40th

Scientific Conference

Advancing Nutrition for a Healthier Malaysia:

Bridging Science, Policy and Practice

Programme and Abstracts

29 – 30 July 2025

Berjaya Times Square, Kuala Lumpur, Malaysia

Contents

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Nutrition Society of Malaysia

Copy editor
Yasmin Beng Houi Ooi

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Message from Chair of the 40th Annual Scientific Conference

I am delighted to welcome you to the 40th Annual Scientific Conference of the Nutrition Society of Malaysia (NSM), held in conjunction with our 40th Anniversary celebration. This year's conference, themed "Advancing Nutrition for a Healthier Malaysia: Bridging Science, Policy, and Practice," marks a significant milestone in our Society's journey of championing nutrition science for national wellbeing.

Over the past four decades, NSM has evolved into a dynamic platform for nutrition professionals to share scientific knowledge, advocate for public health nutrition, and make meaningful contributions to policy and practice. This year's conference continues that proud tradition, bringing together esteemed researchers, practitioners, policymakers, students and industry partners to discuss current challenges and innovations in nutrition.

We are especially honoured to host an exciting line-up of keynote speakers and scientific presentations, along with special sessions to commemorate our 40th anniversary, highlighting the launch of our Commemorative Book, the Malaysian Healthy Diet Online Series (MHDOS), and Nutritionist's Day. These initiatives reflect our continued commitment to public engagement and professional development.

I would like to extend my heartfelt thanks to our invited speakers, judges, sponsors, and all delegates for your enthusiastic participation. Special appreciation goes to the NSM Council and dedicated members of the Organising Committee, whose hard work has made this event possible.

We hope this conference will be intellectually enriching and foster meaningful collaborations that drive forward our shared vision of a healthier Malaysia.

Professor Dr. Mahenderan Appukutty
NUTRITIONIST: MAHPC (NUTR) 00003
Chair, Organising Committee
40th Annual Scientific Conference

President,
Nutrition Society of Malaysia

Acknowledgements

The Nutrition Society of Malaysia gratefully acknowledges contributions from the following to the 40th Scientific Conference:

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Lunch Symposium

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Sponsors for NSM Publication Prizes

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Sponsor for Thesis Prizes

Nutrition Society of Malaysia

Sponsor for Prizes for Young Researchers' Symposium & Poster Competition

International Life Sciences Institute (ILSI) Southeast Asia Region

Malaysia Nutrition Leadership Programme (MyNLP)

The MyNLP is an initiative and brainchild of the Nutrition Society of Malaysia which focuses on honing the participants application and soft skills and acquiring the requisite knack towards enhancing leadership competency among nutrition professionals.

Rationale of MyNLP

The National Plan of Action for Nutrition (NPAN) of Malaysia has emphasised the importance of strengthening institutional and community capacity for nutrition. Availability of well trained human resources is crucial for successful execution of the NPAN Malaysia. The NSM is committed to contribute towards the effective implementation of the NPANM III (2006-2025).

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

Programme Objectives

Assists the development of future leaders in the field of human nutritional sciences through proper training

Provides knowledge and skills towards enhancing leadership skills and foster greater communication and networking among young nutrition professionals

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

It is envisioned that MyNLP is able to support NPANM III by empowering aspiring professionals in the field of food and nutrition with essential knowledge, skills, and network to lead others in improving nutrition in Malaysia.

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

SEA PHN

Southeast Asia Public Health Nutrition Network

A collaboration among

Food and Nutrition Society of Indonesia

Nutrition Society of Malaysia

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

Good Nutrition Key to Healthy Children

Teaching Materials of the GNKHC Nutrition Module

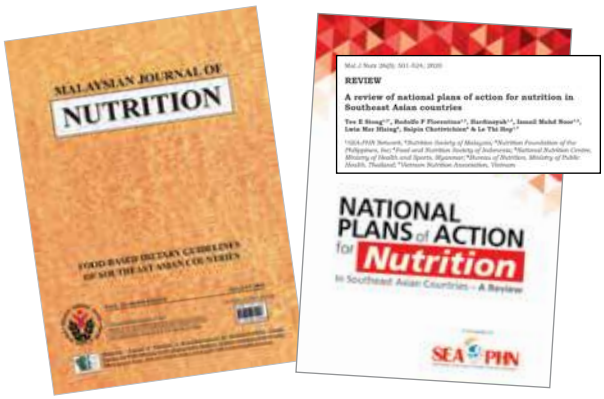
Teacher's Guidebook and Student's Workbook

Learning Slides

Materials for Interactive activities

Parent's leaflet

Research publications



Mal J Nutr 29(2): 163-241, 2023

SPECIAL INVITED REVIEW

Review of recommended energy and nutrient intake values in Southeast Asian countries

E Siong Tee[1,2*], Rodolfo F Florentino[1,3], Nalinee Chongviriyaphan[1,4], Hardinsyah Ridwan[1,5], Mahenderan Appukutty [1,2] & Truong Tuyet Mai[1,6]

[1]*Southeast Asia Public Health Nutrition Network;* [2]*Nutrition Society of Malaysia;* [3]*Nutrition Foundation of the Philippines, Inc;* [4]*Nutrition Association of Thailand;* [5]*Food and Nutrition Society of Indonesia;* [6]*Vietnam Nutrition Association*

Webinar Series

15th ACN 2027
Kuala Lumpur, Malaysia

15th Asian Congress of NUTRITION

STRENGTHENING REGIONAL NETWORKS FOR NUTRITION ACTION

12-15 September 2027

Kuala Lumpur Convention Centre, Malaysia

https://acn2027.org.my

SAVE THE DATE

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Meet in Malaysia
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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.

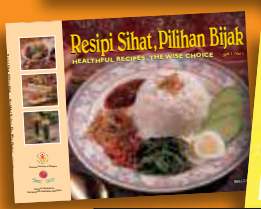
For more information, visit our website:
www.nutriweb.org.my

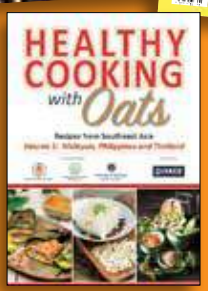
Our Activities

- 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)





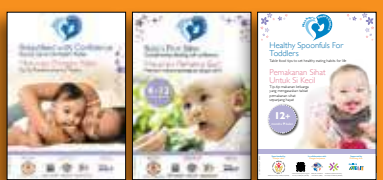
Junior Chef Cookbook Vol 1. Let's Play Healthy Cooking, Nutritionists' Choice Cookbook (Vol 1 & 2), Resipi Sihat, Pilihan Bijak (Vol 1 & 2), Healthy Cooking with Oats

Healthy Eating During Pregnancy & Lactation

Wonders of Whole Grains

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

Malaysian Dietary Guidelines leaflets



Breastfeed with Confidence

Baby's First Bites

Healthy Spoonfuls for Toddlers

Official Opening

Day 1 **Tuesday, 29 July 2025**

08:00 **Registration**

09:00 **Official Opening & Presentation of NSM Prizes & Awards**
Manhattan II Hall, Level 14, Berjaya Times Square Kuala Lumpur

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

09:10 **Presentation of NSM Prizes & Awards**

- NSM Undergraduate and Postgraduate Prizes
- NSM Publication Prizes
- NSM Fellow Award

40th NSM Anniversary Lecture
Chairperson: **Mahenderan Appukutty**
Nutrition Society of Malaysia

09:45 **Four decades of advancing nutrition – way ahead for NSM**
Tee E Siong
Nutrition Society of Malaysia

10:15 Coffee break / Poster & exhibition viewing

Scientific Programme

Day 1 **Tuesday, 29 July 2025**

Keynote Lecture 1

Chairperson: **Hamid Jan Jan Mohamed**
Nutrition Society of Malaysia

10:45 **Contribution of Asia to global health and nutrition**
Jeyakumar Henry
*Former Director, CNRC, A*STAR SIFBI, Singapore*

Symposium 1: **Clinical Research in Nutrition**

Chairperson: **Chan Yoke Mun**
Universiti Putra Malaysia

11:30 **Nutrigenetics and nutrigenomics: nutrition unraveled for precision wellness**
Vimal Karani
University of Reading, United Kingdom

Exploring dietary pattern's role in aging and cancer survivorship: unravelling telomere clues
Mohd Razif bin Shahril
Universiti Kebangsaan Malaysia

The dual challenges of physical and social frailty among older adults
Divya Vanoh
Universiti Sains Malaysia

Invited Lecture 1

Sponsored by BENEO-Institute

Chairperson: **Satvinder Kaur Nachatar Singh**
UCSI University

12:30 **Targeting 'Skinny Fat' and metabolic health: scientific insights on chicory root fibres and Palatinose™**
Goh Peen Ern
BENEO Asia Pacific, BENEO-Institute

Lunch Symposium

Sponsored by Dutch Lady Milk Industries Berhad

Chairperson: **Kanga Rani Selvaduray**
Malaysian Palm Oil Board

13:05 **Efficacy of an oral nutrition supplement on the nutritional status of stunted and at-risk of stunting children: a community-based intervention study**
Hamid Jan Jan Mohamed & Sidra Al-Talib
Universiti Sains Malaysia

13:40 Poster & exhibition viewing

Symposium 2 Nutrition from Womb to Tomb

Chairperson: **Loh Su Peng**
Universiti Putra Malaysia

14:00 **Transforming food assistance to enhance food security and nutrition for asnaf families in Terengganu**
Shariah Wajihah Wafa bt Syed Saadun Tarek Wafa
Universiti Sultan Zainal Abidin

An early life-course model-of-care to transforming maternal and child healthcare
Loy See Ling
Duke-NUS Medical School, Singapore

