individuals attending premarital courses in Klang Valley. **Methods:** A total of 444 respondents participated in the study through convenience sampling. Data was collected using a structured, self-administered questionnaire that assessed socio-demographic characteristics, preconception health awareness, knowledge, pregnancy planning, preferred access to information, health risk factors and preconception health attitudes. The researcher measured the respondents' body weight and height. **Results:** Results showed that 59.9% of the respondents demonstrated a good preconception health attitude. Bivariate analysis revealed being a female, tertiary education level, high monthly household income, high self-perception awareness of preconception health, high preconception health content awareness, medical source of preferred access to information and high preconception health knowledge were positively associated (p -value < 0.05) with positive preconception health attitude. In contrast, age, employment status, monthly income, pregnancy planning, medical condition, and BMI were not significantly

associated with preconception health attitudes. **Conclusion:** These findings suggest that more health promotion should be catered to unmarried individuals to strengthen preconception health education, especially those who are planning to get married soon. Better focus should be given to educating about the benefits of folic acid. Focus on men's preconception health should also be increased. These may serve as an effective strategy to improve attitudes and encourage early adoption of healthy behaviours before conception.

U-2001 Factors associated with sexual practices among unmarried university students

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Introduction: Sexual practices significantly impact the well-being of university students during their transition to independence. Despite evolving health behaviours, evidence linking nutritional factors, SRH knowledge, and attitudes to sexual practices among unmarried Malaysian students remains limited. **Objective:** This study aimed to examine the association between sociodemographic factors, nutritional status (BMI and dietary intake), SRH knowledge, SRH attitudes, and sexual practices among unmarried university students at a public university in Selangor, Malaysia. **Methods:** A cross-sectional study was conducted among 205 unmarried Malaysian university students aged 18-25 years. Data were collected using validated self-administered questionnaires. Body mass index was determined through measured weight and height, while dietary intake was assessed using a 24-hour dietary recall. Descriptive and inferential analyses were performed using IBM SPSS Statistics version 30. **Results:** The majority of respondents did not engage in sexual practices (95.6%) and demonstrated high SRH knowledge (76.6%) and attitudes (77.1%). One-third were classified as overweight or obese (31.7%), and excessive fat intake was prevalent (85.4%). Sex was the only factor significantly associated with sexual practices ($p = 0.028$). No significant associations were observed between sexual practices and other sociodemographic factors, nutritional status, dietary intake, SRH knowledge, or SRH attitudes. **Conclusion:** In conclusion, although respondents generally exhibited good SRH knowledge and positive attitudes, these factors were not significantly associated with sexual practices. Future studies with larger samples are recommended to further explore factors influencing sexual practices among university students.

U-2002 Factors associated with intra-household food allocation among mothers and children aged 2 to 12 years in pangsapuri under Majlis Perwakilan Penduduk (MPP) Zon 8, Seksyen 24, Shah Alam

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Introduction: Intra-household food allocation (IHFA) refers to the distribution of food resources among household members and plays a critical role in determining nutritional equity, particularly between mothers and children in low-income urban settings. **Objective:** This cross-sectional study aimed to determine the factors associated with IHFA among mothers and children aged 2 to 12 years residing in pangsapuri under Majlis Perwakilan Penduduk (MPP) Zon 8, Seksyen 24, Shah Alam. **Methods:** A total of 170 mother-child dyads participated. Dietary intake was assessed using a single 24-hour recall, and energy adequacy was evaluated against the Recommended Nutrient Intake (RNI). IHFA status was operationalised using the ratio of the child's energy intake relative to the combined mother-child intake (IHFA ≥ 1 : equal or higher allocation to child; IHFA < 1 : unequal allocation). **Results:** Results indicated that IHFA was predominantly unequal, occurring in 85.3% households, within a broader context of energy inadequacy where 57.6% of mothers and 63.5% of children failed to achieve 71% of the Recommended Nutrient Intake (RNI). Significant associations were identified between IHFA status and mother's age ($p = 0.010$), ethnicity ($p = 0.005$), and household size ($p = 0.008$). No significant associations were observed for household income, food security status, nutrition knowledge, or individual-level variables ($p > 0.05$). **Conclusion:** Overall, the findings indicate that unequal IHFA may reflect limited household food resources and maternal prioritisation of children's dietary intake, highlighting the need for nutrition interventions that address dietary adequacy for both mothers and children.

U-2003 Factors associated with malnutrition risk among community-dwelling older adults in Klang Valley and Putrajaya

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Introduction: Malnutrition among older adults remains a growing health concern due to its negative effects on the immune system, increased susceptibility to infections, higher morbidity and reduced quality of life. Despite its serious consequences, the problems are often underdiagnosed due to limited awareness and lack of routine nutritional screening. **Objective:** This study aimed to determine the association of sociodemographic characteristics, anthropometric measurements, oral health, depressive symptoms, food insecurity level and social support with malnutrition risk among older adults. **Methods:** A cross-sectional study was conducted among 203 respondents aged 60 years and above. Data were collected using assisted face-to-face interviews with structured questionnaires, consisting of depressive symptoms, oral health status, food insecurity and social support. Anthropometric measurements were also taken. Malnutrition risk was evaluated using the Mini Nutritional Assessment Short Form (MNA-SF). **Results:** Bivariate analysis using Pearson correlation and Chi-square test was conducted to examine the association between malnutrition risk and the variables. The findings showed that 55.7% of respondents were at risk of malnutrition. Bivariate analysis revealed significant associations between malnutrition risk and depressive symptoms ($r = -0.232, p < 0.001$), oral health status ($r = 0.160, p = 0.023$), food insecurity ($r = -0.195, p = 0.005$) and BMI ($\chi^2 = 12.496, p = 0.002$). Moreover, there was no significant association found between gender, working status, marital status, household income, living status, social support with malnutrition risk ($p > 0.05$). **Conclusion:** In conclusion, malnutrition risk among community-dwelling older adults is influenced by multiple factors. Early screening and integrated community-based interventions targeting these determinants are important to improve nutritional outcome and achieve healthy ageing.

U-2004 Associations of sociodemographic factors, parental factors, body composition, and dietary inflammatory index with BMI-for-age among selected primary schools in Selangor

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Introduction: Childhood obesity is an increasing public health concern, as unhealthy body weight during childhood may lead to long-term health complications. **Objective:** This cross-sectional study aimed to determine the associations between sociodemographic factors, parental factors, body composition, and dietary inflammatory index with BMI-for-age among primary school children in Sepang, Selangor. **Methods:** A total of 404 children aged 10 to 11 years participated in this study. Data on sociodemographic and parental factors were obtained using questionnaires. Anthropometric measurements, including weight, height, body fat percentage, skeletal muscle mass, and waist circumference, were measured using standard equipment. Dietary intake was assessed using a three-day 24-hour dietary recall, and the Dietary Inflammatory Index (DII) was calculated. **Results:** Results showed that 65.6% of the children had normal BMI-for-age, while 34.4% were overweight or obese. The mean DII score was 2.68 ± 0.57 , indicating that most children consumed a pro inflammatory diet. Body composition indicators, including body fat percentage, skeletal muscle mass, and waist circumference, were significantly associated with BMI-for-age ($p < 0.05$). However, no significant associations were found between BMI-for-age and dietary inflammatory index, sociodemographic factors, or parental factors ($p > 0.05$). **Conclusion:** In conclusion, body composition indicators were significantly associated with BMI-for-age among primary school children, while dietary inflammatory index, sociodemographic, and parental factors were not associated. These findings highlight the importance of monitoring body composition and promoting healthy lifestyle practices to prevent overweight and obesity among children.

U-2005 Development of Nutrition Pop-up Book (Re-bookz) from recycled materials and its usability among parents and children

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Introduction: Plastics, glasses and paper are major household waste components; hence are sturdy, colourful and non-biodegradable. They are suitable for making arts and crafts project including children's books. Early childhood is a critical for establishing healthy eating habits hence, this study aimed to develop a nutrition pop-up book (Re-bookz, copyright: CRLY2025C03065). Next, to evaluate its validity and usability among parents and children. **Objective:** To develop and determine the content validity and usability of Re-bookz to the parents and their children. **Methods:** Ethical approval was obtained from UHREC (UniSZA/UHREC/2025/847, UniSZA/UHREC/2025/848). This study consists of three-phases: (i) Re-bookz development using recyclable household materials, (ii) content validity determination by nutrition experts, and (iii) usability of Re-bookz in preschool children and their parents. Six nutrition experts evaluated the content using the Content Validity Index (CVI) questionnaire. Usability testing involved 40 parent-child dyads recruited from selected TABIKA KEMAS in Kuala Nerus, Terengganu. Preschool children completed pre- and post-intervention nutrition knowledge assessments following a 15-20-minute of an interactive reading session using Re-bookz. Parents completed questionnaires assessing usability in conducting book-sharing activities after using Re-bookz. **Results:** The Scale-level Content Validity Index (S-CVI) obtained 0.93, indicating excellent content validity. 55% children showed significantly ($p < 0.001$) higher post-intervention knowledge scores compared with pre-intervention scores. Parents reported good median usability perceptions, score of 3.90 (IQR: 2.00), indicating good acceptance and practicality of Re-bookz. **Conclusion:** Re-bookz shows excellent content validity and well accepted by parents and children. A larger study participant with different populations is needed to further evaluate its effectiveness in delivering nutrition knowledge.

U-2006 An assessment of knowledge, attitudes, and practices regarding probiotic and prebiotic consumption among higher education students in Kuala Nerus, Terengganu

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Introduction: The increasing demand for functional foods has driven interest in dietary components that confer health benefits beyond their nutritional value. Probiotics and prebiotics, naturally present in fermented foods, fruits, and vegetables, are recognised for their significant role in modulating gut microbiota composition and supporting gastrointestinal health. **Objective:** This study aimed to assess the knowledge, attitudes, and practices (KAP) regarding probiotic and prebiotic consumption among higher education students in Kuala Nerus, Terengganu, and to determine the associations between KAP and sociodemographic characteristics. **Methods:** A cross-sectional study using convenience sampling was conducted among 438 students. Data were collected using a structured questionnaire adapted from validated instruments and distributed online via Google Forms through WhatsApp and Telegram groups. Ethical approval was granted by the UniSZA Human Research Ethics Committee (UniSZA/UHREC/2025/865). The questionnaire demonstrated good reliability with a Cronbach's alpha value of 0.87. Data were analysed using SPSS version 27.0, and Chi-square tests were performed to examine associations between variables. **Results:** The results indicated that respondents demonstrated moderate levels of knowledge (50.9%) and practices (61.9%), while the majority exhibited positive attitudes (90.9%) towards probiotics and prebiotics. Significant associations ($p < 0.05$) were found between sociodemographic characteristics and KAP levels. Knowledge was associated with gender, age, institution type, field of study, and residence. Attitude was associated with gender, institution type, field of study, and residence, while practice was associated with gender and institution type. **Conclusion:** These findings suggest gaps between knowledge, attitudes, and practices, indicating a need for targeted nutrition education to improve probiotic and prebiotic consumption among students.

UX-2001 NutriPlanet: A validated education module to promote sustainable healthy diets in university students

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Introduction: Sustainable healthy diets (SHD) integrate both health and environmental sustainability considerations. However, current global food systems are increasingly unsustainable and are associated with a shift towards unhealthy food choice. University students represent a key target group for

intervention, as their eating habits are shaped during this critical transitional phase which often establish long-term practices. Despite this, there remains a lack of targeted interventions focused on SHD among university students. **Objective:** This study aims to develop and validate the NutriPlanet module to promote SHD among Malaysian university students. **Methods:** This study was conducted in two phases. Phase I involved developing the NutriPlanet module using evidence-based resources, including peer-reviewed literature and national dietary guidelines. Phase II focused on validating the developed module with content experts ($N = 5$) and target university students ($N = 29$). Content validity was assessed by experts using the content validity index (CVI), while face validity was evaluated by both experts and university students using the face validity index (FVI). **Results:** The module comprised seven topics (e.g., local and seasonal eating and food waste reduction) and was developed into two materials: a "Module Implementation Toolkit" for expert evaluation and "Infographic Materials" for evaluation by university students. All topics demonstrated acceptable content validity, with S-CVI/Ave values ranging from 0.89 to 0.98. Additionally, face validity was supported by experts (S-FVI/Ave 0.89 to 1.00) and university students (S-FVI/Ave 0.88 to 0.96), indicating overall satisfactory validity. **Conclusion:** The NutriPlanet module is a validated and suitable tool, providing a foundation for future pilot testing and implementation to promote SHD.

UX-2002 Development and evaluation of calorie labelling: Customers' knowledge, attitudes, practices and usability in a university cafeteria

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Introduction: Calorie labelling is a strategy to promote informed food choices and healthier food environments. However, evidence on the usability of calorie labelling and its relationship with customers' knowledge, attitudes, and practices (KAP) remains limited in Malaysian university settings. **Objective:** This study aimed to develop calorie labelling for a university cafeteria and evaluate customers' KAP and perceptions of usability. **Methods:** This study consisted of two phases. First, calorie values were calculated for 172 food items, and 23 calorie labelling posters were developed, validated, and displayed at Nourish Cafe, IMU University. Second, a cross-sectional study involving 102 students and staff was conducted to assess KAP and usability using a self-administered questionnaire. Pearson correlation analysis was performed to examine associations between variables. **Results:** Participants demonstrated relatively high knowledge ($4.86 \pm 1.34/6$) and positive attitudes ($29.54 \pm 3.82/40$) towards calorie labelling, while practice scores were moderate ($21.61 \pm 4.64/35$). The posters showed good usability, with 85.3% of participants reporting the information was useful, 87.3% indicating it was easy to understand, and 84.3% agreeing it was clearly displayed. Significant positive correlations were observed between knowledge, attitude, and practice ($r = 0.426 - 0.544$, $p < 0.001$). Usability was also positively associated with knowledge ($r = 0.369$), attitude ($r = 0.522$), and practice ($r = 0.349$) (all $p < 0.001$). **Conclusion:** Calorie labelling was well accepted and demonstrated good usability among university cafeteria customers. Positive associations between usability and KAP suggest that accessible calorie information may support healthier food choices and strengthen healthy cafeteria initiatives in university settings.

X-2015 e-DineSmart: Development and evaluation of a bilingual e-learning platform to improve food safety and healthy cafeteria practices among university food handlers

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Introduction: Continuous training opportunities for food handlers beyond mandatory certification are often limited, particularly in areas related to food safety and healthy food environments. **Objective:** E-DineSmart was developed as a bilingual, self-paced e-learning platform to enhance food handlers'

knowledge and practices in food safety, hygiene, and healthy cafeteria implementation, thereby supporting safer and healthier food service environments. **Methods:** e-DineSmart was developed using Articulate Storyline and Vyond to deliver interactive learning through animations, quizzes, case scenarios, and multimedia content. The platform covered food safety, food hygiene, food poisoning prevention, and healthy cafeteria implementation. A pre-post intervention study was conducted among 14 food handlers from 11 cafeteria stalls at IMU University. Outcomes were assessed using food safety and healthy cafeteria audit checklists, knowledge assessments, and the System Usability Scale. **Results:** Food safety knowledge improved significantly, with assessment scores increasing from 71.4% to 85.7% ($p = 0.002$). Significant improvements were also observed in overall Food Safety Checklist scores ($p = 0.004$), particularly in process control, food preparation areas, and waste management. The platform demonstrated high usability, with 85.7% of participants reporting confidence in using the platform and perceiving it as well integrated, while 78.5% agreed that most users could learn it quickly. The bilingual, self-paced format supported flexible workplace learning with minimal disruption to daily operations. Improvements in healthy cafeteria indicators were observed but were not statistically significant. **Conclusion:** e-DineSmart effectively improved food safety knowledge and practices among university food handlers. The platform demonstrated strong usability, practicality, and potential for scalable implementation in institutional food service settings.

X-2016 Validation of a nutrition literacy instrument for community-based assessment of Malaysian adults

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Introduction: The increasing burden of non-communicable diseases (NCDs) in Malaysia is associated with suboptimal dietary behaviours, with nutrition literacy as a key determinant. However, nutrition literacy assessment among Malaysian adults remains limited by the lack of validated, context-specific tools. **Objective:** This study aimed to evaluate the reliability and validity of a nutrition literacy questionnaire prior to its large-scale implementation in community settings for assessment, monitoring, and surveillance. **Methods:** A cross-sectional validation study was conducted in December 2025 among 470 adult respondents following an online nutrition advocacy session in a community setting. The 26-item questionnaire consisted of three domains: (1) nutrition knowledge and understanding, (2) food-related decision-making skills, and (3) dietary behaviour and practices. Data were collected via an online survey and analysed using SPSS version 26. Data suitability for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. Exploratory factor analysis using Principal Axis Factoring with Promax oblique rotation assessed construct validity, while internal consistency was assessed using Cronbach's alpha. **Results:** The data were suitable for factor analysis ($KMO = 0.752$; Bartlett's test, $p < 0.001$). EFA revealed an eight-factor structure broadly consistent with the proposed domains. Most items showed moderate to strong factor loadings (0.31-0.86), although a few items on calorie understanding and food labelling demonstrated weak or cross-loadings. The overall scale showed acceptable internal consistency (Cronbach's $\alpha = 0.767$), which improved slightly after removing five poorly performing items. **Conclusion:** The instrument is a valid and reliable instrument for assessing nutrition literacy in Malaysian adults, supporting its use in large-scale implementation.