Maternal nutrition and multiple micronutrient supplementation: breaking the intergenerational cycle of anaemia for a healthier future
Snigdha Misra
Monash University Malaysia

Invited Lecture 2

Sponsored by dsm-firmenich

Chairperson: **Wong Jyh Eiin**
Universiti Kebangsaan Malaysia

15:00 **Extending healthspan: the science behind dietary interventions for successful ageing**
Stephanie Baker
dsm-firmenich

Nutrition Update 1

Chairperson: **Norhasmah Sulaiman**
Universiti Putra Malaysia

15:35 **Effect of nutrition and physical activity applications (apps) on healthy lifestyle and user assessment in Kajang, Selangor**
Mohd Nazri bin Abdul Rahman
Universiti Malaysia Sabah

The impact of sarcopenia on mortality incidence among Malaysian older adults: a prospective cohort study
Nurul Fatin Malek Rivan
Universiti Kebangsaan Malaysia

Anaemia prevalence, knowledge and attitude of anaemia, and chrono-nutritional data among young women: a recent preliminary survey in Northern Thailand
Chirawat Paratthakonkun
Mahidol University, Thailand

Risk factors for childhood undernutrition (ages 2 to 5 years): a case control study in Federal Territory Kuala Lumpur and Putrajaya, Malaysia
Masrisa Mohd Esa
Universiti Putra Malaysia

Mindful eating, dietary patterns and its association with metabolic syndrome among overweight and obese teachers in Kota Bharu, Kelantan
Hana Fauziyyah
Universiti Sains Malaysia

Young Researchers' Symposium

Chairperson: **Noor Atiqah Aizan Abdul Kadir**
Universiti Malaysia Sabah

16:35 **A simplified approach to assess diet quality: the eating habits index for Malaysian primary schoolchildren**
Yeo Giin Shang
Universiti Kebangsaan Malaysia

Impact and perceptions of a 10-week empowerment-based nutrition communication and leadership training on nutrition advocacy skills and diet quality among nutrition students
Ang Zheng Feng
Universiti Putra Malaysia

Assessing the retail food environment across different socioeconomic neighbourhoods in Kuala Lumpur – spatial analyses to inform urban food policy for sustainable and healthy diets
Scott David Hastie
University of Nottingham Malaysia

Prenatal chrononutrition and chronotype role in infant sleep and growth: a prospective cohort study
Kok Ee Yin
UCSI University

17:35 **End of Day 1**

Day 2 **Wednesday, 30 July 2025**

8:00 Poster & exhibition viewing

Nutrition Update 2

Chairperson: **Roseline Yap Wai Kuan**
Nutrition Society of Malaysia

9:00 **Salt taste preference, sensitivity threshold detection, and their association with salt intake: a cross-sectional study in Kuala Lumpur**
Safiya Nuur
UCSI University

Grandparents as food providers for grandchildren: findings from four Malaysian studies and development of an educational booklet to support healthier feeding practices
Hanis Mastura Yahya
Universiti Kebangsaan Malaysia

Nutritional adequacy and costing of a healthy balanced diet for children and adolescents in Malaysia
Khor Ban Hock
Universiti Malaysia Sabah

Design and development of NutriDIY-trolley app: a pre-emptive digital strategy to promote nutrition-conscious purchasing and enhancing household dietary quality
Vaidehi Ulaganathan
UCSI University

Quality perception and acceptance of suboptimal food among women in Johor
Lim See Meng
Universiti Kebangsaan Malaysia

10:00 Coffee break / Poster & exhibition viewing

Keynote Lecture 2

Chairperson: **Tee E Siong**
Nutrition Society of Malaysia

10:30 **Addressing micronutrient deficiencies: lessons from Southeast Asia**
Geoffry Smith
International Life Sciences Institute – Southeast Asia region

Symposium 3 **Public Health Nutrition**

Chairperson: **Norliyana Aris**
Universiti Malaysia Sabah

11:15 **Enhancing health and well-being in Dayak communities: exploring the possibilities of integrating tradition with modern nutrition science**
Cheah Whye Lian
Universiti Malaysia Sarawak

Strengthening UK-SEA research partnership – nutrition policies and action plans in Malaysia for the prevention of double burden of malnutrition in school-age children: highlights of findings
Tan Sue Yee
Nutrition Society of Malaysia & International Life Sciences Institute (ILSI) Southeast Asia Region, on behalf of the UoL-NSM-ILSI-UPM Research Team

Update on NHMS 2024: nutrition
Ahmad Ali bin Zainuddin
Ministry of Health Malaysia

Invited Lecture 3

Sponsored by Yakult (Malaysia) Sdn. Bhd.

Chairperson: **Mohd Redzwan Sabran**
Universiti Putra Malaysia

12:15 ***Lacticaseibacillus paracasei strain Shirota impact on human immunity and health***
Tomoaki Naito
Yakult Central Institute, Tokyo, Japan

Networking Lunch

12:50 Lunch / Poster & exhibition viewing

Invited Lecture 4
Sponsored by Herbalife Products Malaysia Sdn. Bhd.
Chairperson: **Shashikala Sivapathy**
UCSI University

14:00 **Sustaining weight management through the power of protein**
Rimbawan
IPB University, Indonesia

Forum **Nutrition, technology and digital health**
Moderator: **Tan Sue Yee**
Nutrition Society of Malaysia

14:35 Panelists:
- Maheshwara Rao a/l Appannan
  Ministry of Health Malaysia
- Wong Jyh Eiin
  Universiti Kebangsaan Malaysia
- Khor Swee Kheng
  Angsana Health

Nutrition Update 3
Chairperson: **Lee Siew Siew**
University of Nottingham Malaysia

15:35 **Street foods in Malaysia: what is the sugar level content?**
Hasnah Haron
Universiti Kebangsaan Malaysia

Nutritional determinants of quality of life in colorectal cancer survivors: a six-month longitudinal study in Malaysia
Ainaa Almarhiyah Abd Rashid
Universiti Malaysia Sabah

Effects of cranberry (poly)phenols on mental health in university students: the Cranmood randomised controlled trial
Nur Kamarunzaman
King's College London

The potential of mushroom seasoning as food flavouring enhancer: market survey, consumer survey, and sensory evaluation
Low Wee Teng
Universiti Kebangsaan Malaysia

Tocotrienol-enriched beverages enhances psychological well-being, antioxidant defence, and genomic stability in older adults: a randomised controlled trial
Razinah Sharif
Universiti Kebangsaan Malaysia

16:35 **Rapid fire poster presentation**

16:50 **Prize giving and closing ceremony**

17:30 **End of Conference**

Conference Information

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

Opening hours:
- 29th July 2025: 8:00 a.m. to 6:00 p.m.
- 30th July 2025: 8:00 a.m. to 6:00 p.m.

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

Opening hours:
- 29th July 2025: 8:00 a.m. to 6:00 p.m.
- 30th July 2025: 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 30 August 2025. 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.

Lunch & Coffee Breaks
Lunch will be served in a dome setting at **Manhattan III, Level 14**, on both days of the conference. Morning and afternoon refreshments shall be served around the trade exhibition areas at the **foyer outside Manhattan conference halls.**

All food and drinks served are **Halal**. **Vegetarian / 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. You may preview your slides at least two hours prior to their session. The **Speaker Preview Room** is located at the **Bronx III room**.

Opening hours:

- 29th July 2025: 8:00 a.m. to 5:00 p.m.
- 30th July 2025: 8:00 a.m. to 5:00 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 (20 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.

Photography Booth

There is a photography booth at the foyer outside **Manhattan II Hall, Level 14**, to capture memories of the conference on **Day 1** until 6 p.m. Usage of the booth is free for all registered delegates.

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.

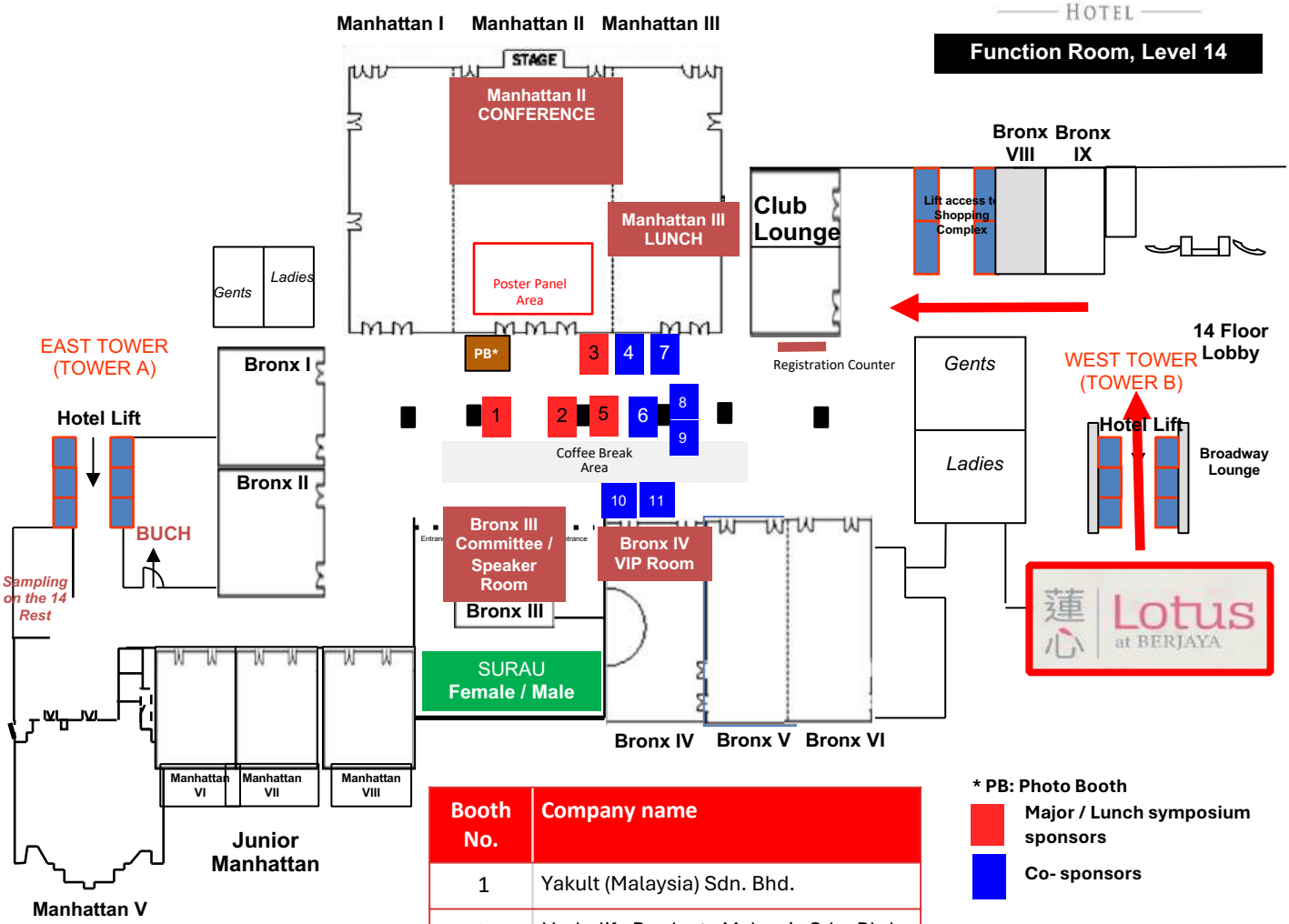
Disclaimer

NSM provides opportunities to researchers to present their findings but does not endorse any findings presented in the abstracts or opinions expressed by speakers and delegates in the Conference, and is not responsible for any claims made by speakers and delegates.

Event Layout & Exhibitor Area Layout

BERJAYA
TIMES SQUARE, KUALA LUMPUR - MALAYSIA
HOTEL

Function Room, Level 14



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*** PB: Photo Booth**

Major / Lunch symposium sponsors

Co- sponsors

NSM Awards / Prizes 2025

NSM Postgraduate and Undergraduate Prizes 2025

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 2025, the NSM is awarding 9 Postgraduate Prizes; 5 for PhD and 4 for MSC, with a total cash award of RM8,000. Nine undergraduates receive Undergraduate Prizes with a total cash award of RM4,500. The total cash award for both categories of thesis prizes this year is RM12,500. The list of names are arranged in alphabetical order.

The recipients for the PhD thesis prize are:

1. **Dr. Ahmad Faezi bin Ab. Rashid**
   An interactive Malaysian Childhood Healthy Lifestyle (i-MaCHeL) intervention programme to change weight-related behaviour in preschool child-parent dyads
   Supervisor: Assoc. Prof. Dr. Sharifah Wajihah Wafa Syed Saadun Tarek Wafa
   Co-supervisors: Prof. Dr. Ruzita Abd Talib (UKM) & Dr. Nor Mazlina Abu Bakar
   University: Universiti Sultan Zainal Abidin (UniSZA)

2. **Dr. Ainaa Almardhiyah binti Abd Rashid**
   Dietary pattern and risk factors associated with newly diagnosed colorectal cancer and predictive factors for quality of life among survivors.
   Supervisor: Prof. Dr. Hamid Jan bin Jan Mohamed
   Co-supervisors: Prof. Dr. Lee Yeong Yeh & Assoc. Prof. Dr. Mohd Razif bin Shahril
   University: Universiti Sains Malaysia (USM)

3. **Dr. Chang Wei Lin**
   Knowledge, attitude and practice of aflatoxin contamination, factors associated with aflatoxin biomarkers and their reduction using probiotic among healthy Malaysian adults
   Supervisor: Assoc Prof Dr. Mohd Redzwan Sabran
   Co-supervisors: Assoc. Prof. Dr. Hazizi Abu Saad & Prof Dr. Rosita Jamaluddin
   University: Universiti Putra Malaysia (UPM)

4. **Dr. Janice Tay Ee Fang**
   Seasonal variation in food security, neighbourhood environment and nutritional status of adolescents from low-income urban communities in Kuala Lumpur, Malaysia
   Supervisor: Assoc. Prof. Dr. Satvinder Kaur d/o Nachatar Singh
   Co-supervisors: Dr. Serene Tung En Hui, Assoc. Prof. Dr. Gan Wan Ying, Dr. Nik Norasma Che'Ya, Asst. Prof. Dr. Tan Choon Hui
   University: UCSI University

5. **Dr Zainorain Natasha binti Zainal Arifen**
   Sodium and nutrient levels in selected street food, consumer awareness towards salt intake, vendor attitudes towards salt usage and reduction strategies in Malaysia
   Supervisor: Assoc. Prof. Dr Hasnah Haron
   Co-supervisors: Prof. Dr Suzana Shahar, Prof. Dr Hazreen Abdul Majid, Dr Kathy Trieu
   University: Universiti Kebangsaan Malaysia (UKM)

The recipients for the MSC thesis prize are:

1. **Christine Joan**
   Compliance with 24-hour movement guidelines and its associated factors among preschoolers in Peninsular Malaysia
   Supervisor: Prof. Dr. Poh Bee Koon
   Co-supervisors: Dr Denise Koh Choon Lian & Assoc. Prof. Dr. Wong Jyh Eiin
   University: Universiti Kebangsaan Malaysia (UKM)

2. **Keerthana Sree Ganggaya**
   Association between nutritional status, frailty domains, physical activity, physical fitness, emotional status and quality of life with sarcopenia among older adults in Kelantan
   Supervisor: Dr. Divya Vanoh
   Co-supervisor: Prof. Dr. Wan Rosli Wan Ishak
   University: Universiti Sains Malaysia (USM)

3. **Nursyafiqah Aqilah binti Suhaimi**
   Effect of eight-week vitamin D3-fortified fruit juice on the recovery of iron status in childbearing-aged women with marginally low iron stores
   Supervisor: Dr. Salma Faeza binti Ahmad Fuzi
   Co-supervisors: Prof. Dr. Loh Su Peng & Dr. Nurzalinda binti Zalbahar @ Zalbaha
   University: Universiti Putra Malaysia (UPM)

4. **Tengku Fatin Nadhirah binti Te Ku Nor**
   Effectiveness of the nutrition education module for stunting prevention among mothers and their children in Terengganu
   Supervisor: Assoc. Prof. Dr. Wee Bee Suan
   Co-supervisors: Dr. Myat Moe Thwe Aung
   University: Universiti Sultan Zainal Abidin (UniSZA)

The recipients for the Undergraduate thesis prize are:

1. **Che Aiman bin Che Ri**
   Penentuan kesan mutagenisiti dalam burger berasaskan tumbuhan
   (Determination of mutagenicity in plant-based burger)
   Supervisor: Assoc. Prof. Ts. Dr. Razinah binti Sharif @ Mohd Sharif
   University: Universiti Kebangsaan Malaysia (UKM)
2. **Gan Jes See**
   Food security and its association with food neophobia and nutritional indices among young adults in Klang Valley
   Supervisor: Dr. Tan Bee Ling
   University: Management & Science University (MSU)
3. **Hajaratul Husna binti Mohamad Roshidi**
   Awareness and folic acid supplementation among reproductive-age women in Kelantan
   Supervisor: Dr. Soo Kah Leng
   University: Universiti Sains Malaysia (USM)
4. **Izzahfathiah binti Jamadulin**
   Association between dietary intake and nutritional status among Orang Asli (OA) children aged 6.0 to 59.9 months in Terengganu
   Supervisor: Dr. Wong Chee Yen
   University: Universiti Sultan Zainal Abidin (UniSZA)
5. **Khoo Lu Ying**
   Factors associated with nutrition literacy among school-aged adolescents in Kota Setar, Kedah
   Supervisor: Assoc. Prof. Dr. Gan Wan Ying
   University: Universiti Putra Malaysia (UPM)
6. **Lim Xin Ying**
   Factors associated with hydration status of elite team sport players in Penang
   Supervisor: Dr. Nurliyana binti Abdul Razak
   University: UCSI University
7. **Shim Yih Sheng**
   Impact of exercise intensity on appetite regulation and gut hormone responses in female university students: a randomized crossover study
   Supervisor: Asst. Prof. Dr. Cheng Shi Hui
   University: University of Nottingham Malaysia (UNM)
8. **Tan Yi Tseng**
   Nutrient quality of products of animal origin (PAO) available in selected hypermarkets around Bukit Jalil, Kuala Lumpur
   Supervisor: Dr Serene Tung En Hui
   University: IMU University
9. **Wong Yu Ni**
   Effects of examination on perceived stress, eating behaviours and nutritional status among students of Universiti Malaysia Sabah
   Supervisor: Dr. Norliyana Aris
   University: Universiti Malaysia Sabah (UMS)

NSM Publication Prize 2025

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 2025, two Corporate Members of NSM supported this initiative, namely Fonterra Brands Malaysia Sdn. Bhd. (C1879) and Herbalife Products Malaysia Sdn. Bhd. (C2195).

Anlene Malaysia sponsored a prize for one category of NSM Publication Prize for the year 2025, 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 Anlene Malaysia, two publications were submitted by two members for consideration by NSM. The Selection Committee decided not to award the prize to these applicants.