X-2017 Knowledge, attitudes, and beliefs toward plant-based meat alternatives among university students

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Introduction: The growing interest in plant-based meat alternatives (PBMA) has been driven by increasing concerns regarding health, animal welfare, and environmental sustainability. Despite the expanding global popularity of PBMA, limited research has examined the factors affecting the PBMA purchasing decisions among university students in Malaysia. **Objective:** To assess the relationship between consumers' knowledge, attitudes, beliefs, perceived barriers, and purchasing decisions regarding plant-based meat alternatives among university students. **Methods:** A cross-sectional study was conducted among 159 university students aged 18-30 years at a private university in Malaysia using convenience sampling. Data were collected through an online self-administered questionnaire assessing knowledge, attitudes, beliefs, perceived barriers, and purchasing decisions regarding plant-based meat alternatives. The questionnaire was pilot tested among 10 participants to evaluate clarity and comprehensibility, with minor revisions made accordingly. Data were analysed using IBM SPSS

Statistics Version 30. Descriptive statistics and point-biserial Pearson correlation analyses were performed, with statistical significance set at $p < 0.05$. **Results:** Participants demonstrated moderate levels of knowledge, attitudes, and beliefs regarding PBMA. Significant positive correlations were identified between purchasing decisions and knowledge ($r = 0.438$, $p < 0.001$) as well as beliefs ($r = 0.511$, $p < 0.001$). In contrast, perceived barriers showed a significant negative correlation with purchasing decisions ($r = -0.291$, $p < 0.001$). Taste, price, and product availability were identified as the main barriers influencing PBMA purchasing decisions. **Conclusion:** These findings indicate that favourable consumer perceptions may promote purchasing decisions related to plant-based meat alternatives, while practical barriers remain a significant challenge to their adoption among university students.

X-2019 Exploring challenges and strategies for reducing food waste in Malaysian hospitals: perspectives of multidisciplinary professionals through a qualitative descriptive study

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Introduction: Food waste issues in the hospital settings have been highlighted as a major concern in the hospital foodservice industry. To ensure sustainable and efficient hospital operations while delivering quality patient care, it is vital to recognise the crucial role of hospital staff in reducing food waste. **Objective:** This study investigated the systemic challenges and strategic solutions associated with minimising food waste within Malaysian hospital foodservice operations. **Methods:** Using a qualitative descriptive research design, three focus group discussions comprising 4 to 6 participants each were conducted with 15 purposive sampling healthcare and foodservice professionals with mean age $SD = 47.5 \pm 5.90$; $n=12$; 80% female. The participants included catering officers, assistant catering officers, clinical dietitians, nurse managers, and academics. **Results:** Five major challenges were identified in hospital foodservice: gaps in management systems and policies; patients' meal experiences and dietary practices during their hospital stay; limited training, awareness, and resources for managing food waste; restricted menu variety and limited patient choice across ward classes; and low staff engagement and accountability in tackling food waste and improving patient meal care. In response, six key actionable strategies were proposed to reduce food waste: optimising meal ordering systems and implementing centralised plating; improving communication around food waste management; enforcing proper portion control while enhancing food quality and presentation; strategic menu planning; staff training programs focused on waste reduction; and improving overall work performance. **Conclusion:** Reducing food waste in Malaysian hospitals requires structural improvements, better evaluation tools, and staff training, which can help improve sustainability, efficiency, and patient satisfaction.

X-2020 Interventions to reduce food-related pester power among children: A scoping review

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Introduction: Pester power refers to children's influence on parental purchasing decisions through repeated requests for highly marketed foods and beverages, particularly unhealthy products. Despite extensive evidence on food marketing and child influence, interventions aimed at reducing pester power remain fragmented. **Objective:** This scoping review mapped and synthesised existing interventions, policies, and strategies designed to reduce food-related pester power among children. **Methods:** The review followed the Arksey and O'Malley framework and was guided by PRISMA-ScR. Searches were conducted in Scopus, PubMed, Web of Science, and ScienceDirect using keywords related to pester power, child influence, food marketing, food advertising, and interventions. English-language studies examining strategies to reduce unhealthy food-related purchase requests among children were included. Data were synthesised according to intervention type, setting, target population, and outcomes. **Results:** Identified interventions included regulatory policies restricting child-targeted advertising, cartoon characters, toy incentives, packaging, and digital marketing. Educational approaches involved school-based nutrition education and media literacy programmes. Parent-focused strategies emphasised parental mediation and healthier purchasing practices, while retail interventions included checkout modifications and healthier product placement. Some studies also explored positive pester power by encouraging children to request healthier foods. Multi-component interventions combining policy

restrictions, parental involvement, and child education appeared more effective than single-component approaches. However, gaps remain regarding long-term effectiveness, digital marketing exposure, and evidence from low- and middle-income countries. **Conclusion:** Comprehensive, multi-level interventions may help reduce food-related pester power and support healthier family food environments. Further research is needed on long-term and culturally relevant intervention effectiveness.

X-2021 CoPT Nutri Trail: A school-based digital nutrition education to improve adiposity outcomes among overweight and obese children

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Introduction: Childhood obesity is a growing public health problem linked to excess body fat (adiposity). It is mainly driven by unhealthy lifestyle habits of children. Obesity can also negatively affect children's health and psychosocial well-being. Digital nutrition education is increasingly used as a scalable approach to promote healthier behaviours and reduce adiposity outcomes in children. **Objective:** To evaluate the efficacy of CoPT Nutri Trail, a school-based digital nutrition education, in improving adiposity outcomes among overweight and obese school children. **Methods:** A quasi-experimental study was conducted in two primary schools. Participants were assigned to an intervention group ($n = 29$) and a control group ($n = 28$). The intervention group underwent a 12-week CoPT Nutri Trail digital nutrition education activity while the control group followed standard school routines. Outcomes were measured at baseline and three months post-intervention using mixed ANOVA to assess group-by-time effects. **Results:** There was a significant group-by-time interaction effect for changes in body mass index, BMI z-score $F(1,55) = 7.341$, $p = 0.009$, $\eta_p^2 = 0.118$ (moderate effect), and for body fat percentage, $F(1,55) = 8.378$, $p = 0.005$, $\eta_p^2 = 0.132$ (moderate effect). However, no significant interaction effect was observed for waist circumference. **Conclusion:** Overall, these findings support the potential of the CoPT Nutri Trail in improving general adiposity indicators in children. However, the assessment of dietary behaviour and physical activity changes may be important in better capturing the effectiveness of obesity education interventions, particularly considering that children are still in a growth and maturation phase, which may influence changes in adiposity over time.

X-2022 The role of seasonal wild foods in food security: Insights from communities in northwestern Philippines

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Introduction: Wild and uncultivated foods have been regarded as rich sources of nutrition, sustain food security and act as a safety net for the poor. However, their contribution is often underrepresented in food systems. **Objective:** This study aimed to explore the role of wild foods in food security and nutrition in selected communities in northwestern Philippines. **Methods:** An exploratory qualitative design was done through focus group discussions among adults and key informant interviews among local nutrition, environment and agriculture officers in two municipalities in Ilocos Sur, Philippines. Thematic analysis from transcribed data and triangulation were done. **Results:** The participants identified different foods as wild-gathered or hunted such as leafy vegetables, fruits, edible fungi and algae, insects, aquatic species and wild animals. Majority of the wild foods were seasonal, describing them based on the climate in the region and agricultural cycle. The participants considered wild foods as 'cure for hunger', readily available, reduce their household expenses and supplement to staples such as rootcrops added to rice. Wild foods can also generate income when the gathered foods are plenty and sold to neighbours or in public market. Eating wild foods during their season satisfies cravings of locals who are used to eating such foods. They noted that wild foods are tastier, though acknowledged that many are difficult to gather or process. **Conclusion:** Wild foods contribute to additional food and income among locals in the community. Apart from providing nourishment, eating wild foods also pleases cultural preference and tradition.

X-2023 Weight status, eating behaviour, physical activity and blood pressure among female non-academic university staff in Kuala Nerus, Terengganu
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Introduction: Hypertension is a major contributor to cardiovascular morbidity and mortality worldwide and is strongly influenced by lifestyle-related factors; however, evidence on factors associated with blood pressure status among female university employees in Terengganu remains limited. **Objective:** This study aimed to examine the associations between weight status, eating behaviour, physical activity and blood pressure among female non-academic staff at public universities in Kuala Nerus, Terengganu. **Methods:** This cross-sectional study involved 348 female non-academic staff aged 18-59 years from Universiti Sultan Zainal Abidin (UniSZA) and Universiti Malaysia Terengganu (UMT), recruited through convenience sampling. Eating behaviour and physical activity were assessed using the validated Malay versions of Eating Behaviour Pattern Questionnaire (EBPQ) and International Physical Activity Questionnaire (IPAQ), respectively. Weight status included body mass index (BMI), Waist-to-Height Ratio (WHtR) and Waist-to-Hip Ratio (WHR). Blood pressure was measured using a digital sphygmomanometer. The Pearson Chi-square test was used to determine the associations between variables. **Results:** Findings showed that most participants had moderate snacking behaviour (56.3%), emotional influence on eating (48.9%) and snacking patterns (76.5%), while 72.1% were physically active. The prevalence of overweight/obesity was 71.5%, whereas abdominal obesity ranged from 33.3% (WHtR) to 54.6% (WHR). Pre-hypertension and hypertension affected 37.6% and 20.1% of participants, respectively. Blood pressure status was significantly associated with BMI, abdominal adiposity indices, snacking behaviour, emotional influence on eating and snacking patterns ($p < 0.05$). **Conclusion:** The study highlights that addressing obesity and unhealthy eating behaviours through workplace-based interventions may help improve blood pressure status and reduce cardiovascular disease risk.

X-2024 A pilot study on integrating interactive nutrition education into badminton training for primary school students in Kuching, Sarawak

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Introduction: World Vision Malaysia has implemented the "Eat Right to Play Right" (ERTPR) Programme since 2016, integrating interactive nutrition education into sports training in community settings. **Objective:** This study aimed to pilot the school-based delivery of the programme by teachers to expand its application for childhood obesity prevention. **Methods:** A pre-post quasi-experimental study was conducted among students aged seven to 12 years from five primary schools in Kuching, Sarawak, recruited through convenience sampling ($n = 148$). Baseline and post-intervention assessments included nutrition knowledge and dietary practices questionnaires, height and weight measurements, and a cardiorespiratory fitness test. Before the implementation, three teachers per school attended a two-day ERTPR Programme training and subsequently delivered 12 ERTPR sessions over six months using a standardised module and workbook. Data were analysed using paired-sample t-tests. **Results:** The mean age of the students was 10.4 years, with a predominance of males (56.3%), Malays and Sarawak Bumiputera (76.1%), and participants with normal body mass index-for-age (BAZ) (48.6%). After the intervention, significant improvements were observed in nutrition knowledge (mean difference [MD] = 0.83, $p < 0.001$) and cardiorespiratory fitness ($MD = -9.70$, $p < 0.001$). Among overweight and obese students, additional improvements were noted in BAZ ($MD = -0.15$, $p = 0.001$), nutrition knowledge ($MD = 0.96$, $p = 0.013$), and cardiorespiratory fitness ($MD = -10.80$, $p = 0.001$). **Conclusion:** The ERTPR Programme effectively improved nutrition knowledge and cardiorespiratory fitness among primary school students, with additional improvements in BAZ among overweight and obese participants. This teacher-led model shows potential for integration into school sports co-curricular activities to support childhood obesity prevention.

X-2025 The newly usage of Maternal Anaemic Reporting System (MARS) as a structured reporting tool for managing anaemia in pregnancy patients in government health clinics in Kota Kinabalu Sabah

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Introduction: Despite high maternal anaemia incidence in Sabah, current single-metric reporting at 36 weeks gestation limits proactive intervention. To resolve this data deficiency, the Maternal Anaemia Reporting System (MARS) was developed. **Objective:** To determine antenatal anaemia prevalence and evaluate clinical management determinants contributing to its occurrence within government health clinics. **Methods:** This retrospective systems evaluation used universal sampling to review 2023 antenatal records in Kota Kinabalu. Unstructured clinical data including antenatal handbooks, case notes, pathology records, and appointment logs were digitised into MARS, an Excel framework standardising 18 variables across demographics, longitudinal haemoglobin screening intervals, laboratory pathology indices, and integrated care protocols (medical, nutritional, and nursing interventions). **Results:** In 3,388 Kota Kinabalu pregnant women (89.4% Malaysian), 56.2% experienced anaemia, including 44.2% iron deficiency anaemia (IDA). Most were diagnosed in the second trimester (64.7%) versus first (20%). At period of gestation (POG) 36, 40.5% recovered, leaving 15.7% anaemic and zero severe cases. There was a strong correlation between serum ferritin and pregnancy week and haemoglobin level ($r=0.799$) and POG onset anaemia ($r=0.757$). Maternal haemoglobin levels at 36 weeks vary significantly based on trimester of anaemia detection, antenatal risk tagging, clinic booking timing, citizenship status, and geographic zoning. Early booking, specialist appointments, home visits, checklists, and intravenous iron significantly improve recovery outcomes. **Conclusion:** MARS mapped longitudinal gestational anaemia, confirming a severe public health concern in Kota Kinabalu. Analysis showed that early booking, systematic ferritin monitoring, and targeted multidisciplinary interventions significantly improved clinical recovery.

Group C: Clinical Nutrition / Intervention Trials

P-1025 Carbohydrate quantity, not glycaemic index or fat quality, drives postprandial glycaemic and incretin responses in rice-based meals

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Introduction: Non-communicable diseases such as diabetes and cardiovascular disease are strongly influenced by dietary patterns that regulate metabolism. Current guidelines recommend increasing whole grains, fruits, vegetables, nuts, and seeds, while reducing saturated fat (SFA) in favour of polyunsaturated fat (PUFA). As individuals spend most of the day in a postprandial state, repeated elevations in glucose, lipids, and insulin may impose greater metabolic stress than fasting levels alone. Thus, understanding how macronutrient quality and distribution affect postprandial responses is critical, particularly for rice-based diets. **Objective:** The objective of this study was to conduct a series of human postprandial studies to evaluate a standard mixed meal with 18 permutations differing by CHO quality (GI), fat quality (P/S ratio = 2.17 vs 0.46) and CHO:fat ratios (50:40, 55:35, 60:30, 65:25 as % TEI), with postprandial metabolic responses and gastric emptying being evaluated as outcome parameters. **Methods:** Twelve healthy participants completed all meals in a crossover design. Test meals used high-GI white rice ($72.2 \pm 7.3\%$) and low-GI red wholegrain rice ($44.4 \pm 4.4\%$), prepared with vegetable oils to achieve the targeted P/S ratios. **Results:** Results showed that CHO quantity was the primary determinant of postprandial glycaemic and insulinemic responses, overriding GI and fat quality effects. Higher CHO meals significantly increased plasma glucose ($p = 0.006$), insulin ($p = 0.046$), and C-peptide ($P = 0.002$), without affecting gastric volume. Incretin hormones, GLP-1 ($P = 0.006$) and PYY ($p < 0.001$), were also driven by CHO quantity independent of GI and fat type. **Conclusion:** Macronutrient distribution, particularly CHO quantity, plays a dominant role in shaping postprandial metabolism, with important implications for dietary strategies targeting cardiometabolic risk.