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., three publications were submitted by two members for consideration by NSM. The Selection Committee decided to award the prize to the applicant, with the following details:

Name of recipient: **Dr. Ng Choon Ming** (L2339)
National University of Singapore, Singapore

Publication: A digital health-supported prediabetes intervention, management and evaluation (PRIME) program improves Healthy Eating Index score: a cluster randomized controlled trial. *Nutrition Research* (2025), 138:151-161
https://doi.org/10.1016/j.nutres.2025.04.005

NSM Young Researchers' Symposium Prizes 2025

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 each

Prizes for 2025, totalling RM1,000 are provided by International Life Sciences Institute (ILSI) Southeast Asia Region.

NSM Poster Competition Prizes 2025

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 2025, 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

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: Nutrition Status, Consumption Pattern & Disease

P-1001 Associations between stress during pregnancy and dietary intake with constipation in the second 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, Than Leslie Thian Lung

P-1002 Role of cardiorespiratory fitness and physical activity in predicting cardiometabolic risk among children aged 6 – 12 years old: findings from SEANUTS II Malaysia
Kai Sze Chan, Mohamad Fauzi Nor Farah, Denise Koh, Jyh Eiin Wong, Jan MW Geurts, Bee Koon Poh

P-1003 A syndemic framework for understanding maternal health risks in Malaysia
Kimberly Weng Kuan Tan, Su Peng Loh, Habibah Abdul Hamid, Po Ling Chen, Zhi Xiang Ng, See Meng Lim, Shi Hui Cheng, Siew Siew Lee

P-1004 Maternal transportation-related physical activity and food security in relation to infant development: a mother-infant cohort study
Ling Jun Lee, Shiang Yen Eow, Wan Ying Gan, Leslie Thian Lung Than, Su Peng Loh, Norazlin Kamal Nor

P-1005 Development of a determinants model to address double burden of malnutrition among adolescents in Malaysia: a systems thinking approach protocol
Nur Shafawati Mohd Ghazali, Poh Bee Koon, Nur Zakiah Mohd Saat, Chin Yit Siew, Lim Poh Ying

P-1006 Mapping nutrition through PPGIS: linking food source hotspots to nutrition outcomes in Kuala Lumpur
Su Yuan Koh, Nurul Ain Azizan, Festo Massawe, Ee Von Goh, Alex Lechne

P-1007 The positive deviance of child nutrition among caregivers of under-five children from urban low-income in Kuala Lumpur
Lok Poh Chek, Wan Ying Gan, Yit Siew Chin, Norhasmah Sulaiman

P-1008 Caffeine use beyond recommended limits: a cross-sectional study among university athletes in Malaysia
Sitti Junaina Musa, Nerosha Nair Gunasegaran, Ahmad Rohi Ghazali, Nor Farah Mohamad Fauzi, Mohd Izham Mohamad, Abdul Hadi Abd Rahman, Nik Shanita Safii

P-1012 Eat early, stay steady: exploring the associations of meal timing and nighttime energy intake on glycaemic outcomes among Malaysian adults with prediabetes
Livy Chong, Satvinder Kaur, Ruzita Abd Talib, See Ling Loy, Hui Yin Tan, Rosmiza Binti Abdullah, Hanisah Binti Mahmud, Woan Yie Siah, Lay Kim Tan, Chee Cheong Kee, Hui Chin Koo

P-1015 Nutrient adequacy and its association with growth indicators among children aged below 5 years in Peninsular Malaysia
Ika Aida Aprilini Makbul, Giin Shang Yeo, Razinah Sharif, See Meng Lim, Ilse Khouw, Bee Koon Poh

P-1018 Diet quality, food insecurity status and nutritional health in rural Malaysia: a case study of Negeri Sembilan
Kang Ni Teng, Siew Siew Lee, Shi Hui Cheng, Festo Massawe

P-1021 Association between dietary intake and central adiposity among young adults in Perak, Malaysia
Divya Sivapregas, Eddy Seong Guan Cheah, Annaletchumy Loganathan, Phoon Lee Quen, Anto Cordelia Tanislaus Antony Dhanapal

P-1022 Dietary patterns and cognitive health in Indonesia: national survey results
Sandy Ardiansyah

P-1025 Decoding gene-diet-lifestyle interaction: a nutrigenetic framework for predicting obesity risk in Malaysian adults
Digsha Augundhooa, Vaidehi Ulaganathan

P-1026 Influence of sociodemographic factors, social support, and home environment on physical activity among schoolchildren in Peninsular Malaysia: updated findings from SEANUTS II
Shu Chin Teh, Giin Shang Yeo, Nurul Hasanah Hasmuni Chew, Kean Choon Tang, Christine Joan, Ilse Khouw, Jyh Eiin Wong, Denise Koh, Bee Koon Poh

P-1027 Chrononutrition and digital exposure patterns as predictors of sleep quality in Malaysian night-shift healthcare workers
Sofwatul Mokhtarah Maluin, Norsham Juliana Nordin, Fareza Hanum Mohd Radzi

P-1030 Association of physical activity, screen time and sleep duration with metabolic syndrome among primary school-aged children in Peninsular Malaysia
Kuan Chiet Teh, Lei Hum Wee, Ilse Khouw, Bee Koon Poh

P-1031 Metabolic syndrome risk awareness, behavioural attitudes, and preventive practices among adolescents aged 13 – 17 years: a systematic review
Marium Khan, Anto Cordelia Tanislaus Antony Dhanapal, Annaletchumy Loganathan

P-1034 Dietary intake and diet quality among children with autism spectrum disorder in Kelantan
Yin Min Cheong

P-1036 Vitamin D status and muscle discomfort among indoor female workers in Malaysia
Nadwah Shafiqah Md Salleh, Leong Yi Le Nicole, Saidatul Aisah Shafirudin, Mohd Azzuan Ahmad, Kok Yong Chin, Nor Fadilah Rajab, Nor Aini Jamil @A.Wahab

P-1038 Shifting food system and child nutrition in Indonesia: a provincial panel study from 2018 to 2024
Rahayu Sutrisno, Widya Rahmawati, Nia Novita Wirawan, Agung Dwi Laksono, Dian Handayani

U-1005 Food insecurity and its socio-demographic associations among public university students in Terengganu, Malaysia
Aliaa Syazana Zakaria, Chee Yen Wong

U-1006 Association between stress levels, eating behavior, and weight status among UNISZA students
Tasnim Mohd Senusi, Laila Ruwaida binti Mohd Zainuddin

U-1008 Knowledge, attitude, and practice of anaemia and iron intake, and their associated sociodemographic factors among female university students in Kuala Nerus, Terengganu
Alya Nadhirah Zuraini, Marhazlina Mohamad

U-1011 Mindful eating, dietary intake, and nutritional status among public university students in Terengganu
Khalidah Hadi, Wong Chee Yen

U-1014 Knowledge, attitude and practice (KAP) of sodium intake and its correlation with sodium intake, blood pressure and nutritional status in young (17 – 21 years old) Terengganu FC footballers
Nur Syahira Mansor, Abbe Maleyki Mhd Jalil

U-1015 Food behaviours and its associations with quality of life and mental health among B40 households in Terengganu
Nurul Aqilah Binti Mawardi, Bee Suan Wee

U-1016 Perceived stress, food addiction and disordered eating behaviour among university students in Kuala Lumpur
Xin Yan Kuan, Nurliyana Abdul Razak

U-1020 The interplay between sleep quality, eating behavior and mental health among 18 – 25 years old Asian adults in Malaysia
Wen Yi Goh, Shi Hui Cheng, Fei Ling Yap, Yee How Say

U-1022 Prevalence and factors associated with adherence to iron-containing supplementation among pregnant women attending selected health clinics in Hulu Langat, Malaysia
Derrick Hong E Lu, Siew Siew Lee, Weng Kuan Kimberly Tan

U-1023 The mediating role of picky eating behaviour in the relationship between food insecurity and body composition among young adults in Malaysia
Kok Sarah Tung Xing, Tan Seok Tyug

U-1024 Association between parental and child emotional overeating, socioeconomic factors, and childhood obesity among Malay children aged 7 – 12 years in Klang Valley, Malaysia
Thanusha Supparau, Yeow Nyin Ang

U-1026 Association between folate intake and stunting status among children aged 1 to 5 years old in Kuala Nerus and Kuala Terengganu
Nur Huda Ahmad Jemali, Sharifah Wajihah Wafa Syed Saadun Tarek Wafa

U-1027 Correlation between knowledge, attitude and practice (KAP) of iron intake and anaemia with dietary iron intake among female university students in Kuala Nerus, Terengganu
Intan Jasmira Md Yazid, Marhazlina Mohamad

U-1030 The association between eating behaviour, perceived stress level and nutritional status among undergraduate students at the Health Campus, Universiti Sains Malaysia
Rafeeza Roslan, Hamid Jan Jan Mohamed, Hafzan Yusoff

U-1033 Factors associated with nutritional status among older adults with and without Parkinson's disease in the Klang Valley
Xiao Hui Ng, Nurliyana Abdul Razak, Nurul Hidayah Mohd Sa'at, Arman Imran Ashok

U-1036 The influence of nutrition on muscle strength in different community-dwelling older adults in China
Yichun Zhang

U-1037 Understanding the use of galactagogues: motivators and perception among breastfeeding mothers of Malay and Indian ethnicities in Klang Valley, Malaysia
Sayli Viren Vartak, Serene En Hui Tung, Megan Hueh Zan Chong

U-1038 The association between dietary intake and nutritional status among adolescents in Hulu Terengganu, Terengganu
Fatin Munirah Mohamad Zubir, Napisah Hussin, Chee Yen Wong

U-1044 Understanding the reasons behind inadequate daily intake of fruits and vegetables in final year nutrition and dietetics students: a qualitative research
Athirah Zarith Sofea Ahmad Mahfuz, Vina Phei Sean Ta

U-1046 Relationship between sociocultural influences, social appearance anxiety, and body dissatisfaction among UCSI University students
Sin Yi Wong

U-1047 Prevalence and factors associated with protein energy wasting among patients on hemodialysis in Kota Kinabalu
Claire Yen Jing Chong, Jia Wen Chin, Logalingam Wiveena, Ban Hock Khor

U-1048 Higher oral lipopolysaccharide in normal-weight individuals and its association with BMI and eating behaviours in university students: a cross-sectional study
Esther Ying Qi Ting, Queenie Zhong Ni Ling, Noor Atiqah Aizan Binti Abdul Kadir

U-1049 Association between self-efficacy in dieting with dietary adherence among overweight and obese individuals in Kota Kinabalu, Sabah
Jian Hua Tan, Norliyana Aris, Ban Hock Khor

U-1050 Needs assessment among health service providers on nutritional status of children in Pulau Banggi, Kudat, Sabah
Norsyafinaz Mohamad Rafizal, Shahrulnaz Norhazli Nazri, Chee Ling Chan, Jenny Jouti, Eymas Juprin, Yasmin Beng Houi Ooi

U-1051 Nutrients and cost of food provision in childcare centres and kindergartens in Kota Kinabalu
Jia Qian Ang, Yasmin Beng Houi Ooi

U-1052 Knowledge, attitude and practice towards ultra-processed foods among nutrition and dietetics students in Malaysia
Nur Shodrina Wadhihah Abu Bakar, Pei Teng Lum, Bee Koon Poh

PX-2002 Sociodemographic characteristics, dietary habits, energy and macronutrient intakes of university students who habitually skip breakfast
Kek Yian Wen, Ramlah George

PX-2003 Seeing the signs: exploring socio-demographic and nutritional risk factors for xerophthalmia among vitamin A-deficient rural primary schoolchildren
Pei Yee Tan, Katherine Boon Hwei Seng, Chuan Chun Lim, Radhika Loganathan, Norlina Ramli, Yvonne Ai Lian Lim, Kim Tiu Teng, Kanga Rani Selvaduray, Syahirah Nadiah Mohd Johari

PX-2005 Validation of the alternative healthy eating index for Malaysian adolescents (AHEI-MA)
Nurul 'Ain Azizan, Ai Kah Ng, Tik Maimunah Abd Rahim, Hazreen Abdul Majid

PX-2010 Association between self-efficacy in exercise with physical activity adherence among overweight and obese individuals in Kota Kinabalu, Sabah
Norliyana Aris, Jian Hua Tan, Ban Hock Khor

PX-2012 Association between knowledge, perception, and soy food intake with body composition among chinese women in Bukit Jalil
Megan Chong, Kanimolli Arasu, Jia En Lai, Shi Xuan Ng

PX-2019 Sweat sodium profiles under different environmental conditions among Malaysian field hockey athletes
Ching Suen Tham

PX-2020 Food insecurity linked to unhealthy dietary patterns among preschoolers in Peninsular Malaysia
Nurul Hasanah Hasmuni Chew, Giin Shang Yeo, Nur Zakiah Mohd Saat, Jyh Eiin Wong, Ilse Khouw, Bee Koon Poh

PX-2025 Investigating the link between body mass index (BMI), micronutrient deficiency, and iron-induced inflammation in anaemia: a bioinformatics-assisted review (bar) approach
Fatin Natasha Syahirah Ahmad Radzuan, Norhafizah Ab Manan, Hairul Azman@Amir Hamzah Roslan, Salma Faeza Ahmad Fuzi

PX-2029 Minimum dietary diversity and its associated factors among children aged 6 – 24 months in rural Sabah
Fui Chee Woon, Mohamad Kamal Mohamed Lazi

PX-2030 Supplement prescription among national elite athletes: comparison between sports group
Erliza Nur Md Kamarulzaman, Mohd Izham Mohamad, Adi Farizzul Mohad Kamil

U-2001 Validity of diet quality questionnaire (DQQ) in assessing diet quality among adults in Kuala Lumpur, Malaysia
Joon Mei Poh, Wong Jyh Eiin

U-2002 Food insecurity and its association with nutritional and psychological well-being among public university students in Terengganu, Malaysia
Maisarah Mhd Rashid, Chee Yen Wong

U-2003 SCARF study: linking sleep, circadian rhythms, and emotional wellbeing in Malaysian female undergraduates
Pei Wen Su, Satvinder Kaur, Janice Ee Fang Tay, Kai Ting Mok, Shashikala Sivapathy, Nurliyana Abdul Razak, Siti Sabariah Bahari, Yee How Say

U-2005 Factors influencing vegetable and fruit consumption behaviours among secondary school students aged 13 – 14 in Selangor
Muhammad Najmi Faris Khairus, Shaliza Amierra Shahridzal, Ruzita Abd Talib

U-2006 Relationship between clinical symptoms and physical activity among paediatric cancer patients at Hospital Tunku Azizah, Kuala Lumpur
Nurhasya Rushida Idris, Chin Yi Phang, Christine Joan, Jyh Eiin Wong, Bee Koon Poh

U-2007 The association between environmental light exposure and sleep among preschoolers in Kuala Lumpur and Selangor
Amelia Lee, Satvinder Kaur, Esther Siew Sieng Lau, Xin Rou Leong

U-2009 Eating attitudes and its associated factors among selected adult vegetarians in Penang
Yu Yun Ang, Yit Siew Chin, Mahenderan Appukutty

U-2012 Association between parental and child food insecurity and adiposity of Malay children aged 7 – 12 years in Klang Valley, Malaysia
Wan Nur Aleeya Wan Najmi, Yeow Nyin Ang

U-2014 Exploring growth patterns using HAZ among children aged 0 – 76 months in urban Shah Alam, Selangor
Muhammad Syafiq Nazmi Mohd Rashdi, Sarina Sariman, Fahmi Hafidz

U-2017 The mediating role of diet quality in the relationship between screen time-based sedentary behaviour and body mass index among young adults in Malaysia
Oshadhi Gunaratne, Seok Tyug Tan

U-2018 Assessment of vitamin D status among pregnant women at Hospital Pakar Universiti Sains Malaysia (HPUSM)
Niranjanaa Rajkumar, Hamid Jan Jan Mohamed, Nour Salibie, Nik Hazlina Nik Hussain, Siti Sarah Fazzalul Rahiman, Erinna Mohamad Zon, Nur Aizati Athirah Daud

U-2019 Association of neighbourhood environments on lifestyle behaviour among urban poor adult community aged 18 – 59 in Klang Valley, Malaysia
Wan Irdina Batrisyia Wan Hashim, Shoo Thien Lee

U-2020 Perception and motivators on the use of galactagogues among Chinese breastfeeding mothers around Klang Valley, Malaysia
Shue Wei Liew, Serene En Hui Tung, Megan Hueh Zan Chong

U-2021 Association between anaemia, perinatal depression, and postpartum quality of life among pregnant women
Hong Yee Low, Siew Siew Lee, Weng Kuan Kimberly Tan

U-2022 Associations of socio-demographic, child, parental, and household factors with probiotic and prebiotic consumption among primary school students in Selangor
Zin May Lai, Nor Hasyimah Binti Khalid, Yit Siew Chin

U-2023 Associations of personal, lifestyle and environmental factors with dietary habits among secondary school students in Sungai Petani, Kedah
Nur Alifah Ilyana Mohamad Nor, Gan Wan Ying

U-2030 Factors associated with diet quality among undergraduate students in Universiti Putra Malaysia
Min En Loh

U-2031 Association of sociodemographic factors, social media influence and psychological factors on the risk of eating disorders among undergraduate students in Universiti Putra Malaysia
Kanagadhurrgah Sekar

U-2036 Stress-induced cortisol and restrained eating are associated with BMI in young adults at Universiti Malaysia Sabah: a cross-sectional study
Queenie Zhong Ni Ling, Esther Ying Qi Ting, Noor Atiqah Aizan Binti Abdul Kadir

U-2037 Health literacy and dietary protein adherence among individuals with pre-dialysis chronic kidney disease in Kota Kinabalu, Sabah: a cross-sectional study
Wiveena Logalingam, Jia Wen Chin, Claire Yen Jing Chong, Ban Hock Khor

U-2038 Chrononutrition characteristics and anthropometric status among university students in Kota Kinabalu, Sabah
Nur Fatin Liyana Kassim, Bibi Nabihah Abdul Hakim, 'Ammar Akram Kamarudin

U-2041 Relationship between eating behaviours, body mass index, perceived stress, and dysmenorrhea among university students in Kota Kinabalu, Sabah
Anisha Alia Shaiful Bahrin, Norliyana Aris

U-2042 Types, amounts, adequacy and cost of fruit and vegetable intake by adults in Sabah
Shi Tze Shu, Yasmin Beng Houi Ooi

U-2043 Chrononutrition characteristics and anthropometric status among working adults in Kota Kinabalu, Sabah
Nurul 'Alya Syuhada Mohamad Lailani, Bibi Nabihah Abdul Hakim, Ammar Akram Kamarudin

U-2046 Knowledge, attitude and practice of supplement intake among female football players in Selangor and Kuala Lumpur, Malaysia
Qi Yun Chuah, Jyh Eiin Wong

U-2047 Crunch or cringe? Food neophobia and acceptance of edible insects among Muslim adults in Malaysia
Nur Hazirah Yusof, See Meng Lim, Jyh Eiin Wong, Bee Koon Poh

U-2049 Association between dietary intake and myopia among Malaysian Chinese children aged 4 to 7 years in Klang Valley
Yi En Tew, Satvinder Kaur, Esther Siew Sieng Lau, Xin Rou Leong

U-2050 Prevalence and associated factors of fruit and vegetable intake among adolescents in urban and rural Sabah
May Cheng Chai, Shaliza Amierra Binti Shahridzal, Ruzita Binti Abd. Talib