P-1026 Associations of recreational physical activity and sedentary behaviour with colorectal cancer risk

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Introduction: Physical activity is a modifiable lifestyle factor that may influence colorectal cancer (CRC) risk. **Objective:** This study aimed to examine the association between physical activity levels, activity domains, sedentary behaviour, and CRC risk among Malaysian adults. **Methods:** A matched case-control study (140 histologically confirmed CRC cases: 280 controls) was conducted. Physical activity was assessed using a Global Physical Activity Questionnaire (GPAQ) and expressed as metabolic equivalent task (MET)-minutes per day. Logistic regression analyses were performed to estimate crude and adjusted odds ratios (ORs). **Results:** Total physical activity was lower among cases than controls (4305.8 ± 8559.7 vs. 4488.4 ± 7584.1 MET-min/day), although no significant association with CRC risk was observed. Cases reported significantly lower travel-related physical activity than controls (32.08 ± 49.69 vs. 49.27 ± 92.70 minutes/day). Recreational-related physical activity was significantly associated with CRC risk and remained protective after adjustment for confounding factors (OR = 0.47, 95% CI: 0.26--0.84). Conversely, vigorous physical activity was significantly more prevalent among cases and was associated with an increased risk of CRC (OR = 3.96, 95% CI: 2.15--7.29). Cases also spent significantly more time in sedentary activities than controls (423.79 ± 190.45 vs. 369.07 ± 184.53 minutes/day), with sedentary behaviour showing a weak positive association with CRC risk (OR = 1.001, 95% CI: 1.000--1.002). **Conclusion:** Public health strategies should prioritize increasing participation in recreational physical activities and reducing sedentary behaviour to support colorectal cancer prevention. Further prospective studies are warranted to clarify the observed association between vigorous physical activity and CRC risk.

U-2007 **Influence of knowledge, attitudes, and dietary habits on sustainable food consumption practices among university students in Malaysia**

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Introduction: Sustainable food consumption (SFC) is critical for environmental and public health, yet a persistent knowledge-behaviour gap remains among university students. The combined influence of knowledge, attitudes, and dietary habits on SFC among Malaysian university students remains under-researched. **Objective:** This study examined the influence of knowledge, attitudes, and dietary habits on SFC practices among Malaysian university students, guided by the Knowledge-Attitude-Practice (KAP) framework and Theory of Planned Behaviour (TPB). **Methods:** A cross-sectional quantitative design collected data from 155 undergraduates at Monash University Malaysia using an adapted Sustainable Diet Questionnaire (SDQ). Spearman's rank correlation examined relationships between knowledge, attitudes, dietary habits, and SFC practices. **Results:** Participants showed moderate SFC practices (mean $40.97 \pm 8.18/60$). Knowledge was high for common sustainability terms but lower for technical concepts, indicating surface-level understanding. Attitudes were driven more by health and convenience than environmental values. Dietary habits were largely unsustainable, with high processed and red meat intake and low plant-based protein consumption. Attitude showed the strongest correlation with SFC practices ($\rho = 0.633$, $p < 0.001$), followed by dietary habits ($\rho = 0.536$, $p < 0.001$); knowledge was non-significant ($\rho = 0.044$, $p = 0.586$). Significant differences were found by religion ($p = 0.04$) and residence type ($p = 0.002$). **Conclusion:** Attitude and dietary habits are more decisive determinants of SFC behaviour than knowledge alone. Promotion strategies should prioritise attitudinal commitment, address ingrained dietary habits, and tackle structural barriers such as cost and food availability, rather than solely increasing sustainability knowledge.

UX-2003 **Phytochemical consistency of a polyherbal beverage during scale-up and its exploratory effects on sleep quality**

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Introduction: Polyherbal formulations have gained attention for their potential effects on sleep quality; however, phytochemical consistency during scale-up remains challenging. **Objective:** This study aimed to investigate the effects of scale-up preparation on the phytochemical profile of a polyherbal beverage comprising *Camellia nitidissima* Chi leaves, mulberries, citron, *Ziziphus jujuba* seeds, longan flesh, monk fruit, and tangerine peel, and evaluate its effects on sleep quality among individuals with mild-to-moderate insomnia in the Klang Valley. **Methods:** The polyherbal formulation was developed by

Professor Deng Jiagang of Guangxi University of Chinese Medicine, China, based on the concept of medicine-food homology in traditional Chinese medicine. The beverage was prepared at volumes of 1, 2, and 3 L. **Results:** Total phenolic content (485.29 ± 12.73 mgGAE/L) and total flavonoid content (570.26 ± 23.83 mgQE/L) showed no significant differences across preparation scales ($p > 0.05$). LC-MS fingerprinting revealed a diverse phytochemical profile, including organic acids, phenolic acids, and flavonoids. Cross-sectional survey ($n = 414$) revealed that 45% of participants exhibited subthreshold insomnia, 19% and 2% exhibited moderate and severe insomnia, respectively. An exploratory crossover intervention ($n = 10$) was conducted using a placebo-controlled, repeated-measures design, with sleep parameters assessed using HUAWEI Band 10 smart wearable device. Significant positive correlations were observed between sleep score and deep sleep proportion ($\rho = 0.728$, $p < 0.001$). Although changes in sleep parameters were observed, no statistically significant differences were found between treatment and placebo ($p > 0.05$). **Conclusion:** These findings suggest that the efficacy of the polyherbal beverage remains inconclusive. Future studies with larger sample sizes and improved confounding control are warranted to evaluate its potential as a functional sleep-enhancing beverage.

X-2026 Does prenatal omega-3 supplementation enhance child intelligence? Evidence from an updated systematic review and meta-analysis

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Introduction: Maternal nutrition during pregnancy influences foetal brain development; long-chain omega-3 polyunsaturated fatty acids (LCPUFAs), particularly docosahexaenoic acid, support neural structure and function. However, evidence on their effects on early childhood intelligence remains inconsistent. **Objective:** This study aimed to evaluate the effect of prenatal omega-3 LCPUFA supplementation on intelligence-related outcomes in early childhood. **Methods:** A systematic review and meta-analysis of randomised controlled trials was conducted in accordance with PRISMA guidelines. PubMed, Scopus and the Cochrane Library were searched from inception to April 2026. Eligible studies involved healthy pregnant women receiving prenatal omega-3 LCPUFA supplementation and reporting intelligence-related outcomes in their children aged up to 8 years. Data were analysed using random-effects models. **Results:** Twenty-eight trials were included. Although several outcomes favoured omega-3 supplementation, these did not reach statistical significance, including the Willatts Problem-Solving Task (mean difference 0.59, 95% CI [-0.19, 1.38], $p = 0.14$), Peabody Picture Vocabulary Test (PPVT) (mean difference 2.61, 95% CI [-0.69, 5.91], $p = 0.12$), behavioural externalising scores (mean difference = 0.95, 95% CI [-1.08, 2.99], $p = 0.36$), and performance outcomes (SMD = 0.08, 95% CI [-0.03, 0.19], $p = 0.18$). Across domains including cognition, attention, language, motor skills, behaviour, vision, and overall neurodevelopment, findings were mixed but largely non-significant, with low heterogeneity ($I^2 \approx 0$ –30%) except for attention ($I^2 = 75\%$). **Conclusion:** Current evidence does not support prenatal omega-3 LCPUFA supplementation to improve child intelligence. Any benefits are small and context-dependent. Omega-3 intake should be promoted for maternal and perinatal health rather than cognitive enhancement.

X-2027 Evaluation of the Young Nutri Genius programme: A post-COVID virtual nutrition education and home-based exercise intervention among children with excess weight

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Introduction: During the post-COVID period, restricted access to schools limited the delivery of conventional face-to-face childhood obesity interventions. The Young Nutri Genius (YNG) programme was developed as a pragmatic virtual nutrition education and home-based exercise model for children with excess weight. **Objective:** This abstract reports selected proximal outcomes of the programme, focusing on nutrition knowledge and psychological health. **Methods:** A school-based cluster-randomised controlled trial was conducted among 90 children aged 10–11 years from six primary

schools in Jasin, Melaka. Schools were randomised to intervention ($n = 49$) or control ($n = 41$). The intervention group received a 12-week virtual nutrition education and home-based exercise programme, while the control group received standard online nutrition counselling. Nutrition knowledge and psychological health were assessed at baseline and post-intervention. Generalised estimating equations accounting for clustering and baseline imbalances were used to assess intervention effects. **Results:** Within the intervention group, nutrition knowledge ($p = 0.036$) and psychological health ($p = 0.015$) improved from baseline to post-intervention. However, adjusted between-group effects were not significant for either nutrition knowledge or psychological health, indicating no significant intervention effect compared with standard online nutrition counselling. **Conclusion:** The YNG programme, developed as a virtual intervention model under post-COVID school-access constraints, showed selected within-group improvements in nutrition knowledge and psychological health but did not demonstrate superiority over standard online nutrition counselling. Findings suggest that virtual childhood obesity interventions may require stronger engagement strategies, greater parental involvement, and more intensive implementation to achieve measurable effects.

X-2028 From diet to vision: red palm olein-enriched biscuit supplementation as a preventive approach to xerophthalmia

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Introduction: Vitamin A deficiency (VAD) is a major public health problem that can lead to xerophthalmia, a progressive eye disorder that may cause irreversible blindness if left untreated. **Objective:** The study aimed to assess the efficacy of red palm olein (RPO) in alleviating or preventing xerophthalmia among children with confirmed VAD (plasma retinol $< 0.70 \mu\text{mol/L}$) and marginal vitamin A status (plasma retinol 0.70 to $< 1.05 \mu\text{mol/L}$). **Methods:** This double-blinded, randomised controlled trial enrolled 504 schoolchildren (8-12 years) from ten rural Malaysian primary schools. The schools were randomly allocated to either experimental group ($n = 249$), receiving biscuits enriched with RPO, or control group ($n = 255$), receiving palm olein (PO)-enriched biscuits for six months, four days weekly. The effects of supplementation on xerophthalmia were evaluated using the chi-square test and mixed effects logistic regression model. **Results:** After six months of supplementation, the resolution of xerophthalmia was higher in the experimental group (31.2%) than in the control group (24.1%), although the difference did not reach statistical significance ($p = 0.11$). However, the experimental group demonstrated significantly higher rates of prevention of xerophthalmia (81.8%) or conjunctival xerosis (82.5%) compared with the control group (56.5% or 57.6%, respectively) ($p < 0.001$). Furthermore, the experimental group were 4.8 times less likely to develop xerophthalmia than the control group. **Conclusion:** Six months of supplementation with RPO-enriched biscuits showed potential in preventing xerophthalmia or conjunctival xerosis among vitamin A-deficient primary schoolchildren in rural Malaysia. These findings indicate that RPO may serve as a practical dietary strategy for prevention of xerophthalmia in populations at elevated risk of VAD.

X-2029 Oral nutritional supplementation with nutrition education improves growth, dietary intake and appetite among underweight preschool children in Kuala Lumpur, a multi-center community-based randomised controlled trial

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Introduction: Undernutrition among preschool children remains a public health concern and associated with increased risk of morbidity, impaired cognitive development, and long-term adverse health outcomes. Community-based randomised controlled trials evaluating oral nutritional supplementation (ONS) among underweight preschool children remain limited in Malaysia. **Objective:** This study evaluated the effectiveness of ONS plus nutrition education on growth, dietary intake, and appetite among underweight preschool children. **Methods:** A 90-day multi-centre community-based

randomised controlled trial was conducted among 96 underweight preschool children aged 4-6 years from 16 child centres in Kuala Lumpur. Children were randomised by study centre to receive either ONS plus nutrition education (ONS+NE) or nutrition education alone (NE). Anthropometry, 3-day dietary recalls, and appetite scores were assessed at baseline, day 60, and day 90. Energy requirements for catch-up growth were estimated using the adapted Peterson formula. Analysis of covariance adjusted for baseline values and sex was used to compare outcomes between groups. **Results:** Children receiving ONS+NE showed significantly greater improvements in weight-for-age z-scores at day 60 ($p = 0.024$) and day 90 ($p = 0.047$), with significantly higher catch-up growth at both time points (day 60: $p = 0.002$; day 90: $p < 0.001$). The ONS+NE group also had significantly higher energy, macronutrient, calcium, potassium, vitamin A, vitamin C, thiamin, riboflavin, and niacin intakes (all $p < 0.05$) as well as higher appetite scores at day 90 (4.19 ± 0.64 vs. 3.87 ± 0.57 , $p = 0.016$). **Conclusion:** ONS supplementation combined with nutrition education effectively improved growth, dietary intake, and appetite among underweight preschool children.

X-2030 Acute effect of eating different portion sizes of cucumber on perceived appetite, satiety and energy intake among healthy individuals

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Introduction: Increasing prevalence of obesity and non-communicable diseases warrant effective, sustainable, dietary strategies that support appetite regulation and reduce energy intake. **Objective:** This study aimed to examine the acute effects of consuming different portion sizes of cucumber prior to a main meal on perceived appetite, satiety, and subsequent energy intake. **Methods:** This crossover, repeated-measures experimental design study involved 28 healthy participants. They consumed small, medium or large cucumber portions on separate days, before an ad libitum mixed meal. Subjective appetite responses (hunger, fullness, satiety, desire to eat, and prospective food consumption) were assessed using Visual Analogue Scale (VAS) questionnaire. Energy intake was estimated based on the Malaysian Food Composition Database. Mean appetite ratings were compared by using non-parametric tests. Mean energy intakes were compared by using one-way repeated measures ANOVA. **Results:** This study found a significant effect of cucumber portion size on all subjective appetite measures ($p < 0.001$). Larger cucumber portions were associated with increased fullness and satiety as well as greater reductions in hunger, desire to eat, and prospective food consumption. Energy intake decreased with increasing cucumber portion size. **Conclusion:** Findings from this study provide support for the intake of vegetables, particularly cucumber, as a strategy for body weight management. Future studies should investigate the long-term effects of vegetable portion manipulation, substitution-based strategies, and the applicability of these findings to different populations and vegetable types.

X-2031 The effect of a soya based dietary fibre beverage on adiposity and systemic inflammatory markers among overweight adults: A randomised controlled study

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Introduction: The rising prevalence of overweight and obesity highlights the need for practical and sustainable dietary strategies for weight management. Although increased dietary fibre intake is associated with improved satiety and metabolic health, achieving recommended intakes through whole foods remains challenging. **Objective:** Therefore, this study evaluated the effect of a soya-based dietary fibre beverage (SBB) on body composition and metabolic parameters in overweight adults. **Methods:** A 12-week randomised controlled trial was conducted among overweight university students and staff. Participants were assigned to either an intervention group (IG; $n = 21$), who consumed SBB twice daily, or a control group (CG; $n = 21$), who maintained their habitual diet. Body composition and biochemical parameters were assessed pre- and post-intervention. **Results:** The IG showed reductions in body weight, central adiposity, and body fat percentage, while minimal changes were observed in the CG. No significant changes were detected in lipid profile, fasting glucose, C-reactive protein (CRP), or interleukin-6 (IL-6), indicating no adverse metabolic or inflammatory effects. Dietary assessment indicated increased fibre intake in the intervention group, supporting adherence to the supplementation

protocol. **Conclusion:** In conclusion, soya-based dietary fibre beverage supplementation improved body composition, particularly central adiposity, in overweight adults without affecting systemic metabolic or inflammatory markers over 12 weeks. These findings suggest that SBB may be a practical dietary approach for supporting weight management in free-living populations.

Group D: Nutrients & Other Components in Foods / Products

U-2008 Anti-diabetic enzyme inhibition potential and antioxidant activity of *Vanilla planifolia* extract

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Introduction: Diabetes mellitus is a global health concern characterized by chronic hyperglycaemia and long-term complications. Plant-derived bioactive compounds with antioxidant and glucose-regulating properties have attracted significant research interest as potential complementary strategies for glycaemic control. *Vanilla planifolia* contains phenolic compounds such as vanillin however, limited information is available on the antioxidant and carbohydrate-digesting enzyme inhibitory activities of its leaf and stem extracts. **Objective:** This study aims to evaluate the antioxidant and anti-diabetic enzyme inhibitory activity of *Vanilla planifolia* leaves and stem extracts. **Methods:** The leaves and stems were extracted with distilled water and 60% and 80% methanol. Total phenolic content (TPC) of leaf and stem extracts was determined using the Folin-Ciocalteu method, while the antioxidant activity was evaluated using FRAP and DPPH assays. The enzyme inhibition activities were assessed using α -amylase and α -glucosidase assays. All analyses were performed in triplicate. The data was analysed by One-way ANOVA, Tukey's post hoc test and Pearson's correlation ($p < 0.05$). **Results:** Results showed that 80% methanolic leaf extract (ML80) exhibited the highest TPC, antioxidant activity, and enzyme inhibitory effects, demonstrating significantly greater activity compared to other extracts ($p < 0.05$). Furthermore, strong correlations were observed between TPC and DPPH ($r = -0.900$), TPC and FRAP ($r = 0.878$), and enzyme inhibition ($r = 1.000$), suggesting phenolic compounds are a key mediator of the observed bioactivities. **Conclusion:** Overall, ML80 extract demonstrates potential as a natural source of bioactive compounds for functional food applications. However, further in vivo studies and isolation of individual compounds are necessary to validate its therapeutic efficacy.

U-2009 Effects of domestic cooking methods on proximate composition, antioxidant capacity, and enzyme-inhibitory properties of *Solanum nigrum* leaves

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Introduction: *Solanum nigrum* (SN) leaves are underutilised in Malaysia despite established functional properties, which are attributed to their phytochemical content. SN leaves require thorough cooking before consumption, yet cooking effects are underexplored. **Objective:** Therefore, this study aimed to compare the effects of different cooking methods on their proximate composition, antioxidant capacity, and enzyme-inhibitory properties. **Methods:** Fresh SN leaves were subjected to steaming, boiling, or stir-frying. Cooked samples were analysed for moisture, ash, crude fat, crude protein, and total carbohydrate content using standard Association of Official Analytical Chemists methods. Aqueous extracts were prepared and evaluated for antioxidant capacity using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) radical scavenging assays. Pancreatic lipase and α -glucosidase inhibition assays were conducted to assess enzyme-inhibitory activity. Data were analysed using analysis of variance followed by Tukey's post hoc test, with significance set at $p < 0.05$. **Results:** Cooking methods significantly influenced proximate composition, with steamed samples showing highest ash content, and stir-fried samples showing significantly higher crude fat content. Stir-fried extracts exhibited strongest DPPH scavenging activity, whereas steamed extracts showed strongest ABTS scavenging activity. For pancreatic lipase inhibition, boiled and steamed extracts showed comparable activity, while stir-fried extracts were significantly lower. α -Glucosidase inhibition did not differ significantly between cooking methods. **Conclusion:** No single cooking method was superior across all parameters, though steaming consistently maintained relatively favourable values across the measured outcomes. Nonetheless, cooked SN leaves generally exhibited promising nutritional and functional potential, supporting the promotion of SN as an affordable, locally available functional food.

U-2010 Determination of perfluorooctanesulfonic acid (PFOS) content in Char Kuey Teow sold at street stalls and health risk assessment

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Introduction: Per- and polyfluoroalkyl substances (PFAS) are persistent chemicals with known health risks. Char Kuey Teow, a popular Malaysian street food, may be exposed to PFAS through seafood, cooking equipment, and packaging, yet local data remain absent. **Objective:** This study aimed to identify the most suitable extraction method for PFAS in food matrices, detect perfluorooctanesulfonic acid (PFOS) in Char Kuey Teow with and without seafood, and assess health risks among street food consumers in Kuala Lumpur. **Methods:** This cross-sectional experiment study comprised three phases. Phase I involved a questionnaire ($n = 385$) to assess consumption patterns and exposure factors. Phase II involved collection of Char Kuey Teow samples with and without seafood from three stalls, packaged in plastic and stainless-steel containers, followed by extraction method optimisation using acetonitrile with 0.1% formic acid and LC-MS/MS analysis. Phase III involved health risk assessment via estimated daily intake (EDI), hazard quotient (HQ), and incremental lifetime cancer risk (ILCR). **Results:** PFOS was detected in seafood-containing samples, with higher intensity observed in plastic-packaged than stainless-steel containers. No PFOS was detected in samples without seafood or raw ingredients. HQ values for cockle-containing Char Kuey Teow reached a mean of 7.259 (range 0.045-74.381), exceeding the safety threshold ($HQ > 1$), whilst ILCR values remained within the acceptable range ($< 10^{-5}$). **Conclusion:** This study provides pioneering evidence that Malaysian street food may serve as a source of PFOS exposure, primarily through seafood bioaccumulation and plastic packaging migration, emphasising the need for monitoring, food safety guidelines, and risk mitigation strategies.

U-2011 Market characteristics of commercial ready-to-drink fruit and vegetable beverages and physicochemical analysis of selected products in Malaysia

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Introduction: Commercial ready-to-drink fruit- and vegetable-based beverages are widely consumed in Malaysia. However, systematic evidence on market characteristics and compositional differences across regulated juice-content categories remains limited. **Objective:** This study aimed to characterise the Malaysian market for commercial fruit- and vegetable-based beverages and to examine physicochemical differences among beverage categories with varying juice content. **Methods:** A cross-sectional market survey was conducted across 70 retail premises in Petaling District, Selangor. Information on product categories, country of origin, price, nutrition labelling, nutrition claims, and additives use was collected. Physicochemical analyses were performed on selected products to determine pH, total soluble solids (TSS), titratable acidity (TA), and TSS/TA ratio. Differences between beverage categories were assessed using one-way ANOVA. **Results:** A total of 556 products were identified, of which fruit-based beverages predominated (83.8%), while vegetable-based options were scarce. Beverages with higher juice content were associated with higher median prices, greater total sugar and energy content, and lower use of added sugars, preservatives, and colourings. Overall, 56.9% of products displayed at least one nutrition claim, predominantly nutrient or ingredient-based. Fourteen selected beverages exhibited acidic pH values (3.26-4.43), with TA of 0.16%-0.51%, and TSS between 5.00 and 12.50 °Brix. TSS/TA ratios (11.88-30.91) indicated varying degrees of sweetness. Significant differences ($p < 0.05$) in TSS and TA were observed between fruit juice and fruit drink categories. **Conclusion:** Fruit-based beverages, particularly juices, dominated the Malaysian market and exhibited higher acidity and soluble solids than fruit drinks, reflecting closer alignment with intrinsic fruit. Further nutrient profiling is recommended to strengthen category differentiation and inform consumer guidance.

U-2012 Sodium Labelling Compliance and Availability of Lower Sodium Flavouring Products in the Malaysian Retail Food Environment

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Introduction: Excessive sodium intake, particularly from flavourings and seasonings, contributes to hypertension and cardiovascular disease risk. However, limited evidence exists regarding sodium labelling transparency and the availability of lower sodium flavouring products in the Malaysian retail food environment. **Objective:** This study aimed to assess sodium labelling compliance and the availability of lower sodium flavouring products in major Malaysian supermarkets to inform national salt reduction strategies. **Methods:** A cross-sectional market survey was conducted involving product sampling from five major supermarket chains in urban Malaysia (NSK Grocer, Jaya Grocer, AEON, Giant and Lotus's). Flavouring products were identified and classified into product categories. Sodium declaration on nutrition information panels was assessed, alongside compliance with established low sodium criteria, where applicable. Descriptive analyses were performed. **Results:** A total of 204 flavouring products were collected and classified into five categories: salt ($n = 34$), spices ($n = 74$), herbs ($n = 14$), seasonings ($n = 35$) and condiments ($n = 46$). Most products (81.6%) did not provide sodium content information on product labels, indicating substantial gaps in sodium labelling transparency. Among products with assessable sodium information, only 24.3% met low sodium criteria, suggesting limited availability of lower sodium options in the retail market. **Conclusion:** Significant gaps in sodium labelling transparency and limited availability of lower sodium flavouring products may hinder informed consumer choice and sodium reduction efforts in Malaysia. Strengthened sodium labelling monitoring, product reformulation, and consumer education may support implementation of national salt reduction strategies.

U-2013 Determination of Sugar Content in Selected Flavoured Coffee Beverages and Health Risk Assessment Among Young Adults

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Introduction: Consumption of sugar-sweetened beverages (SSBs) is a major contributor to added sugar intake among young adults and is linked to increased risk of non-communicable diseases. SSBs are increasingly popular worldwide. However, their sugar content is often overlooked due to lack of labelling in coffee chain outlets. **Objective:** This study aimed to determine the sugar content of selected flavoured coffee beverages popular among young adults and to assess the associated health risks of frequent consumption through health risk assessment (HRA). **Methods:** Phase 1 involved needs assessment using an online questionnaire ($n = 428$) to identify most frequently consumed SSBs, preferred outlets, consumption patterns and purchase factors. Phase 2, sugar content of five selected SSBs (Spanish latte, caramel latte, buttercream latte, hazelnut latte, and caramel macchiato) was analysed using beverages purchased with standardised regular sugar and ice to reflect typical consumer orders. Sugar content was determined using refractometry (°Brix) and Anthrone method. Phase 3 involved HRA by calculating Estimated Daily Intake (EDI) and Hazard Quotient (HQ) to evaluate potential health risks associated with frequent SSB consumption. **Results:** Refractometry analysis showed Buttercream Latte had highest sugar content (75.68 g/serving) while Anthrone method identified Caramel Latte as highest (108.10 g/serving). Several beverages exceeded recommended daily sugar intake in a single serving. Majority respondents ($n = 302$) exhibited HQ values approaching 1.0, indicating exposure close to risk threshold (>1.0). This suggests a potential risk of adverse health effects associated with excessive intake. **Conclusion:** These findings highlight the need to improve consumer awareness and support sugar content labelling in coffee chain outlets.

U-2014 Determination of phytic acid and sodium content in different types of fermented soybean foods (tempeh, tauco and douchi)

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Introduction: Soybeans are relatively high in phytic acid (1.20 to 1.75 g/100 g). One of the effective ways to reduce is by fermentation. High phytic acid in fermented soybean foods, specifically tempeh, tauco and douchi act as an antinutrient that hinders absorption of iron and zinc, while excessive sodium intake is linked to hypertension and cardiovascular diseases. **Objective:** This study aimed to determine and compare phytic acid and sodium content in different types of fermented soybean foods including tempeh, tauco and douchi. **Methods:** Nine commercial samples, comprising three brands per each food type were collected via convenience sampling. Phytic acid content was determined using Wade reagent assay via UV-Vis spectrophotometry while sodium content was analysed using FAAS. Welch's ANOVA test revealed statistically significant differences ($p < 0.001$) for both phytic acid and sodium content among different fermented soybean food types. **Results:** Douchi had significantly lower phytic acid content ($554.05 \pm 90.26 \mu\text{g/g}$) than tempeh ($796.83 \pm 7.47 \mu\text{g/g}$) and tauco ($793.56 \pm 10.74 \mu\text{g/g}$). Despite these variations, phytic acid content in all samples remained within safe limits for mineral absorption according to standard serving size. Conversely, tempeh had significantly lower sodium content ($116.70 \pm 71.75 \text{ mg/100g}$) than tauco ($8214.00 \pm 3645.39 \text{ mg/100g}$) and douchi ($7192.44 \pm 4108.99 \text{ mg/100g}$) except douchi brand G. **Conclusion:** In conclusion, tempeh is suitable for daily consumption due to low sodium and safe phytic acid profile, whereas tauco and douchi consumption should be limited to less than 5 g per day due to high sodium to prevent hypertension and cardiovascular diseases risks.

U-2015 Antioxidant and anti-inflammatory activities in selected Malaysian herbs (*Selaginella doederleinii*, *Melastoma malabathricum* L., *Millettia atropurpurea*, *Quercus infectoria* & *Syzygium polyanthum*)

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Introduction: Herbs are part of human culture, valued not only as food ingredients but also for their medicinal properties. Cakar ayam (*Selaginella doederleinii*), senduduk (*Melastoma malabathricum* L.), jenerih (*Millettia atropurpurea*), manjakani (*Quercus infectoria*), and serai kayu (*Syzygium polyanthum*) have been reported to possess antioxidant and anti-inflammatory abilities. However, differences in geography, extraction solvents, and species may influence their bioactive composition. **Objective:** This study aimed to investigate the antioxidant and anti-inflammatory activities of selected Malaysian herbs. **Methods:** Herbal samples were extracted using 70% ethanol to maximise bioactive compound recovery. Antioxidant activity was assessed using DPPH radical scavenging and ferric reducing antioxidant power (FRAP) assays. Anti-inflammatory activity was determined via bovine serum albumin (BSA) protein denaturation and lipoxygenase inhibition assays. **Results:** Data were analysed using one-way ANOVA and Tukey post-hoc test. *Serai kayu* exhibited the highest DPPH activity ($114.7 \pm 14.9\%$, $p < 0.05$), followed by *senduduk* and *manjakani*, while *cakar ayam* and *jenerih* showed no activity. Similarly, FRAP values were highest for *serai kayu* ($990.1 \pm 28.2 \mu\text{mol AAE/mg}$, $p < 0.001$). In the BSA assay, *senduduk* showed the greatest inhibition ($80.9 \pm 1.6\%$, $p < 0.001$). *Jenerih* demonstrated the highest lipoxygenase inhibition ($73.7 \pm 9.9\%$), although not statistically significant ($p > 0.05$). No significant correlation was observed between antioxidant and anti-inflammatory activities. **Conclusion:** Despite limitations, these findings highlight the potential of selected Malaysian herbs as sources of antioxidant and anti-inflammatory agents.

U-2016 Comparison of vitamin C content in fresh and pickled fruits of *Psidium guajava* at different serving sizes: Food composition table calculation and analytical method determination

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Introduction: Pickled fruits are widely consumed in Malaysia, with guava (*Psidium guajava*) commonly used for its popularity and shelf life. Despite its high vitamin C content, comparisons between fresh and pickled forms are inconsistent. MyFCD reports nutrient values per household serving from multiple sources, with chemical analysis being most reliable. **Objective:** Therefore, this study aimed to compare the vitamin C content of fresh and pickled guava, and to compare the vitamin C content of fresh guava measured using analytical method determination and Food Composition Table calculation, across serving sizes. **Methods:** Four serving sizes (55g, 110g, 220g, and 330g) of both fresh and pickled guava were prepared and blended into guava pulp. Vitamin C content was determined using HPLC. **Results:** The findings revealed that fresh guava had significantly higher ($p < 0.001$) vitamin C content than pickled guava at every serving size, with differences increasing with serving size ($p < 0.001$). Vitamin C content obtained from FCT calculation was significantly higher ($p < 0.001$) than values measured analytically.

The increment in serving size resulted in a significant increase in vitamin C content measured analytically ($p < 0.001$). **Conclusion:** Fresh guava had higher vitamin C content than pickled guava. Differences between analytical and Food Composition Table values may be due to post-harvest losses, food processing effect, differences in fruit varieties and growing conditions, variations in sampling procedures and analytical methods, older FCD data and vitamin C loss during retail shelf-life that is not reflected in the FCD values.

U-2017 Determination of phytate, iron, zinc, calcium levels and their molar ratios in selected brown and refined rice flours in Malaysia

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Introduction: Phytic acid is a major antinutrient in rice flour that chelates minerals like iron, zinc, and calcium, reducing their bioavailability. **Objective:** This study compared PA, Fe, Zn, Ca levels and their molar ratios in brown and refined rice flours from different commercial brands and examined correlation between PA and predicted mineral bioavailability. **Methods:** Four brands of brown rice flour and five brands of refined rice flour commonly purchased in Malaysia were analysed. PA determined spectrophotometrically, while mineral contents measured using AAS. PA:Fe, PA:Zn, and PA:Ca molar ratios were calculated to predict mineral bioavailability. Significant differences between flour types and among brands were assessed using independent samples t-test and ANOVA, while Pearson's correlation examined correlations between PA and molar ratios. **Results:** Brown rice flour had lower PA ($829.07 \pm 21.54 \mu\text{g/g}$, $p = 0.701$) but higher Zn ($2.45 \pm 0.45 \text{ mg/100g}$, $p = 0.044$) due to bran retention, alongside a higher PA:Ca ratio (1.95 ± 0.13 , $p < 0.001$), indicating reduced calcium bioavailability. Refined rice flour showed higher Ca ($5.94 \pm 1.98 \text{ mg/100g}$, $p = 0.010$), likely from fortification. Brand B was the most nutritionally favourable brown rice flour, with the highest Zn ($2.77 \pm 0.22 \text{ mg/100g}$) and lowest PA:Zn (2.98 ± 0.26); while Brand F was the most recommended refined rice flour, with the highest Fe ($2.40 \pm 0.17 \text{ mg/100g}$) and Zn ($2.19 \pm 0.06 \text{ mg/100g}$) and lowest PA:Fe (2.96 ± 0.21). Strong negative correlations were observed between PA and PA:Ca in both brown ($r = -0.996$, $p = 0.004$) and refined ($r = -0.954$, $p = 0.012$) flours. **Conclusion:** Overall, these findings highlight the importance of considering both nutrient levels and antinutrient interactions when evaluating commercial rice flour products.