Group B: Community Nutrition Promotion, Education & Interventions

P-1010 Urban gardening activities and nutrition education through board games improved knowledge related to vegetables and fruits among girls and overweight children in Malaysian primary school: a pilot study
Zahara Abdul Manaf, Li Ling Tee, Nurul Mirza Mohamad Shah, Siti Hajar Mohammad, Abdul Hakim Abdul Wahid

P-1011 Emphasis on digital health education leveraging Instagram for nutrition education: a study on improving label literacy in adolescents
Syaza Kamarudin, Bee Koon Poh, Hanis Mastura Yahya, Norazmir Md Nor, Raduan Sharif, Ruzita Abd Talib

P-1019 Impact of sleep quality and screen media use on body mass index among premyopic preschoolers
Esther Siew Sieng Lau, Satvinder Kaur, Swee Chai Teoh, Saiful Azlan Rosli, Xin Rou Leong, Yi En Tew, Amelia Lee

P-1020 Use of smartphone apps and wearable trackers for monitoring physical activity in children and adolescents
Nur Izzatun Nasriah Nasruddin, Anto Cordelia Tanislaus Antony Dhanapal, Joey Murphy, Miranda Armstrong

P-1024 Empowering urban poor families through nutrition education and urban gardening: findings from the PUTRACNAP cluster-randomized trial
Nur Amalin Juhari, Yit Siew Chin, Juju Nakasha Jaafar, Sukanya Sereenonchai, Poh Ying Lim, Nurzalinda Zalbahar @ Zabaha, Norhasmah Sulaiman, Yoke Mun Chan

P-1033 Purchasing patterns among students and other community members in urban poor areas of Kuala Lumpur - findings from South East Asia Obesogenic Food Environment (SEAOFE) study
Anis Munirah Mohd Sakri, Sameeha Mohd Jamil, Shashidharan Sivabalan, Che Aniza Che Wel, Yong Kang Cheah, Huay Woon You, Elaine Q Borazon, Sirinya Phulkerd, Adila Fahmida Saptari, Bee Koon Poh

P-1035 Worksite nutrition and wellness programme for university employees: a cluster-randomised trial protocol
Irka Dwi Fatmawati, Nia Novita Wirawan, Fajar Ari Nugroho, Mahenderan Appukutty, Yit Siew Chin

P-1037 Preschool teachers' perspectives on implementing the Toybox Study Malaysia (TSM): a qualitative study
Noor Hafizah Yatiman, Poh Bee Koon, Ruzita Abd Talib, Denise Koh, Cheah Whye Lian, Lee Julia Ai Cheng, Mohd Ismail Noor, Cecilia A. Essau, Sue Reeves, Carolyn Summerbell, Edward Leigh Gibson

U-1001 Relationship between social media usage, self-esteem and body dissatisfaction among UCSI university students
Wei Xuen Lai

U-1002 Household's food insecurity and their association with food safety beliefs and practices among urban poor mothers in Kuala Lumpur
Xin Nuo Chin, Aarick Toh Shen Goh, Stephenie Yoke Wei Wong

U-1004 Qualitative study: social media education on anaemia among anaemic female university students
Lai Shersanne, Janelle Yun Xuan Tsan, Satvinder Kaur

U-1007 Physical activity literacy, physical activity, and anthropometric status among university students in Kota Kinabalu, Sabah
Nuha Husna Mohd Bukhari, Bibi Nabihah Abdul Hakim, Oliver Dean John

U-1017 Factors associated with nutrition literacy among university students in Universiti Putra Malaysia
Wei Aun Ong, Wan Ying Gan

U-1018 What do Malaysian parents think about food and non-alcoholic beverages (FNAB) advertisements on television? A qualitative study
Nazihah Mat Tajuddin, Tilakavati Karupaiah, Gild Rick Ong, Mohd Jamil Sameeha

U-1028 Social media use, body image and physical activity among UCSI University students in Kuala Lumpur
Yien Lin Tan, Abdul Razak Nurliyana

U-1031 Accuracy of food portion size estimation among nutrition and dietetics students in Malaysia
Muhammad Nurhakim Nasharuddin, Wong Jyh Eiin

U-1035 Knowledge, attitudes and practices of food handlers on food safety in Chinese food premises in Klang Valley
Yean Xin Choo

U-1039 Development and validation of "pemacu": a nutrition education booklet for grandparents caring for grandchildren
Nur Awadah Din, Hanis Mastura Yahya, Nurul Fatin Malek Rivan

U-1040 Food safety knowledge, attitudes, and practices among food handlers in Malay food premises in Klang Valley
Claire Yann Wei Ng, Weng See Tham, Yean Xin Choo, Heng Yaw Yong, Siew Tin Tan, Pei Nee Chong

U-1041 Association between vitamin B12 intake and stunting among children under 5 years old in Kuala Terengganu and Kuala Nerus
Muhammad Nabhan Bihaqi Fauzi Naim, Sharifah Wajihah Wafa Syed Saadun Tarek Wafa

U-1045 Exploring food environment and food purchasing behaviour among university students at residential colleges
Nurul Aiman Aqilah Mohd Yusri, Mohd Razif Shahril

PX-2001 What foods are hypermarkets promoting? A content analysis of hypermarket flyers in Malaysia
Sameeha Mohd Jamil

PX-2006 Socio-environmental and motivational factors of physical inactivity among Malaysian school children: findings from a TPACS survey
Pei Teng Lum, Wan Qi Oon, Nurul Adryna Sumli, Bee Koon Poh

PX-2007 Promoting physical activity and healthy eating among physically inactive adolescents: a study protocol for an interactive web-based intervention
Siti Soraya Mohd Elias, Hazizi Abu Saad, Syed Abd Rahman Al Haddad

PX-2008 The development of a portion size guideline for children aged 1 to 3 years
Nurfarhana Diana Mohd Nor, Nurul Bahirah Mohd Shariff, Siok Peh Seah, Juppri Bacotang, Nur Nadirah Khairuddin, Che Suhaili Che Taha

PX-2009 The impact of 6 months nutrition intervention program among children in program community feeding (PCF) Pos Legap, Kuala Kangsar, Perak
Shaharizan Azizi, Aina Mardiah Basri, Siti Amirah Syed Abu Bakar, Julaidah Sharip

PX-2011 Nutrition intervention and its effects on performance, hydration, and dietary behavior in Malaysian football teams
Nurin Irdiena Ifqan Muhd Safari

PX-2015 An interventional study to reduce sodium levels of foods sold on a university/college campus in Malaysia
Yee How Say, Victoria Olubunmi Olarewaju, Wen Xuan Chia, Kelvin Gunawan, Kai Hui Lee, Jia Yi Ng, Felicia Fei Lei Chung, Yook Chin Chia

PX-2016 Needs assessment among parents on nutritional status of children in Pulau Banggi, Kudat, Sabah
Sherine Sze Lin Chin, Shahrulnaz Norhazli Nazri, Chee Ling Chan, Jenny Jouti, Eymas Juprin, Yasmin Beng Houi Ooi

PX-2017 Validation and determination of cut-off points for the food insecurity experience scale (FIES) in Malaysia
Shareena Delaila Mohd Samin, Wan Azdie Mohd Abu Bakar, Edre Mohd Aidid, Roselawati Mat Ya

PX-2021 Beyond food waste reduction: nutritional contributions of food rescue initiatives. A systematic review
Janice Ee Fang Tay, Lai Ti Gew, Serene En Hui Tung, Megan Hueh Zan Chong, Pau Voon Soon, Chiau Ming Long

PX-2023 Diagnostic accuracy and methodological validation of the InBody 970s multi-frequency bioelectrical impedance analysis device with dual-energy x-ray absorptiometry in assessing body composition among healthy Malaysian adults
Norsham Juliana, Mohamad Irfan Hakimi Zulkefly, Sofwatul Mokhtarah Maluin, Hazim Arief Halim, Siti Hanisah Fuad, Mohd Zulkimi Roslly, Muslimah Ithnin, Sahar Azmani, Nur Nazira Izaty Mhd Nazarludin

PX-2024 Association of electronic device use and pre-bedtime routines, with sleep habits among preschoolers in Peninsular Malaysia
Christine Joan, Denise Koh, Jyh Eiin Wong, Ilse Khouw, Bee Koon Poh

PX-2026 Exploring gender-specific predictors of vitamin D deficiency in subfertility
Nur Islami Mohd Fahmi Teng

PX-2027 Bone mass, bone turnover markers and muscle-bone unit of Malaysian preadolescent children
Kanimolli Arasu, Connie Weaver, Winnie Chee

U-2004 Relationship between parent and peer influence, digital addiction and body image among UCSI university students
Pei Ci Wong, Shashikala Sivapathy

U-2008 A survey on availability, nutrition labelling and consumer awareness of tempeh-based snack products
Siti Masyitah Ahmad Khairul Anam, Hasnah Haron

U-2010 Healthy diet and active lifestyle module development for urban poor adult community in Klang Valley
Choy Har Lim, Shoo Thien Lee, Sharifah Intan Zainun Sharif Ishak

U-2011 The effects of fruit and vegetable intake on changes in oxidative stress and *blood lactate levels among physically active Malaysian youths*
Yu Han Gan, Seok Shin Tan

U-2016 Food safety knowledge, attitudes and practices of food handlers on food safety in Indian and Indian-Muslim food premises in Klang Valley
Weng See Tham, Heng Yaw Yong, Siew Tin Tan, Claire Yann Wei Ng, Yean Xin Choo, Pei Nee Chong

U-2024 Association of sociodemographic background, lifestyle and psychological factors with body mass index (BMI) among undergraduate students in Universiti Putra Malaysia, Serdang, Selangor
Ahmad bin Ismail

U-2025 Factors associated with emotional eating among secondary school students in Hulu Langat, Selangor
Aimi Hasya Reduan

U-2026 Factors associated with food bank use among students in Universiti Putra Malaysia
Anis Nursyahindah Binti Ahmad, Norhasmah Sulaiman

U-2029 Factors associated with health-related quality of life (HRQoL) among postpartum mothers in Klang Valley, Malaysia
Wee Ting Lim

U-2032 Factors associated with the diet quality among undergraduate students in the private universities in Selangor
Nur Amanina binti Othman

U-2034 Factors associated with nutrition knowledge during pregnancy among antenatal mothers in Hospital Sultan Abdul Aziz Shah (HSAAS), Selangor
Shin Ai Yu, Nur Zalinda Zalbahar

U-2035 Development and assessment of the understandability and actionability of cancer prevention recommendations through electronic flipbooks for Malaysian young adults
Yii Xin Chew, Mohd Razif Shahril

U-2039 What foods are Malaysian influencers promoting and what are the marketing strategies used to promote these products? A case study on 'food and cooking' influencers on Instagram
Thanyaanat Suwanmanie Samran, Tilakavati Karupaiah, Gild Rick Ong, Mohd Jamil Sameeha

U-2040 Association of online food delivery platform usage with diet quality and anthropometric parameters among university students in Kota Kinabalu, Sabah
Nur'aliaa Bahriah Buhari, Khor Ban Hock

U-2045 Development of a doping risk classification database for sport supplements available in the Malaysian market
Jarred Rumpau, Jyh Eiin Wong

U-2048 Likes, shares and 'calories': user engagement and marketing strategies used by food and beverage brands in Malaysia
Siti Halimah Kamarun Zaman, Tilakavati Karupaiah, Gild Rick Ong, Mohd Jamil Sameeha

Group C: Clinical Nutrition / Intervention Trials

P-1009 Effect of nutrition and physical activity on postpartum depression and psychosocial well-being among mothers with preterm infants: a pilot randomised controlled trial
Noor Fairuzi Suhana Yahya, Nur Islami Mohd Fahmi Teng, Norsham Juliana

P-1014 Nutrition education module development: a sugar-sweetened beverage approach for diabetes prevention
Ee Rong Lee, Satvinder Kaur, Choon Hui Tan

P-1017 A genetic approach to examine the relationship between vitamin D metabolism related genes and obesity in Middle Eastern populations: a literature review
Haya Al Ali, Vimal Karani

U-1003 Association between dietary intake and anthropometric indicators among paediatric cancer patients at Tunku Azizah Hospital, Kuala Lumpur
Weng Wah Law, Chin Yi Phang, Nurul Farhana Rahmat, Pei Teng Lum, Shu Chin Teh, Giin Shang Yeo, Jyh Eiin Wong, Bee Koon Poh

U-1009 Complementary and alternative medicine usage and its association with health information seeking behaviour and health literacy among adults with chronic kidney disease
Jia Wen Chin, Wiveena Logalingam, Claire Yen Jing Chong, Benjamin Wei Wang Tan, Vinoth Kasi Rajan Athmalingam, Fei Sia Chan, Koh Wei Wong, Ban Hock Khor

PX-2018 The use of sacha inchi oil cured severe allergies and prevented autoimmune attacks
Nam Fong Hew

PX-2028 Red palm olein supplementation enhances antioxidant status and reduces oxidized LDL in centrally obese adults: a randomized controlled trial
Radhika Loganathan, Shireene Ratna Vethakkan, Ammu Kutty Radhakrishnan, Kim Tiu Teng

PX-2032 Insights from gut microbiota profiles in Malaysian adults with type-2 diabetes: implications for dietary interventions
Siva Gowri Pathmanathan, Geetha Letchumanan, Marlini Muhamad, Nizam Baharom, Blair Lawley, Fathima Begum Syed Mohideen, Faizul Helmi Addnan, Sathya Rao Jogulu, Nur Fariha Mohd Manzor, Mohd Rahman Oma

Group D: Nutrients & Other Components in Foods / Products

P-1013 Formulation and preliminary evaluation of a dabai-based functional food bar for stunted children aged 4 – 6 years
Lu Ying Khoo, Azrina Azlan, Siti Raihanah Shafie, Wan Ying Gan, Nang Ling Chuo

P-1028 Breast milk micrornas: potential relationships with breast milk hormones and infant outcomes
Ruo Xuan Goi, Xiao Ning Zhu, Yoke Kqueen Cheah, Nurul Husna Mohd Shukr Mohd Shukri

P-1029 Unlabeled caffeine in ready-to-drink beverages: ergogenic implications for athletes
Sitti Junaina Musa, Nerosha Nair Gunasegaran, Ahmad Rohi Ghazali, Nor Farah Mohamad Fauzi, Mohd Izham Mohamad, Abdul Hadi Abd Rahman, Nik Shanita Safii

U-1010 Nutritional and physicochemical qualities of fibre-enriched keropok lekor incorporated with split gill mushroom, Schizophyllum commune
Puteri Zulaika Muhammad, Nur Hanisah Azmi

U-1013 Effects of hot water blanching temperature and time on ascorbic acid and total phenolic contents in dried star fruit (Averrhoa carambola l.)
Pei San Theng, Amin Ismail

U-1025 Sensory evaluation and nutrient analysis of keropok lekor containing okara
Jia Ai Lim, See Meng Lim, Sek Yow Soo, Hasnah Haron

U-1032 Analysis of proximate and fatty acid profile of dishes offered at nasi kandar restaurants in Kuala Lumpur
Jia Yi Liew, Mohd Razif Shahril, Hasnah Haron, A. Razak Muda, Ab Aziz Ishak, Mohammad Shafiq Rahmat

U-1042 Nutritional quality, labelling, and price disparities between private and branded packaged foods and beverages in Malaysia
Wen Xuin Ang, Mahla Chambari, Digsha Augundhooa, Baskaran Gunasekaran, Vaidehi Ulaganathan

U-1043 The nutritional composition, texture, colour, and sensory evaluation of chocolate bar formulated with brown seaweed (Kappaphycus alvarezii) using response surface methodology (RSM)
Wan Nur Fatihah Wan Nasri, Wan Rosli Wan Ishak

PX-2013 Fatty acid analysis in fish using gas chromatography with flame ionization detection (GC-FID): method validation
Mohammad Adi Mohammad Fadzil, Mohd Naeem Mohd Nawi, Mohd Azerulazree Jamilan, Nurul Aznyda Norizan, Norhayati Mustafa Khalid, Aswir Abd Rashed

PX-2034 Antioxidant and anti-inflammatory activity of green juices
Lim Mei Chen, Norhaizan Mohd Esa

U-2027 Postnatal breast milk cortisol: temporal patterns and differences by infant birth characteristics
Lin Chong

U-2028 Comparison of total phenolic content, total flavonoid content and antioxidant activities in seeds, skins and pulps of red and black grapes
Yin Thong Chong, Azrina Binti Azlan

U-2033 Effects of incorporation of dried Ziziphus jujuba on proximate composition, iron, zinc and vitamin C content in mushroom-based meat alternatives
Pei Yee Lo, Nurul Husna Shafie

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

P-1023 Effects of a low protein diet on growth, body composition and bone health in weaning male and female rats
Xin Qian Ng, See Meng Lim, Kok Yong Chin, Elvy Suhana Mohd Ramli, Siti Balkis Budin

U-1019 Anthocyanin extracts from Sabah Tadong black rice attenuate obesity-related metabolic markers in rats fed with high fat diet
Lee Lee Yap, Noor Atiqah Aizan Abdul Kadir

U-1034 Red rice anthocyanin supplementation mitigate obesity-related metabolic disturbance in rats fed with high-fat diet
Ivy Ai Bing Sung, Noor Atiqah Aizan Abdul Kadir

PX-2033 Linking artificial sweetener intake to asthma via gut microbiome modulation: evidence from a mouse model
Fasty Arum Utami, Jose Roberto Rodriguez Mazariegos, Nam Nhat Nguyen, Shih Yi Huang, Yang Ching Chen

U-2013 Evaluation of the antioxidant, enzyme inhibitory, and anti-adipogenic effects of palm-derived delta-tocotrienol on 3t3-l1 preadipocyte differentiation
Wilson Lean Siew Hin, Ramlah Mohamad Ibrahim, Premdass Ramdas

U-2015 Investigation of antioxidant activity and anti-adipogenic effects of oil palm polyphenols on 3T3-L1 preadipocyte differentiation
Kaung Soe Lim, Premdas Ramdas, Ramlah Mohamad Ibrahim

U-2044 Acute oral toxicity of natural senotherapeutic polyherbal extract product through biochemical and metabolomic analyses
Yuin Siang Wong, Hilmi Hussin, Razinah Sharif, Ahmed Mediani

Group F: Food Science & Technology

P-1016 The effect of mhealth interventions on quality of life in hiv patients: a grade assessed systematic review and meta-analysis
Mahla Chambari, Digsha Augundhooa, Maedeh Nojoumi, Mugambikai Magendiran, Jane Simajaya, Thivyah Muniswaran, Baskaran Gunasekaran, Vaidehi Ulaganathan

P-1032 Nutrient composition of commercially available flavoured tempeh chips available in Klang Valley
Chai Jia Law, Ahmad Khairul Anam Siti Masyitah, Haron Hasnah

U-1021 A survey on sodium content, sources, and nutrition labelling of processed and ultra-processed meat products in the local supermarket
Muhamad Zhafeer, Hasnah Haron

U-1029 From waste to wealth: unlocking anti-oxidant and anti-glycation power of fruit peels through innovative drying
Hui Ning Luen, Phaik Har Yong, Zhi Xiang Ng