U-2018 Comparison of sodium values declared on nutrition labels and laboratory measurements in processed and ultra-processed foods

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Introduction: Malaysian adults consume an average of 2892 mg of sodium daily, exceeding the recommended $< 2000 \text{ mg/day}$. In response, Malaysia implemented mandatory sodium labelling in 2022; however, compliance with regulatory limits remains uncertain, as discrepancies between laboratory-analysed and label-declared sodium values have been reported internationally. **Objective:** Given the limited local evidence, this study examined sodium labelling compliance in selected processed and ultra-processed foods. **Methods:** A total of 52 products, with 8 products bearing the Healthier Choice Logo (HCL), including nuts, biscuits, and canned fish, were analysed. Sodium content was determined using Flame Atomic Absorption Spectroscopy following dry ashing and nitric acid digestion. Compliance was assessed using the $< 120\%$ regulatory tolerance criterion, primarily applied for enforcement purposes. **Results:** All HCL products met sodium criteria for HCL eligibility; however, only three products (37.5%) met the regulatory tolerance criterion for sodium labelling compliance: almond ($94.8 \text{ vs } 103.6 \text{ mg/100 g}$; label-declared vs laboratory-analysed sodium), raisin biscuit ($245.4 \text{ vs } 286.8 \text{ mg/100 g}$), and canned mackerel in tomato sauce ($337.0 \text{ vs } 365.6 \text{ mg/100 g}$). The remaining 62.5% had higher laboratory-analysed sodium than declared. Sodium content did not differ significantly across categories. HCL products generally had lower sodium content than non-HCL products across all categories, although differences were not statistically significant for sweet cookies and canned fish. As HCL certification is voluntary, non-HCL products were also assessed against HCL nutrient criteria; none met all criteria. **Conclusion:** These findings highlight the need for more rigorous regulatory enforcement and periodic laboratory verification to ensure sodium labelling compliance in Malaysia.

U-2019 The effect of fermentation time on antioxidant properties of tempeh with different type of beans

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Introduction: Tempeh is a traditional fermented legume product recognised for its nutritional value and antioxidant potential. Fermentation by *Rhizopus oligosporus* promotes the release and transformation of phenolics, flavonoids, and bioactive peptides associated with oxidative stress reduction. **Objective:** This study investigated the effect of fermentation duration (24, 48, and 72 h) on antioxidant content (total phenolic content, TPC; total flavonoid content, TFC) and antioxidant activity (DPPH radical scavenging and ferric reducing antioxidant power, FRAP) of tempeh produced from 100% soybean, 100% mung bean, and a 1:1 soybean-mung bean mixture. **Methods:** Tempeh samples were prepared by controlled solid-state fermentation, followed by freeze-drying, oven drying, ethanol extraction, and spectrophotometric analysis. Experiments were conducted in triplicate and analysed using two-way ANOVA ($p < 0.05$), with results expressed as mean $\pm$ SD. Significant differences ($p < 0.05$) were observed for both fermentation time and bean type on antioxidant contents and activities. **Results:** Soybean tempeh exhibited the highest antioxidant levels (TPC 0.25 ± 0.0015 mg GAE/g; TFC 177.73 ± 1.28 mg QE/g; DPPH 286.69 ± 4.51 μ mol TE/g; FRAP 3.79 ± 0.14 μ mol TE/g). Antioxidant properties peaked at 48 h and declined at 72 h, indicating a significant fermentation-time effect ($p < 0.05$). Correlation analysis revealed a strong positive relationship between TPC and DPPH activity ($r = 0.840, p < 0.001$) while TFC was positively correlated with FRAP activity ($r = 0.639, p < 0.001$). **Conclusion:** Overall, both bean type and fermentation duration significantly influence the antioxidant functionality of tempeh, suggesting that optimisation of fermentation conditions can enhance antioxidant development.

U-2020 Effect of baking and boiling on total iron content and iron bioaccessibility in iron-fortified and unfortified wheat flour

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Introduction: Iron deficiency anaemia (IDA) is a major public health concern caused by inadequate iron intake. In Malaysia, wheat flour fortification was mandated in 2023 to improve iron intake. Since wheat flour is commonly consumed after processing, it is important to investigate whether food processing affects the effectiveness of iron fortification. **Objective:** This research aimed to study the effects of baking and boiling on total iron content and iron bioaccessibility in bread and noodles made from iron-fortified and unfortified wheat flours. **Methods:** Iron content was determined using a rapid method based on iron complexation with bathophenanthroline disulfonic acid (BPDS) measured using a spectrophotometer. Differences in iron content before and after processing were analysed using paired sample t-tests. Iron bioaccessibility was assessed using a static in vitro digestion model based on INFOGEST protocol. **Results:** Baking significantly changed the measured iron content in bread ($p < 0.05$) for fortified and unfortified wheat flours, whereas boiling did not significantly change the iron content in noodles. Fortified flour and its products contained higher measurable iron levels than unfortified samples; however, the pattern of processing effects was similar between groups. Iron bioaccessibility could not be quantified due to a high iron level in digestion blank, resulting in negative blank-corrected values. **Conclusion:** Baking reduced measurable iron in bread, whereas boiling showed better iron retention in noodles, regardless of fortification status. Background iron interference limited the evaluation of iron bioaccessibility. These findings highlight methodological challenges in assessing iron bioaccessibility in fortified cereal-based foods and emphasise the need for improved analytical strategies in future research.

U-2021 Sugar composition and predicted in vitro glycaemic response of selected Malaysian street beverages in Putrajaya

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Introduction: Street beverages commonly sold at Malaysian night markets (*pasar malam*) are widely consumed due to their affordability and accessibility, with rising trends in street food consumption suggesting increasing intake. However, limited data exist on their sugar composition and potential glycaemic impact. **Objective:** Therefore, this study aimed to determine sugar composition, assess

predicted glycaemic response using an in vitro method, and evaluate its association with sugar composition in selected street beverages in Putrajaya. **Methods:** Three street beverages (*teh ais*, green tea, and *air jagung*) were purposively selected. Samples were obtained from two locations per beverage ($n = 6$), and composite samples were prepared by combining paired samples for each type ($n = 3$), yielding nine samples analysed. Sugar composition was determined using HPLC. Predicted glycaemic response was assessed using an in vitro digestion model adapted from Nawawi et al. (2020). **Results:** Sucrose was the predominant sugar in all samples. *Teh ais* recorded significantly higher total sugar and sucrose levels, with mean sucrose concentrations of 10.04 g/100 mL compared to 6.54 g/100 mL (green tea) and 5.48 g/100 mL (*air jagung*) ($p < 0.05$). Lactose was detected in all beverages, while maltose was present only in trace amounts in composite samples. Composite samples of *teh ais* and *air jagung* exhibited the highest dialysable glucose concentrations, significantly higher than green tea samples ($p < 0.05$). No significant correlation was observed between sugar composition and predicted glycaemic response. **Conclusion:** These findings highlight the complexity of glycaemic response and the need for further investigation into other factors contributing to predicted glycaemic response.

U-2022 **Comparison of free and bound phenolic acids content and antioxidant activity in young and matured coconut water**

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Introduction: Rising demand for coconut water (CW) has driven the development of hybrid varieties such as MATAG coconut water (MCW) to enhance yield and quality in Malaysia. CW is increasingly recognised as a functional beverage and phenolic compound, especially phenolic acids that contribute to antioxidant properties. Hence, the chemical composition and antioxidant potential of MCW may influenced by fruit maturity. **Objective:** To investigate free and bound phenolic acids and antioxidants in MC water. **Methods:** TPC was measured using the Folin-Ciocalteu method, while antioxidant capacity was assessed via DPPH and FRAP assays. Gallic and ferulic acids in Young MATAG Coconut (YMC) and Mature MATAG Coconut (MMC) were analysed by HPLC Diode-Array Detection, with data evaluated using one-way ANOVA and Tukey's post hoc test. **Results:** Free MMC water showed the highest TPC (86.56 mg GAE/100 mL FW), followed by free YMC (49.23 mg GAE/100 mL FW), bound YMC (5.02 mg GAE/100 mL FW), and bound MMC (4.56 mg GAE/100 mL FW), with significant differences between free and bound forms ($p < 0.001$). Extraction form significantly affected TPC and antioxidant activity at both maturity stages ($p < 0.001$). DPPH activity was slightly higher in bound YMC, while FRAP values were highest in free MMC. TPC showed a strong correlation with FRAP in both free YMC and MMC ($r = 1.000, p < 0.001; r = -1.000, p < 0.001$). Gallic acid and ferulic acid were not detected. **Conclusion:** MCW exhibited measurable phenolic content and antioxidant activity, with free and bound form having a greater influence than fruit maturity.

U-2023 **Biostability of total anthocyanin in red grapes juice (*Vitis Vinifera L.*) incorporated with green apple juice (*Malus Domestica*)**

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Introduction: Red grapes (*Vitis vinifera L.*) are rich in anthocyanin. It provides nutritional and medicinal benefits to humans and is preferred in food industries as natural colourants. However, the enhancement of biostability of anthocyanin via co-ingredient incorporation was underexplored. **Objective:** This study aims to investigate the physicochemical properties and anthocyanin stability of red grape juice blended with green apple (*Malus Domestica*) juice at 0%, 10%, 20%, and 30% substitution levels. **Methods:** Total anthocyanin content (TAC), pH, colour intensity (CI), browning index (BI), and degradation index (DI) were measured at 5°C and 25°C for 0 hour, 24 hours, 48 hours and 72 hours. Data were analysed using two-way ANOVA with Tukey post hoc test and Pearson correlation. **Results:** The results showed that with increasing green apple incorporation percentage, the TAC decreased from 157.47 mg/L (0%) to 90.1 mg/L (30%), while pH decreased from 3.97 (0%) to 3.90 (30%). However, CI, BI, and DI showed an increasing trend with higher green apple incorporation from 1.890 (0%) to 2.065 (30%), 1.444 (0%) to 1.595 (30%), and 73.32% (0%) to 88.93% (30%), respectively. **Conclusion:** Red grape juice containing 10% to 20% of green apple juice stored at 5°C showed the most stable degradation profiles. Therefore, it is recommended to incorporate green apple juice into red grape juice at 10% to 20% incorporation percentage, while maintaining shorter storage duration and low storage temperature to minimise anthocyanin degradation. From a commercial perspective, these findings support the development of beverages with natural ingredients and improved pigment retention.

U-2024 Physicochemical characteristics and sensory acceptance of a functional snack bar incorporated with dates

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Introduction: Functional foods such as snack bars are developed to improve nutritional quality and support healthier food choices due to their convenience and nutritional benefits. Use of natural ingredients such as dates may enhance the nutritional value of snack bars while maintaining acceptable physical and sensory characteristics. **Objective:** This study aimed to evaluate the nutrient content, physical characteristics, and sensory acceptance of a functional snack bar formulated with different levels of date paste. **Methods:** Dates in the form of paste was used as the manipulated variable, while quick oats, honey, cashew nuts, and chia seeds were used as the main ingredients. Four formulations were prepared: a control snack bar (0% date paste) and snack bars containing 20%, 30%, and 40% date paste. **Results:** Results showed that increasing the percentage of date paste significantly increased moisture and ash contents ($p < 0.05$), while crude fat, crude protein, and energy values decreased significantly. Physical analysis indicated that colour attributes were significantly influenced by date paste incorporation, producing darker and more reddish snack bars, whereas textural hardness did not differ significantly among formulations. Sensory evaluation showed significant differences in appearance, colour, and stickiness at higher date paste levels ($p < 0.05$). However, no significant differences were observed in aroma, hardness, chewiness, nuttiness, and overall acceptance among the snack bar formulations ($p > 0.05$). **Conclusion:** Date paste demonstrated potential as a functional ingredient in snack bar formulation. Moderate levels of date paste (20% to 30%) were found to provide an appropriate balance between improved nutritional quality and acceptable physical and sensory characteristics.

U-2025 Physicochemical characteristics and sensory acceptance of cookies incorporated with rolled oats

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Introduction: Oats (*Avena sativa* L.) are widely recognised as nutritious whole-grain ingredients rich in dietary fibre, particularly β -glucan, resistant starch and other bioactive compounds that contribute to health benefits. Rolled oats are commonly used in bakery products due to their functional and nutritional benefits. **Objective:** This study aimed to determine the effect of different levels of rolled oats incorporation on the proximate composition, physical properties and sensory acceptance of cookies. **Methods:** Cookies were formulated with 0%, 10%, 20% and 30% rolled oats incorporation. Proximate composition, including moisture, ash, crude fat, crude protein, crude fibre, carbohydrate and energy content, was determined using standard AOAC (2019) methods. Physical properties were evaluated through texture and colour analysis. Sensory acceptance was assessed using a 7-point hedonic scale involving untrained panellists aged 18-25 years. Data were analysed using one-way analysis of variance (ANOVA). **Results:** Significant differences ($p < 0.05$) were observed among cookie formulations for moisture, ash, crude fat, crude fibre, carbohydrate and energy content, while crude protein content showed no significant difference ($p > 0.05$). Cookies with 30% rolled oats showed the highest moisture, ash, fibre and overall acceptance, while higher oats incorporation improved nutritional quality, reduced energy value and produced darker cookies due to Maillard browning reactions. Sensory evaluation indicated that cookies containing moderate levels of rolled oats achieved higher overall acceptance scores. **Conclusion:** Incorporation of rolled oats into cookie formulations improved the nutritional profile, particularly dietary fibre content, while maintaining acceptable physical and sensory characteristics. These findings support the potential application of rolled oats in the development of functional bakery products.

U-2026 Physicochemical properties, antioxidant activity, and sensory acceptability of yoghurt incorporated with purple sweet potato

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Introduction: Sweet potato (SP) is a nutritious staple crop that is often underutilised despite its functional potential. Incorporating sweet potato flour (SPF) into yoghurt may enhance its nutritional and antioxidant properties while promoting local crop utilisation. **Objective:** This study aimed to determine the physicochemical properties, antioxidant activity, and sensory acceptance of yoghurt incorporated with different levels of SPF. **Methods:** A laboratory-based experimental design was conducted using yoghurt formulations containing 0%, 2.5%, 5.0%, and 7.5% purple SPF. Physicochemical analyses included proximate composition, colour, pH, viscosity, and total soluble solids (TSS), while antioxidant properties were assessed through total phenolic content (TPC), DPPH radical scavenging activity, and ferric reducing antioxidant power (FRAP). Sensory acceptance was assessed by 33 untrained panellists using a 7-point hedonic scale. **Results:** Increasing SPF levels significantly increased crude fibre, carbohydrate content, viscosity, TPC, DPPH, and FRAP values ($p < 0.05$), indicating improved functional and antioxidant properties. Concurrently, total energy, crude protein, fat, ash, and TSS decreased with higher SPF incorporation, reflecting formulation-dependent changes. Yoghurt became darker and redder due to anthocyanin pigments, contributing to desirable colour enhancement at 2.5% and 5.0% SPF levels. Sensory evaluation indicated that yoghurt supplemented with 2.5% SPF received the highest acceptance scores and was comparable to the control sample, whereas the addition of 7.5% SPF adversely affected texture, appearance, and flavour. **Conclusion:** Incorporation of SPF at up to 5.0% improved functional and antioxidant qualities of yoghurt without compromising consumer acceptability, with 2.5% SPF offering the optimal balance between functionality and sensory quality.

U-2027 Nutrient composition and glycaemic index of dark chocolate cookies prepared with barley flour

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Introduction: Commercial dark chocolate cookies are rich in fat, low in fibre, and energy-dense food, which may contribute to metabolic disorders. Barley flour (BF) is rich in soluble dietary fibre (-glucan) and may reduce the glycaemic index (GI) of foods. **Objective:** This study aimed to determine the nutritional composition, postprandial glycaemic response, and GI of dark chocolate cookies with barley flour (0%, 25%, 50%, 75%, 100%). **Methods:** Laboratory-based analyses conducted at Universiti Sultan Zainal Abidin (UniSZA). Proximate analysis was determined using AOAC (2016) methods. Postprandial glycaemic response and GI were determined following the standard GI protocol. Ten healthy participants aged 18-25 years completed six sessions in a randomised, crossover, single-blind design with a 3-day washout period. Blood glucose levels were measured at baseline and at 15, 30, 45, 60, 90, and 120 minutes after consumption. **Results:** Significant differences were observed in moisture, ash, crude fat, crude protein, and energy contents among the cookie formulations. Cookies with 100% BF showed the highest moisture, ash, crude fibre, and carbohydrate contents, but the lowest crude fat, crude protein, and energy contents. A significant effect of time on postprandial glucose response was observed. In contrast, GI values did not differ significantly. Despite this, control cookies showed the highest GI. Cookies with 100% BF showed the lowest GI. **Conclusion:** This study shows that incorporation of barley flour may improve the nutritional profile of dark chocolate cookies and may help reduce their glycaemic impact, supporting the development of functional, lower-GI baked products.

U-2028 Physicochemical and sensory acceptance of crackers incorporated with underutilised *Artocarpus integer* rags

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Introduction: Chempedak (*Artocarpus integer* L.) is widely consumed in Malaysia; however, the rag is commonly discarded as food waste despite its high dietary fibre content and nutritional potential. **Objective:** This study aimed to determine the physicochemical properties and sensory acceptance of crackers incorporated with chempedak rag powder. **Methods:** Crackers were formulated by partially replacing wheat flour with chempedak rag powder at 0%, 5%, 10%, and 15% substitution levels. Physicochemical analyses included proximate composition, texture profile, and colour measurement. Sensory evaluation was conducted using a 7-point hedonic scale involving 36 untrained panellists. Data were analysed using one-way analysis of variance. **Results:** The incorporation of chempedak rag powder significantly affected proximate composition and sensory attributes ($p < 0.05$), while no significant differences were observed in hardness and fracturability. Crackers containing 15% chempedak rag powder showed the highest ash, moisture, and crude fibre contents. Increasing substitution levels also

produced darker cracker colour characteristics. Sensory evaluation demonstrated significant improvements in aroma, taste, aftertaste, and overall acceptability, with the 15% formulation receiving the highest overall acceptance score. **Conclusion:** Chempedak rag powder can be incorporated up to 15% in cracker production without compromising texture quality while improving dietary fibre content and consumer acceptance. The utilisation of chempedak rag also promotes sustainable food production through agricultural waste reduction.

U-2029 Physical characteristics and sensory analysis of dark chocolate cookies prepared with barley flour

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Introduction: Cookies are popular snacks due to their convenience and consumer acceptance, making them suitable carriers for functional and nutrient-enriched ingredients. Barley flour, rich in dietary fibre and β -glucan, can enhance the nutritional value of cookies. This study evaluated the incorporation of barley flour into dark chocolate cookies to improve dietary fibre content and provide potential health benefits while maintaining product acceptability. **Objective:** To determine the physical characteristics and sensory analysis of dark chocolate cookies prepared with different percentages of barley flour. **Methods:** Cookies were prepared using different levels of barley flour substitution (0%, 25%, 50%, 75%, and 100%). Physical properties were analysed using texture analysis, colour measurement, and dimensional properties, including weight, diameter, thickness, and spread ratio. Sensory evaluation was conducted with 30 panellists using a 9-point hedonic scale to assess appearance, colour, aroma, texture, flavour, aftertaste, and overall acceptability. Data were analysed using one-way ANOVA. **Results:** The addition of barley flour affected both physical and sensory properties of the cookies. Sample C (50% barley flour) showed the most preferred physical characteristics. In sensory evaluation, the control cookies were most preferred, followed by 75%, 50%, 100%, and 25% barley flour formulations. Overall acceptability scores ranged from 7.47 to 7.87, indicating generally good acceptance for all samples. **Conclusion:** Physical and sensory evaluations of dark chocolate cookies with different levels of barley flour were conducted. No significant differences were found in physical or sensory properties among formulations, suggesting that barley flour can be incorporated into dark chocolate cookies without significantly affecting overall acceptability.

U2030 Physicochemical properties, sensory acceptance, and glycaemic index of energy bars incorporated with sweet potato flour (Ipomoea batatas)

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Introduction: Ipomoea batatas (purple sweet potato) are rich in carbohydrates and anthocyanins, which may provide health benefits and improve the nutritional quality of food products. **Objective:** This study aimed to evaluate the effects of purple sweet potato flour incorporation on the physicochemical properties, sensory acceptability, and glycaemic index (GI) of energy bars. **Methods:** Energy bars containing different levels of purple sweet potato flour were prepared. Proximate composition was analysed using AOAC (2016) methods. Texture and colour were measured using a TA-XT2 Texture Analyser and the CIELAB colour system, respectively. Sensory evaluation was conducted by 30 untrained panellists using a 7-point hedonic scale. The GI was determined in 10 healthy adults aged 18-25 years using the incremental area under the curve (iAUC) method with white bread as the reference food. **Results:** Significant differences ($p < 0.05$) were found in crude fibre, protein, carbohydrate, energy value, hardness, and colour parameters among formulations. Moisture, ash, and fat contents were not significantly different ($p > 0.05$). The 15% formulation showed the highest crude fibre, protein, fat, and hardness values, while the control had the highest carbohydrate and energy contents. Sensory evaluation indicated significant differences ($p < 0.05$) in appearance, taste, aftertaste, and overall acceptability, but not in texture and aroma. The 5% formulation was classified as a medium-GI food, whereas the control, 10%, and 15% formulations were categorized as low-GI foods. **Conclusion:** Purple sweet potato flour improved the nutritional quality and acceptability of energy bars while maintaining favourable glycaemic responses, indicating its potential as a functional food ingredient.

U-2031 Functional properties, sensory evaluations, and consumer acceptance of protein powder extracted from melon manis Terengganu peel, seed and flesh

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Introduction: Melon Manis Terengganu (*Cucumis melo* L. var. *inodorus* cv. Manis Terengganu), which is grown in Malaysia, has the potential to become a sustainable plant-based protein source. **Objective:** The purpose of this study was to determine the extraction yield, protein content, functional properties, sensory attributes and consumer acceptance of protein powder extracted from MMT peel, seed and flesh. **Methods:** Proteins were extracted by acid-alkali precipitation method. The functional properties such as solubility, emulsifying capacity, foaming capacity and water and oil binding capacity were analysed in duplicate. MMT peel protein powder was used in beverage formulations at concentrations of 0.5%, 1.0%, and 1.50%. Sensory evaluation and consumer acceptance were conducted on 43 untrained panellists of UniSZA students by using 7-point hedonic scales. **Results:** The results showed that an MMT seed protein powder had the highest extraction yield (53.61%) and protein content (19.35 (0.75) %). MMT peel protein showed good functional properties with the highest water binding capacity 6.63 (0.01) mL/g, oil binding capacity 4.42 (0.1) mL/g, emulsifying capacity (172.00 (7.78) mL/g) and foaming capacity (205.00%). Sensory analysis showed that increasing the MMT protein concentration significantly decreased colour ($p = 0.001$), taste ($p = 0.038$) and texture ($p = 0.007$) scores but did not significantly affect aroma ($p = 0.072$). Results from consumer acceptance showed that beverages with 0.5% MMT protein were more acceptable than higher concentrations. **Conclusion:** In conclusion, the results indicated that MMT seed protein powder had acceptable functional properties as well as protein content, which could be a potential alternative plant-based protein ingredient.

U-2032 Functional properties, sensory evaluation and consumer acceptance of protein extracted from Immature Melon Manis Terengganu

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Introduction: Immature Melon Manis Terengganu (MMT) is suitable for flour production due to its stable physical and chemical properties. However, it is often discarded causing economic losses. **Objective:** To determine the extraction yield, protein content and functional properties of proteins extracted from immature MMT seed, peel, and flesh; to assess sensory evaluation and consumer acceptance of protein drinks formulated with immature MMT protein powder. **Methods:** Immature MMT fruits were separated into seed, peel, and flesh, and proteins were extracted using an acid-alkali extraction method. The extracts were frozen at -80°C for 24 h, freeze-dried using a CryoDry® freeze dryer under controlled chamber conditions of 150 and 75 mTorr with a condenser temperature of -25°C , and stored at 4°C until analysis. Protein drinks containing 0%, 0.5%, and 1.0% immature MMT protein powder, along with 1.0% pea protein powder, were prepared and evaluated by 40 panellists using a 7-point hedonic scale for colour, aroma, taste, and texture. **Results:** Protein extracted from immature MMT seeds showed the highest extraction yield and protein content. Peel protein demonstrated higher solubility at pH 5, higher emulsifying capacity, and greater water and oil-binding capacities. Flesh protein exhibited higher solubility at pH 9 and better foaming stability. Sensory evaluation indicated that the 0% IMMT drink scored highest for taste and texture, whereas the 0.5% IMMT drink scored higher for colour and aroma. **Conclusion:** Protein extracted from immature MMT peel showed superior overall functional properties compared to the seed and flesh. Furthermore, the 0% IMMT protein drink was the most preferred by consumers.

U-2033 Physicochemical properties and antioxidant capacity of energy gels developed from overripe mango (*Mangifera indica* L.) and guar gum

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Introduction: Energy gels are used by athletes as carbohydrate source during prolonged physical activity. However, most commercial gels contain artificial ingredients and limited benefits. Overripe mango (*Mangifera indica* L.) is rich in sugars, dietary fibre, phenolic compounds, and antioxidants, thus a suitable ingredient for energy gel development. Guar gum acts as a hydrocolloid that improves viscosity, texture, stability, and mouthfeel. Utilising overripe mangoes in energy gels may reduce food

waste and promote sustainable food innovation. **Objective:** This study aimed to develop energy gels from overripe mango and guar gum and evaluate proximate composition, physicochemical properties, antioxidant capacity, sensory characteristics, and acceptability in athletes. **Methods:** Three energy gel formulations, i.e., 7%, 12%, and 16% (% w/v mango pulp) were prepared with standardised 1.2g guar gum concentration. Proximate and physicochemical analyses were conducted using AOAC methods, while antioxidant capacity was assessed using TPC, FRAP, and DPPH assays. Sensory evaluation was completed by 33 athletes using a 7-point hedonic scale. Data were analysed using one-way ANOVA (IBM SPSS Statistics, Version 25). **Results:** Significant differences ($p < 0.05$) were observed in viscosity, colour, soluble solids, titratable acidity, antioxidant capacity, and sensory acceptance between formulations. Higher mango content concentrations increased TPC, FRAP, and DPPH values. Proximate composition and pH were similar between samples. Energy gel with 16% mango showed the highest antioxidant activity and sensory scores. **Conclusion:** Energy gels from overripe mango and guar gum exhibited favourable nutritional, physicochemical, antioxidant and sensory properties. The study demonstrates the potential of overripe mango utilisation in developing value-added food products and reducing food waste.

U-2034 Winged bean (*Psophocarpus tetragonolobus*): Functional characterization and potential contribution to sustainable plant-based protein systems

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Introduction: Winged bean (*Psophocarpus tetragonolobus*) is an underutilised tropical legume with strong potential as a sustainable plant-based protein source due to its nutritional value, adaptability to tropical climates, and low agricultural input requirements. Despite increasing interest in alternative proteins, limited research has evaluated the functional characteristics of winged bean protein-enriched fractions and extracted protein ingredients relevant to food applications. **Objective:** This study aimed to determine the protein content and selected functional properties of winged bean protein-enriched fractions obtained from two accessions, contributing to the understanding of their suitability for plant-based food development. **Methods:** Protein-enriched fractions were produced using alkaline solubilisation followed by isoelectric precipitation and freeze-drying. Extraction yield was recorded, while protein content was determined using the Kjeldahl method. Functional properties were evaluated through water absorption capacity (WAC) and oil absorption capacity (OAC) analyses. All experiments were conducted in triplicate. **Results:** Extraction yield was 9.75% for Type 1 and 9.50% for Type 2 samples. Protein content was $20.72 \pm 6.13\%$ for Type 1 and $19.55 \pm 5.93\%$ for Type 2. Functional analysis showed WAC values of 0.62 ± 0.06 g/g and 0.65 ± 0.05 g/g for Type 1 and Type 2, respectively, while OAC values were 0.69 ± 0.10 g/g and 0.82 ± 0.23 g/g. No statistically significant differences were observed between accessions. **Conclusion:** Winged bean protein-enriched fractions demonstrated measurable functional properties and moderate protein content, supporting their potential as functional plant-based ingredients for future food applications.

U-2040 Physicochemical and sensory acceptance of crackers incorporated with underutilised jackfruit rags

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Introduction: Jackfruit rags are commonly discarded during jackfruit processing despite their potential as a fibre-rich ingredient. Incorporating jackfruit rags into crackers may improve nutritional value while supporting waste reduction. This study aimed to determine the physicochemical properties and sensory acceptance of crackers incorporated with different percentages of jackfruit rags powder. **Objective:** To determine the physicochemical properties and sensorial acceptance of crackers incorporated with different percentages of jackfruit rags powder. **Methods:** Crackers were formulated with 0% jackfruit rag powder as the control, and 5%, 10%, and 15% jackfruit rags powder. Physicochemical analyses included proximate composition, texture properties, and colour attributes. Sensory evaluation was conducted among 30 untrained panellists using a 7-point hedonic scale. Data were analysed using one-way analysis of variance. **Results:** Increasing jackfruit rag incorporation significantly affected all physicochemical parameters. Ash, moisture, crude fibre, and carbohydrate contents increased, while crude fat, crude protein, and energy content decreased. The 15% jackfruit rags cracker showed the highest crude fibre content and the lowest energy content. The texture analysis showed that hardness decreased from the control formulation to the 15% formulation. However, sensory evaluation showed that the control cracker had the highest overall acceptability score, followed by 5%, 10%, and 15%

jackfruit rags cracker. Appearance and colour decreased significantly with higher jackfruit rags percentages, while aroma, texture, taste, crispiness, and overall acceptability were not significantly different. **Conclusion:** Although the 15% formulation showed the best nutritional profile, the 5% formulation achieved better consumer acceptance. Therefore, 5% jackfruit rag formulation may provide a better balance between nutritional quality and acceptability.

UX-2004 Effects of different extraction methods on colour stability, phytochemical content, and antihyperglycaemic potential of *Pandanus amaryllifolius* extract

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Introduction: *Pandanus amaryllifolius* is widely used as a natural colouring agent and may have antihyperglycaemic activity. However, the colour stability and functional properties of pandan extract may vary depending on the extraction method used. **Objective:** This study aimed to determine the effects of different extraction methods on the colour stability, phytochemical content, and antihyperglycaemic potential of pandan extract. **Methods:** The pandan leaves extract which were extracted using maceration, infusion, and ultrasound-assisted extraction (UAE) were analysed for extraction yield, colour intensity, colour stability, phytochemical content and α -amylase inhibitory activity. **Results:** Maceration gave a bright, light green and yellowish extract, infusion produced a lighter and more yellowish extract, while UAE produced a darker and greener extract. In terms of colour stability, infusion retained colour more effectively under heat treatment, acidic and weakly acidic pH, and low-temperature storage at 4°C. UAE gave the highest TPC (19.63 ± 0.13 mg GAE/g DW) and TFC (8.79 ± 0.08 mg QE/g DW). UAE also showed the strongest α -amylase inhibitory activity ($IC_{50} = 2.82 \pm 0.08$ mg/mL), followed by maceration and infusion. Different extraction methods were shown to significantly ($p < 0.001$) affect the colour stability, phytochemical content, and antihyperglycaemic potential of pandan extract. Significant Spearman correlation ($p < 0.001$) was shown between phytochemical content and antihyperglycaemic activity of pandan extract. **Conclusion:** Infusion was the most suitable extraction method for colour retention, although its suitability depends on the intended use of the extract, while UAE was the most suitable method for producing pandan extract with high phytochemical content and strong antihyperglycaemic potential.

X-2033 Exploring commercially available dietary supplements with cognitive-enhancing claims in Kuala Lumpur and online platforms

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Introduction: Cognitive impairment and dementia are significant health challenges, with Malaysia reporting a prevalence of 14.3%. The increasing demand for cognitive enhancers across all ages has driven supplement sales, yet scientific support for these claims remains unclear. **Objective:** This study explored and analysed commercially available dietary supplements with cognitive-enhancing claims in Kuala Lumpur and on online platforms. **Methods:** A mixed-methods cross-sectional study was conducted. Quantitative methods were used to determine the packaging information and active ingredients of supplements available in physical stores ($n = 13$) and online platforms ($n = 117$). A qualitative approach identified scientific evidence supporting the cognitive-enhancing claims of these products. **Results:** Capsules were the most common dosage form (offline: 46.2%; online: 79.5%). Dominant countries of origin were Singapore (69.2%) for physical stores and the USA (74.4%) for online platforms. Median prices were similar (Physical: RM190; Online: RM196), though online prices showed a wider range (RM14-1147). Natural extracts were the most frequent active ingredients (51.8%). The most common claims were "brain health" (53.8%) in physical stores and "memory" (54.7%) online. However, scientific evidence supporting these claims was inconsistent regarding dosage, long-term safety, and underlying mechanisms. **Conclusion:** Regulatory enforcement and transparency in labelling are essential to protect public health and ensure product credibility. Further studies focusing on dosage and long-term safety data are required.

Group E: Experimental Nutrition (Animal and In-vitro Studies)

U-2035 A comparative analysis of proximate composition, antioxidant activity, and enzyme-inhibitory properties in peeled and unpeeled *Curcuma caesia*

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Introduction: *Curcuma caesia* is an underutilised medicinal rhizome recognised for its bioactive compounds, potential antioxidant and metabolic health benefits. However, limited studies have investigated the effects of processing, particularly peeling, on its nutritional and biofunctional properties. This study aimed to compare the proximate composition, antioxidant capacity, and enzyme-inhibitory activities of peeled and unpeeled *C.caesia*. **Objective:** To compare proximate composition, antioxidant activities, and enzyme inhibitory properties of peeled and unpeeled *C.caesia*. **Methods:** Fresh *C.caesia* rhizomes were divided into peeled and unpeeled groups, oven-dried, powdered, and extracted using 80% ethanol. Proximate composition was determined using standard AOAC methods. Antioxidant activities were evaluated via 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) assays, while pancreatic lipase and-glucosidase inhibition assays were used to evaluate enzyme inhibitory activities. Statistical analyses were performed using an independent t-test and analysis of variance at $p < 0.05$. **Results:** Peeled *C. caesia* exhibited significantly higher ($p < 0.05$) values for ash, crude fat, and crude protein, whereas total carbohydrate was significantly higher in unpeeled samples. Moisture content showed no significant variation ($p > 0.05$). Peeled extracts demonstrated significantly greater antioxidant and pancreatic lipase inhibitory activities with lower IC50 values for DPPH (1146.68 $\mu\text{g/mL}$) and ABTS (1225.22 $\mu\text{g/mL}$) compared to unpeeled extracts (1592.69 and 1725.44 $\mu\text{g/mL}$, respectively). In contrast, α -glucosidase inhibitory activity showed no significant difference ($p > 0.05$) between samples. **Conclusion:** Peeling may influence the extraction efficiency and recovery of bioactive compounds by altering plant tissue structure and solvent accessibility. These findings highlight the importance of processing methods in determining the functional properties of *Curcuma caesia*.

U-2036 Phytochemical and in-vitro bioactivity analyses of germinated brown rice from Sabah: potential relevance to metabolic syndrome management

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Introduction: Rising prevalence of metabolic syndrome (MetS) in Malaysia has sparked a growing interest in consuming brown rice. Germination is known to enhance the nutritional and functional properties of brown rice; however, there is limited research carried out on brown rice from Sabah varieties. **Objective:** The objective of this study is to investigate the implications of germination of brown rice on the phytochemical composition, antioxidant capacity, and metabolism-related enzyme inhibitory activities. **Methods:** Brown rice was soaked overnight to germinate. Germinated brown rice (GBR) and ungerminated brown rice (UGBR) were extracted using 80% ethanol. Analysis on the total phenolic content (TPC), total flavonoid content (TFC), antioxidant activity, inhibition of α -amylase and HMG-CoA were carried out. **Results:** The germination had increased extraction yield, TPC, TFC, antioxidant activity and α -amylase inhibition. However, the changes are not statistically significant ($p > 0.05$) This suggests modest enhancement following germination due to release of bioactive compounds. In contrast, the HMG-CoA reductase inhibition was significantly enhanced in GBR ($43.07 \pm 13.02\%$) in comparison to UGBR ($18.28 \pm 7.86\%$, $p < 0.05$), indicating improved potential for modulating cholesterol biosynthesis. **Conclusion:** Germination process enhances selected bioactivities of brown rice from Sabah, particularly HMG-CoA reductase inhibition, highlighting its potential as a functional food ingredient to regulate cholesterol synthesis in the human body. The findings suggested the need for further research on the optimization of germination, as well as mechanistic and in vivo studies to further substantiate the functional role of GBR in the management of MetS.

U-2037 Anthocyanin-rich bigel beads from black rice for sustained release under ageing-mimicking gastrointestinal conditions

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Introduction: Anthocyanins (ACNs) are bioactive polyphenols with strong antioxidant and anti-inflammatory properties; however, their application in functional food is restricted by poor gastrointestinal stability and low bioavailability, especially in ageing-related gastrointestinal conditions, which may accelerate ACNs degradation following premature release; therefore, delivery systems capable of regulating ACNs release during digestion are needed. **Objective:** This study aims to evaluate the stability, sustained release, and solubilisation of ACNs encapsulated in bigel beads from black rice under simulated gastrointestinal conditions mimicking ageing. **Methods:** Encapsulation performance and gastrointestinal release behaviour of ACNs extracted from Sabah Tadong Black Rice were evaluated using three bead formulations: hydrogel beads (HB), bigel beads (BB), and guar gum-incorporated bigel beads (GBB) under simulated ageing-mimicking gastrointestinal conditions. **Results:** Total monomeric ACNs content across bead formulations ranged from 0.012 to 0.019 mg C3GE/g ($p > 0.05$), indicating comparable loading capacity. GBB exhibited significantly lower ACNs diffusion into the crosslinking medium compared to HB and BB ($p < 0.05$), suggesting reduced leakage during gelation due to increased viscosity and improved polymer network formation. Following ageing-simulated digestion, GBB demonstrated the highest ACNs solubilisation in the digesta (21.41 ± 1.11 mg C3GE/g), significantly higher than HB and BB ($p < 0.05$). Additionally, ACNs recovered in the digesta exceeded the initially quantified bead content, indicating enhanced solubilisation and extractability under gastrointestinal conditions. **Conclusion:** GBB showed superior performance in reducing ACNs leakage during encapsulation and enhancing their release during digestion suggesting strong potential as an age-adapted delivery system to improve the gastrointestinal performance of ACNs in functional food and nutraceutical applications.

X-2032 Sialylated-mucin glycoprotein from edible bird's nest extracts protect hypercholesterolemic rabbits against vascular oxidative stress and inflammation by alteration the NOS3/NF- κ B signaling pathway

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Introduction: Vascular oxidative stress and inflammation are significant early steps in the aetiology of atherosclerosis. Previous publications showed the preventive effects of edible bird's nest (EBN) on cardiovascular disease (CVD), but studies on vascular oxidative stress and inflammation related to atherosclerosis remain limited. **Objective:** This study aimed to investigate the effects of EBN on vascular oxidative stress and inflammation, and to elucidate the underlying molecular mechanisms by identifying relevant genes and biomarkers in vivo. **Methods:** Male New Zealand white rabbits were fed either a high-fat high-cholesterol (HFC) diet or an HFC diet supplemented with EBN (500 mg/kg b.w/day) for 12 weeks. For comparison, a group receiving the HFC diet was supplemented with simvastatin (10 mg/kg b.w/day) as a standard treatment for hypercholesterolemia. **Results:** EBN supplementation significantly improved liver and kidney function profiles, potentiated systemic antioxidant defence, and alleviated systemic oxidative stress and inflammation in hypercholesterolemic rabbits. Gene expression analysis showed that EBN upregulated antioxidant genes (SOD3, GPX1, GSR, and NOS3) in liver and aorta tissues. Additionally, EBN modulated vascular inflammatory responses by suppressing genes related to endothelial activation (SELP and VCAM-1), inflammatory chemokines/cytokines (MCP-1, TNF- α , IL-6, and IL-1 β), and vascular smooth muscle cell (VSMC) migration (MMP-2) via inhibition of NF- κ B1 signalling. Transcriptional analyses demonstrated that modulation of NOS3/NF- κ B signalling by EBN could attenuate vascular inflammation in the atherosclerosis model. **Conclusion:** EBN supplementation may provide atheroprotective and hepatoprotective effects by alleviating inflammatory responses through enhancement of systemic antioxidant defence.

Group F: Food Science & Technology

P-1030 Sensory profiling and characterization of a sugar-minimized functional food bar incorporating underutilised borneo fruit

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Introduction: Dabai is an underutilized, nutrient-dense fruit that can be incorporated into portable functional food bars. However, conventional food bar formulations often rely on energy-dense binders, particularly sugar, highlighting the need for sugar-reduced alternatives. **Objective:** This study assessed the sensory profile and acceptability of a sugar-minimised dabai food bar compared to a higher-sugar reference. **Methods:** Twenty-five semi-trained panellists participated in a Flash Profile (FP) analysis, generating free-choice sensory descriptors and rating their intensity using a 9-point scale (1 = weak, 9 = very strong). A 9-point hedonic test was conducted to evaluate appearance, aroma, taste, texture, and overall acceptability. **Results:** The sugar-minimised formulation exhibited significantly higher intensities of ashy aroma (7.50 ± 0.71 vs 1.00 ± 0.00), astringency (6.33 ± 0.58 vs 1.33 ± 0.58), sandiness (7.00 ± 0.00 vs 1.33 ± 0.58), dryness (6.81 ± 1.83 vs 2.48 ± 1.60), and crumbliness (6.90 ± 1.91 vs 3.10 ± 2.23), alongside reduced sweetness (2.95 ± 2.11 vs 7.00 ± 1.12) and firmness (3.71 ± 2.52 vs 5.76 ± 1.92) ($p < 0.05$). Hedonic scores indicated moderate acceptability, with mean ratings for appearance (7.2 ± 1.33), aroma (7.2 ± 1.73), taste (4.7 ± 2.17), hardness (5.8 ± 2.26), cohesiveness (5.5 ± 2.54), moisture (5.0 ± 2.34), and overall liking (5.2 ± 2.21). **Conclusion:** Although sugar reduction altered key sensory attributes, the formulation demonstrated moderate acceptability and potential as a functional snack. Its reduced sweetness may help promote preference for less sugary foods, while its softer texture may benefit individuals requiring reduced masticatory effort.

P-1031 Understanding food safety practices among home-based food handlers

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Introduction: The rise of home-based food businesses brings in new opportunities for micro-entrepreneurs along with the increasing number of untrained home-based food handlers. As such, their under-regulated nature makes food safety compliance essential for protecting public health and consumer trust. However, the behavioural drivers of home-based food handlers to follow food safety remains understudied. **Objective:** This quantitative study utilises the Health Belief Model to determine the factors influencing adherence to food safety practices. **Methods:** Researchers from UCSI conducted a cross-sectional study among 359 home-based food handlers within the Klang Valley, Malaysia. Data is collected through distribution of online questionnaires and are analysed using SPSS v16. **Results:** Using multiple linear regression, the study reveals that perceived barriers ($p < 0.001$, $\beta = 0.087$); perceived benefits ($p < 0.001$, $\beta = 0.253$); perceived severity ($p < 0.001$, $\beta = 0.134$) and self-efficacy ($p < 0.001$, $\beta = 0.213$) significantly predicts behaviour intention to follow food safety practices, with motivation ($p < 0.001$, $\beta = 0.407$) being the strongest predictor. These findings suggest that motivational drivers such as protecting consumer health and sustaining the business are more likely to influence home-based food handlers to follow food safety practices. This underscores the need for theory-driven interventions to enhance food safety compliance in home-based settings. Policymakers should initiate incentive-based programmes that may strengthen perceived benefits and motivation to adopt safe food handling practices. **Conclusion:** By highlighting key factors influencing food safety practices, this study guides the development of interventions to support safe and sustainable micro-scale food enterprises within the hospitality sector and contributes to public health and economic goals aligned with SDG 3 and 8.

U-2038 The development of plant-based nugget, nutrient determination and consumer acceptance

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Introduction: Increased consumption of ultra-processed foods, particularly commercial nuggets that are high in fat, sodium, and additives, are associated with increased risk of non-communicable diseases. Concurrently, fruit and vegetable intake in Malaysia remains below recommended levels, highlighting the need for healthier and more accessible food alternatives. **Objective:** This study aimed to develop a plant-based nugget using locally sourced ingredients and evaluate its nutritional composition and consumer acceptance. **Methods:** An iterative research and development approach was employed to optimise a plant-based nugget formulation. Unripe jackfruit (*Artocarpus heterophyllus*) and mushrooms were used as primary ingredients. From the initial development phase, formulations F3 and F4 were selected for consumer acceptability evaluation among 99 respondents using a 7-point hedonic scale. Based on the results, F4 was further refined, resulting in 14 formulations, with formulation F14 identified as the optimised formulation and subjected to proximate, mineral, and heavy metal analyses. **Results:** Mean sensory scores for both formulation 3 and formulation 4 are above 4.00 across all attributes, indicating moderate to good acceptance. However, formulation 4 consistently achieved slightly higher scores (overall acceptance: 5.21 ± 1.33). Proximate analysis showed that, per 100 g, the product contained 17.8 g carbohydrate, 5.4 g protein, 4.3 g fat, and 8.9 g crude fibre, with an energy content of 149 kcal. Potassium content was 727.7 mg/100 g, and heavy metals were within permissible safety limits. **Conclusion:** The developed plant-based nugget demonstrated good consumer acceptability, improved nutritional quality, and compliance with food safety standards. Thus, it has potential as a healthier alternative to conventional nuggets.

U-2039 Physical, nutritional and sensory evaluation of plant-based patty incorporating green banana (*Musa spp.*) Flour
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Introduction: Plant-based meat analogues have become increasingly popular due to concerns over environmental sustainability, animal welfare, and health risks associated with meat consumption. Green bananas (*Musa spp.*), which are often discarded due to substandard qualities, can be upcycled as a novel ingredient to enhance the nutritional profile of food products. **Objective:** This study aimed to develop and evaluate plant-based patties incorporating green banana flour (GBF) at different GBF-to-chickpea flour (CF) ratios. **Methods:** Plant-based patties were developed by partially substituting CF with GBF (0, 25, 50, 75, and 100%) and evaluated for their physical properties, nutritional composition, and sensory acceptability. Sensory evaluation was conducted via 7-point hedonic scale with 50 untrained panellists. **Results:** GBF incorporation significantly improved the cooking yield and nutritional profile of the patties ($p < 0.05$). The 100% substitution recorded the highest cooking yield (85.67%) and the lowest diameter reduction (1.46%). Fat content and calorific value decreased in line with GBF levels, with 100% GBF patty recorded the lowest fat content (5.02%) and calorific value (223.05 kcal/100g). 25% GBF patty had a slightly lower protein content (15.87%) than the control (15.92%) but it was insignificant. Textural properties were not affected except for cohesiveness. However, 75%-100% GBF levels significantly darkened the patties (lower L^* and b^* values), reducing appearance scores. All sensory attributes of the 25% GBF patty were comparable to the control. **Conclusion:** In summary, 25% GBF patty can be recommended to improve the nutritional profile without compromising sensory acceptability. This study demonstrated that GBF serves as a locally sourced, sustainable ingredient for plant-based patties.

UX-2005 Effects of ultrasound-assisted extraction parameters on antioxidant properties, antimicrobial activity, and colour retention of curry leaf (*Murraya koenigii*) extract

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Introduction: Driven by the clean-label movement, the food industry is seeking natural food additives to replace synthetic ones. Curry leaf is rich in bioactive compounds that can be effectively extracted using ultrasound-assisted extraction (UAE). However, the lack of optimised extraction parameters limits its commercial application. **Objective:** This study aims to investigate the effects of UAE parameters (temperature and time) on the antioxidant properties, antimicrobial activity, and colour retention of curry leaf extracts to determine desirable extraction conditions. **Methods:** Curry leaf powder was subjected to UAE at 30, 40, and 50°C for 15, 30, and 45 min. Extracts were evaluated for extraction

yield, TPC, DPPH and ABTS radical scavenging activities, antimicrobial activity against *Staphylococcus aureus* and *Escherichia coli*, and colour retention. **Results:** For extraction yield, 30°C/45 min was considered the most desirable condition due to its lower energy requirement and highest yield at this temperature (21.69%), although temperature showed no significant effect on yield. Extraction temperature and time significantly affected TPC, antioxidant activities, and colour retention ($p < 0.05$). The most desirable condition for TPC and ABTS activity was 50°C/15 min, yielding 1993.70 mg GAE/100g and 2705.82 mg TE/100g (52.96%), respectively. Meanwhile, 50°C/30 min maximised DPPH activity (666.89 mg AAE/100g; 29.37%) and colour retention ($L^* = 21.40$, $a^* = 23.03$, $b^* = 30.17$). No antimicrobial activity was observed, due to solvent-solute polarity mismatch and limited antimicrobial compounds extracted. **Conclusion:** UAE lack a one-size fits-all condition and should be tailored according to the desired functional property, hence providing a potential strategy for developing natural food additives.

UX-2006 Effects of osmotic and ultrasound-assisted osmotic dehydration pretreatments on vacuum-dried purple sweet potato powder

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Introduction: Purple sweet potato (PSP) is a nutrient-rich but highly perishable crop. Vacuum drying is an effective preservation method for producing PSP powder; however, prolonged processing time remains a challenge. **Objective:** This study investigated the effects of different sugar-to-maltodextrin (S:M) ratios (100:0, 90:10, 50:50, 10:90, and 0:100) in osmotic solutions on osmotic dehydration (OD) and ultrasound-assisted osmotic dehydration (UAOD) as pretreatments prior to vacuum drying of PSP powder. **Methods:** PSP slices subjected to OD and UAOD were evaluated for weight reduction (WR), water loss (WL), solute gain (SG), and moisture content (MC), while vacuum-dried PSP powders were analysed for physicochemical, chemical, and antioxidant properties. **Results:** Increasing S:M ratios significantly increased WR and reduced SG at ($p < 0.05$). UAOD significantly ($p < 0.05$) increased WL and SG but resulted in lower WR and MC compared to OD. However, OD-treated PSP powders exhibited significantly ($p < 0.05$) higher total anthocyanin (TAC), total phenolic (TPC), total flavonoid (TFC) contents, and DPPH, FRAP, and ABTS antioxidant activities, than UAOD-treated powders. Specifically, OD at an S:M ratio of 10:90 showed significantly ($p < 0.05$) higher TFC (86.83 mg QE/100 g dry solids), ABTS (635.34 mg TE/100 g dry solids), and FRAP (1031.84 mM FeSO₄E/100 g dry solids) than the control PSP powder. **Conclusion:** OD combined with sugar-maltodextrin osmotic solutions is a promising pretreatment strategy for producing vacuum-dried PSP powder with improved antioxidant retention. This study contributes to sustainable and smart nutrition solutions by improving the nutritional quality and shelf stability of PSP-based functional food ingredients.

X-2034 Nutritional characterisation and application potential of biosafe single-cell oil and carotenoids from *Rhodotorula mucilaginosa* DLVYJT for functional food development

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Introduction: Single-cell oils from oleaginous yeasts represent sustainable alternatives to conventional lipids for food applications. This study characterised the nutritional composition and biosafety of microbial lipid produced by *Rhodotorula mucilaginosa* DLVYJT for potential food-grade applications. **Objective:** This study characterised the nutritional composition and biosafety of microbial lipid produced by *Rhodotorula mucilaginosa* DLVYJT for potential food-grade applications. **Methods:** The strain was isolated from sugarcane bagasse and cultivated in nitrogen-limited medium. Dry biomass was collected for subsequent lipid extraction, and fatty acid composition was analysed, from which health-related lipid quality indices were calculated. Biosafety assessment was conducted through whole-genome sequencing (BioProject PRJNA1272510) and comprehensive screening against Database of Fungal Virulence Factors. **Results:** The strain demonstrated high biosynthesis capacity, achieving 531.97 mg lipid/g dry cell weight (DCW), with a fatty acid profile comprising linoleic acid (C18:2n6, 48.0%), oleic acid (C18:1n9, 29.1%), and palmitic acid (C16:0, 15.3%). Fatty acid profiling revealed a nutritional composition featuring low saturated fat (15.3%) with an optimal saturated-to-unsaturated ratio of 1:5. Health-related indices demonstrated cardiovascular benefits with low atherogenic index (0.34), low thrombogenic index (0.20), and favourable hypocholesterolaemic/hypercholesterolaemic ratio (> 2.5), comparable to olive oil. However, the minimal presence of omega-3 suggests optimal utilisation through formulations with omega-3-rich oils to achieve the recommended omega-6: omega-

3 ratio of 4:1. The co-produced carotenoids (410.25 µg/g DCW) provide natural colouring and antioxidant activities, offering additional functionality. Biosafety assessment confirmed the strain's non-pathogenic nature, supporting food-grade applications. **Conclusion:** The resultant lipid is a sustainable alternative to conventional oils, with potential applications as a functional oil ingredient and natural carotenoid colourant.

Group G: Physical Activity / Sports Nutrition

U-2042 The influence of sports nutrition knowledge and body image perception towards the use of ergogenic supplements among university athletes and recreational sports players in the Klang Valley

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Introduction: Ergogenic supplements are commonly used to enhance sports performance and aid in the recovery process, but excessive use is harmful to health. **Objective:** This cross-sectional study aimed to determine the associations between sports nutrition knowledge, body image perception, and ergogenic supplements use among university athletes and recreational sports players in the Klang Valley. **Methods:** A total of 227 university students aged 18-24 years old participated in the study, 23.3% were university athletes and 76.7% were recreational sports players. Participants were screened for their physical activity level using the International Physical Activity Questionnaire-Short Form (IPAQ-SF). Only those with ≥ 600 MET-mins/week were included. Body mass index (BMI) and body fat percentage were measured using bioelectrical impedance analysis (BIA) machine. Sports nutrition knowledge was assessed using a questionnaire. Body image perception was assessed using Body Shape Questionnaire-34 (BSQ-34), and ergogenic supplement use was assessed using a 'yes' or 'no' question. **Results:** More than half of the participants were male (62.1%). The mean age was 22.56 ± 1.43 years old. Most of them played racket sports (43.6%). Majority of them use ergogenic supplements (80.6%), 65% had insufficient sports nutrition knowledge and 28.2% had mild concern about their body image. Higher body fat percentage ($OR = 1.10, 95\% CI = 1.02 - 1.19$) and having moderate to marked concern about body image ($OR = 12.33, 95\% CI = 1.46 - 104.10$) were associated with higher likelihood of using ergogenic supplements. **Conclusion:** Body dissatisfaction plays an important role in predicting the use of ergogenic supplements. Provision of sports nutrition knowledge may help active individuals in making healthier choices.

U-2043 Motivation for physical activity and exercise, body image, and physical activity level among university students in Kuala Lumpur

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Introduction: Physical inactivity among university students remains a major public health concern. Motivation and body image are important factors that may influence students' engagement in physical activity. **Objective:** This cross-sectional study aimed to determine the associations between motivation for physical activity and exercise, body image, and physical activity level among university students in Kuala Lumpur. **Methods:** A total of 274 undergraduate students aged 18 to 24 years old from 8 private and public universities participated in the study. Data were collected using self-reported questionnaires including Motivation for Physical Activity and Exercise/Working Out Questionnaires, Body Shape Questionnaire-34 (BSQ-34), and the International Physical Activity Questionnaire-Short Form (IPAQ-SF). **Results:** The mean MET-minutes/week was 1505.27 ± 1256.50 , with 29.2% of the students had low physical activity level (<600 MET-mins/week). The prevalence of overweight/obesity was 13.1%. Higher motivation for physical activity as indicated by the Relative Autonomy Index (RAI) for physical activity was associated with higher physical activity level (MET-mins/week) ($r = 0.142, p = 0.019$), but not motivation for exercise ($p > 0.05$). There was no significant association between body image and physical activity level ($p > 0.05$). Motivation for physical activity remains as a significant predictor of physical activity ($B = 48.28, SE = 21.43, p = 0.025$) after adjusting for age, sex, and BMI. **Conclusion:** Motivation for physical activity plays an important role in influencing physical activity level among university students. Intervention to improve physical activity among this population should include positive encouragement and empowerment.

U-2044 Associations between chronotype, sleep quality and physical activity among university students in Kuala Lumpur and Selangor

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Introduction: Physical inactivity is a growing concern among university students and may be influenced by factors such as chronotype (diurnal preference) and sleep quality. This cross-sectional study examined the associations between chronotype, sleep quality, and physical activity among university students in Kuala Lumpur and Selangor. **Objective:** To examine chronotype, sleep quality, and physical activity. **Methods:** A total of 261 undergraduate students aged 18-29 years from 16 private universities in Kuala Lumpur and Selangor participated in the study. Data were collected through self-reported questionnaires, including Morningness-Eveningness Questionnaire (MEQ) for chronotype assessment, Pittsburgh Sleep Quality Index (PSQI), and the International Physical Activity Questionnaire-Short Form (IPAQ-SF). BMI was calculated based on the self-reported weight and height. **Results:** Most students had an intermediate chronotype (64.8%), followed by evening (25.7%) and morning (9.6%) chronotypes. More than half of the students had poor sleep quality (70.5%). The mean MET-minutes/week was 2472.33 ± 2431.96 , with 51% had moderate physical activity level. Higher MEQ score (morning preference) was associated with higher physical activity (MET-minutes/week) ($r = 0.20$, $p = 0.001$). The prevalence of high physical activity level was also higher among students with morning chronotype (40.0%) than evening (34.3%) and intermediate (25.4%) chronotypes ($p < 0.05$). Higher MEQ score ($B = 50.38$, $SE = 16.60$, $p = 0.003$ and higher PSQI score (better sleep quality) ($B = 98.69$, $SE = 49.77$, $p = 0.048$) were associated with higher physical activity after controlling for age, sex, and BMI. **Conclusion:** Chronotype and sleep quality are important factors that can influence physical activity. Provision of a safe exercise environment for different chronotypes and good sleep hygiene may increase physical activity level among university students.

U-2045 Social, community and environmental support for physical activity participation and involvement in organised sports among adolescents in the Larut Matang and Selama, Perak

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Introduction: Amid rising adolescent inactivity, understanding the ecological determinants of youth physical activity is critical. This study examines physical activity (PA) compliance and organised sports participation among adolescents in Larut Matang and Selama, Perak, and evaluates their direct associations with social, community, and environmental support systems. **Objective:** To determine physical activity compliance and organised sports participation among adolescents, and to evaluate the association between social, community, and environmental support with these behaviours. **Methods:** A cross-sectional, dual-informant study was conducted involving 407 adolescents aged 13-17 years and 422 parents from urban and rural areas. Data were collected using self-report and proxy questionnaires assessing physical activity levels, participation in organised physical activity, and perceived support. Binary logistic and multiple linear regression analyses were used to determine the predictive value of socio-environmental variables on PA compliance and structured sports engagement. **Results:** The sample was predominantly female (73.7%) and Malay (93.5%), with 34.2% classified as overweight. Only 23.6% of adolescents met the recommended daily PA levels, indicating a severe movement deficit. However, organised sports participation was high (77.9%), with team sports being the most common. Most adolescents received some form of social support from parents, peers, or the community. Regression analysis showed that multi-source social support significantly contributed to meeting PA guidelines ($p = 0.016$) and participation in organised sports ($p < 0.001$). **Conclusion:** Despite high participation in organised sports, most adolescents do not meet daily physical activity requirements. Organised sports alone are insufficient, highlighting the need for comprehensive social and environmental support across family and community settings.

U-2046 Social, community and environmental support for participation in physical activity and organised sports among children in Seberang Perai Utara, Pulau Pinang

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Introduction: Physical activity is crucial in supporting the growth, physical and mental health of children. However, the level of children's engagement in physical activity, especially organised physical activities, remains low. **Objective:** This study determines physical activity (PA) levels and organised sports participation among children in Seberang Perai Utara, Pulau Pinang, evaluating their direct associations with social, community, and environmental support. **Methods:** A cross-sectional study involved 403 children aged between 5 to 12 years and 417 parents. Data were collected using structured questionnaires administered face-to-face to children and online to parents. Descriptive analysis was used to assess sociodemographic characteristics, PA levels, and organized sports participations. Binary logistic and multiple linear regressions were utilised to determine the predictive value of socio-environmental variables on PA. **Results:** Findings indicated that the majority of subjects were female (73.7%) and Malay (93.5%), with a 34.2% prevalence of overweight status based on children-report. It showed that only 47.9% of children self-reporting and 47.0% of parental reporting met the ≥ 60 -minute daily PA recommendation. Organised sports participation was high (81.4% child-reported; 65.0% parent-reported), boys consistently demonstrated higher compliance than girls. Participation in team sports was higher 59.3% of children-report and 41.5% of parental-report, compared to individual sports. Results established that parents, peer, and community environments are significantly associated with PA participation ($p < 0.05$) but the effects are small. **Conclusion:** Despite robust organized sports engagement, over half the subjects failed to meet the baseline daily PA requirement. To effectively combat these outcomes, future strategies must involve family support, active peer networks, and enhanced community infrastructure.

U-2047 Comparison of hydration status, fluid intake and sweat rate among combat sports athletes in Penang, Malaysia

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Introduction: Combat sport athletes are at higher dehydration risk due to rapid weight loss practices to qualify for lighter weight categories, compromising health and performance. Limited research has examined hydration status across combat sports in Malaysia. **Objective:** This cross-sectional study aimed to assess hydration status, fluid intake and sweat rate among combat sports athletes under Penang State Sports Council. **Methods:** Hydration status was assessed in 117 athletes (65.8% male) from eight combat sports using pre-training urine specific gravity (USG) and percentage body weight change before and after training ($\Delta\%$). Sweat rate was estimated from body weight change, adjusted for ad libitum fluid intake and urine output. **Results:** On average, athletes recorded USG of 1.0190 ± 0.0008 g/mL and $-0.73 \pm 0.83\Delta\%$. Most subjects (70.1%) were well hydrated throughout training (mean $\Delta\% = -0.32 \pm 0.51\%$), while 48.7% subjects began training in significantly or seriously dehydrated state (mean USG = 1.0257 ± 0.0033 g/mL). Compared to females, male athletes exhibited significantly greater percentage weight change ($-0.89 \pm 0.86\%$ vs $-0.42 \pm 0.68\%$, $p < 0.01$), sweat rate (805 ± 311 mL/hour vs 512 ± 214 mL/hour, $p < 0.001$) and fluid intake (475 ± 274 mL/hour vs 357 ± 192 mL/hour $p < 0.05$). Boxing athletes recorded greatest percentage weight change ($-1.88 \pm 0.97\%$), significantly greater than karate ($p < 0.001$) and pencak silat athletes ($p < 0.01$). Boxing athletes also recorded greatest sweat rate (1124 ± 289 mL/hour), significantly greater than karate ($p < 0.001$), Muay Thai, wushu and pencak silat athletes ($p < 0.05$). Regression analysis identified pre-training total body water, training duration and sweat rate as significant weight change predictors ($R^2 = 0.711$, $p < 0.001$). **Conclusion:** High pre-training dehydration prevalence highlights needs for targeted hydration interventions. Future studies should assess hydration status across defined training periodization phases.

X-2035 Inadequate energy intake and eating disorder symptoms among injured university athletes during rehabilitation

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Introduction: Nutritional adequacy is essential for optimal recovery following sports injuries. Injured athletes may be at increased risk of inadequate dietary intake and disordered eating behaviours due to reduced physical activity and psychological stress during rehabilitation. **Objective:** This study aimed to determine energy and macronutrient intake and eating disorder status among injured athletes undergoing rehabilitation. **Methods:** A cross-sectional study was conducted among 50 injured athletes (18-25 years) undergoing rehabilitation in Perak, Malaysia. Dietary intake was assessed using a validated semi-quantitative Food Frequency Questionnaire, while eating disorder symptoms were evaluated using the Malay version of the Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0). Independent sample t-tests were used to compare outcomes between genders. **Results:** Male athletes reported significantly higher energy (2146 ± 887 vs 1709 ± 489 kcal/day), carbohydrate (259.5 ± 83.4 vs 217.1 ± 71.1 g/day), fat (83.0 ± 40.7 vs 65.7 ± 21.3 g/day), and protein intake (99.7 ± 67.1 vs 69.5 ± 21.3 g/day) than females ($p < 0.05$). However, energy intake achieved only 56.5% and 48.5% of the recommended nutrient intake among males and females, respectively. Female athletes demonstrated significantly higher EDE-Q eating concern (2.22 ± 1.25 vs 1.62 ± 1.00), weight concern (2.90 ± 1.15 vs 2.28 ± 1.30), and global scores (2.64 ± 0.77 vs 2.17 ± 1.11) than males ($p < 0.05$). Clinically significant eating disorder symptoms (EDE-Q ≥ 4) were observed in 18% for weight concern and 16% for shape concern. **Conclusion:** Injured athletes undergoing rehabilitation exhibited inadequate energy intake and notable eating disorder symptoms, particularly among females. Early nutritional screening and targeted interventions are recommended to support recovery and prevent adverse health outcomes.

X-2036 Urban-suburban disparities in physical activity and cardiometabolic risk among Malaysian working adults: an objective measurement study

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Introduction: Physical inactivity and cardiometabolic diseases are increasing public health concerns in Malaysia. However, urban-suburban differences in physical activity (PA) and cardiometabolic risk among Malaysian working adults remain poorly understood, particularly using objective PA measurements. **Objective:** This study aimed to compare physical activity, sedentary behaviour and cardiometabolic risk markers between urban and suburban Malaysian working adults. **Methods:** A cross-sectional study was conducted among 118 working adults from Kuala Lumpur (urban, $n = 65$) and Kampar, Perak (suburban, $n = 53$). PA was assessed over seven days using an Apple Watch and the International Physical Activity Questionnaire-Short Form (IPAQ-SF). Anthropometric measurements included body mass index (BMI) and waist circumference (WC). Group differences were analysed using Mann-Whitney U tests and independent samples t-tests with Bonferroni correction. **Results:** Suburban workers had significantly higher WC (91.0 vs 75.0 cm, $p < 0.001$) and BMI (25.0 vs 23.0 kg/m², $p < 0.001$) compared to urban workers, indicating a higher cardiometabolic risk burden. Overweight and obesity prevalence was also higher among suburban workers (60.4% vs 29.2%). Objectively measured active minutes were significantly lower among suburban workers (15.0 vs 19.0 min/day, $p = 0.002$), consistent with lower self-reported PA levels (258 vs 650 MET-min/week, $p < 0.001$). In addition, 79.2% of suburban workers were classified as having low PA compared to 46.2% of urban workers. Daily sitting time was comparable between groups. **Conclusion:** Suburban Malaysian working adults demonstrated lower PA levels and higher cardiometabolic risk compared to urban workers. These findings highlight suburban working adults as an important target group for future PA promotion and nutrition intervention strategies in Malaysia.