PX-2004 Development of anthocyanin-loaded bigel beads for enhanced encapsulation efficiency
Noor Atiqah Aizan Abdul Kadir, Yasmin Beng Houi Ooi, Yanty Noorzianna Abdul Manaf

PX-2014 Buffalo milk vs cow milk in fermented dadih powder: a comparative evaluation of nutritional content and lactic acid bacteria
Helmizar Helmizar

PX-2022 Development a user-friendly AI-powered application to increase calorie awareness and promote healthy lifestyle behaviour
Muhammad Nur Hasan Syah, Bayu Saputra, Melati Eka Putri, Fanny Limin

PX-2031 Exploring mature okra as a sustainable, functional, and nutrient-rich ingredient in biscuit formulation
Mohd Redzwan Sabran, Nurul Najwa Mohd Khairi, Filzah Izzaty Fatchuddin Assidiqi, Chee Yee Tan

UX-2001 Investigation of cholesterol lowering effects of different probiotic strains in pomegranate juice fermentation
Yeng Hee Seng, Yien Yien Ong

UX-2002 Investigating the effect of guava leaf extract on anti-diabetic and anti-inflammatory properties in probiotic fermentation
Xin Yue Chuah, Yien Yien Ong

UX-2003 Evaluation of bioactive compounds and anti-inflammatory effects in fermented tomato juice using different probiotic strains
Brenda Li Xuan Low, Yien Yien Ong

UX-2004 Different probiotic fermentation on the chemical, antioxidant, and hypoglycemic properties of beetroot (beta vulgaris) juice
Kai Hui Yap, Pei Ling Tang

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Speaker: Goh Peen Ern, Senior Manager Nutrition Communication Asia-Pacific, BENEO-Institute/BENEO Asia Pacific Pte Ltd

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The health expectancy challenge

The world is experiencing a demographic revolution, where aging populations are reshaping societies and calling for bold innovations in health and social care.

60+

In 2020, the number of people aged 60 years and older outnumbered children younger than 5 years[1]

x2

Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%[1]

80%

In 2050, 80% of older people will be living in low- and middle-income countries[1]

1. World Health Organization, "Ageing and Health," WHO (accessed 19/10/2024), https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability.

Your end-to-end innovation partner in health expectancy

Ready to uncover new possibilities in health expectancy? Our health expectancy offering is rooted in foundational scientific aging theories and bolstered by a multifaceted approach to evidence generation—with a portfolio of cutting-edge ingredients at the core to deliver life-enhancing benefits. Connect with one of our experts to explore how we can develop solutions targeting healthy aging and longevity.

Herbalife

Time to Combat Obesity

In just over a decade, obesity in Malaysia has increased from **44.5% in 2011** to **54.4% in 2023**. This alarming trend is linked to **73% of deaths caused by non-communicable diseases (NCDs),** particularly diabetes and hypertension[2].

Obesity-related health problems are also costing Malaysia 4.53% of the GDP in lost productivity[3].

1 in 2
Malaysian adults is overweight or obese!

73%
of death were due to NCDs

It's time to act. This is where Herbalife, a premier health and wellness company and community, can help.

Herbalife: The #1 weight management and well-being brand in the world[4]

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- 221** Calories
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This product is not intended to diagnose, treat, cure or prevent any disease.

Embark Your Wellness Journey Today

For further details, contact Herbalife and start your journey to better health and productivity today! Together, we can support your weight management and build a healthier Malaysia.

Sources:
1. National Health and Morbidity Survey 2023
2.'Fattest nation' needs to slim down drastically (News Straits Times, 28 May 2024)
3. Obesity affects productivity (News Straits Times, 28 February 2022)
4. Euromonitor; CH2025ed, weight management & wellbeing definition; combined % RSP share GBO for 2024.
5. https:www.healthline.com/nutrition

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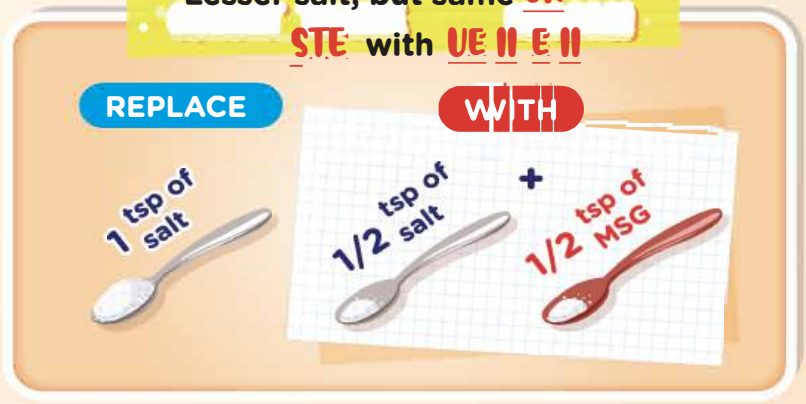

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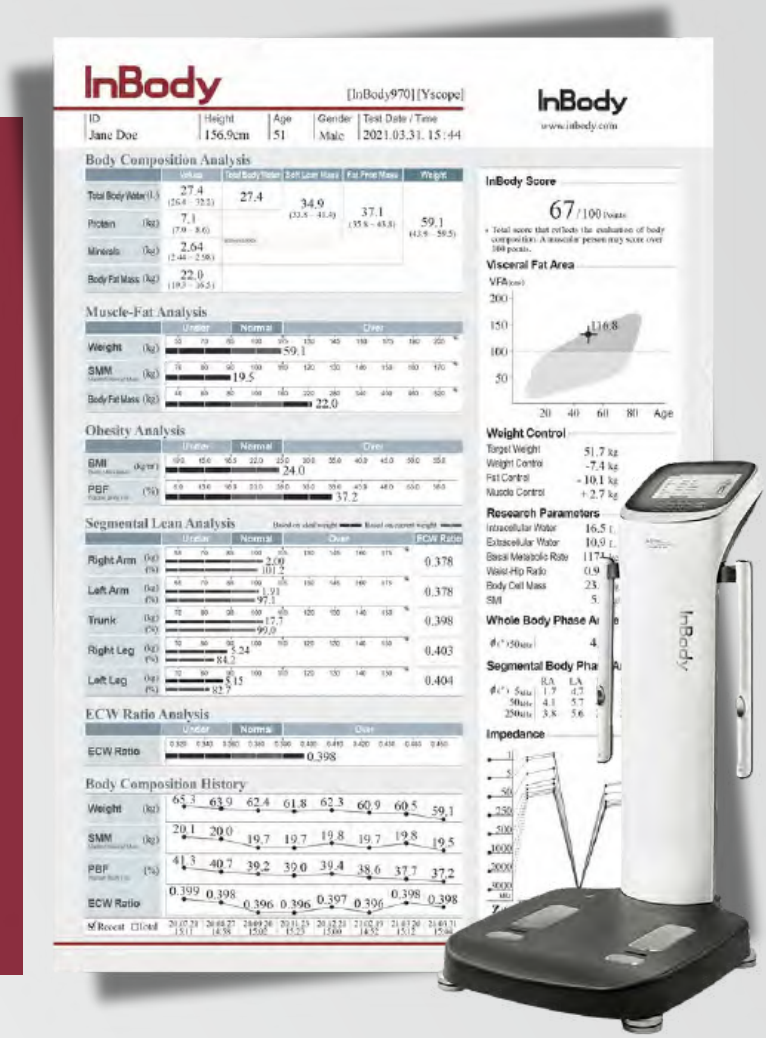

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Rujukan: Hamid Jan Jan Mohamed et al. (2025, July 29-30). *Efficacy of an oral nutrition supplement on the nutritional status of stunted and at-risk of stunting children: A community-based intervention study.* 40th Nutrition Society of Malaysia Annual Scientific Conference. Kuala Lumpur, Malaysia.

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A Nation-Wide Community Nutrition Promotion Programme Since 2002

Achievements of NMM

Aimed to promote greater awareness of healthy eating and active living among Malaysians, it is a strategic partnership between three professional bodies, namely, **Nutrition Society of Malaysia (NSM), Malaysian Dietitians' Association (MDA), Malaysian Society of Body Composition (MSBC)**. Corporate company support and partnership from 2008 enabled more educational materials and activities and greater outreach to the community.

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

Mass Media Promotions

- 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:

Chairman, Nutrition Month Malaysia
Email: president@nutriweb.org.my
Website: www.nutritionmonthmalaysia.org.my

or

VersaComm Sdn Bhd,
Nutrition Month Malaysia Secretariat
Tel: (03) 5632 3301/5637 3526

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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 more information: www.nutriweb.org.my

nsmnutritionroadshows2

Abstracts

40th NSM Scientific Conference | Day 1

40th NSM Anniversary Lecture

Four decades of advancing nutrition – way ahead for NSM

Tee E Siong

Nutrition Society of Malaysia

It is a significant milestone for Nutrition Society of Malaysia to be 40. Officially registered as a professional body in 1985, NSM is now one of the main players in promoting nutrition science and public health nutrition in Malaysia and the Southeast Asian region. This commemorative lecture summarises the birth of NSM 40 years ago and traces the journey over the decades of significant contributions to its members, to nutrition science and the community at large.

Members of NSM are related professionals interested in the promotion and advancement of nutrition science. Members have benefited from participating in the variety of scientific meetings organised; the opportunity to network and collaborate with nutrition fraternity in the country and the region; career guidance and professional development programmes; opportunities to serve as members of working groups including in various NSM community nutrition promotion programmes.

NSM today is a leader in many areas of nutrition science and community nutrition promotion. Members serve in technical committees of government ministries, particularly the Ministry of Health and provide professional advice in the development of policies, strategic plans and intervention programmes. Over the decades, we have worked in strategic collaboration with other like-minded professional bodies and corporate companies in promoting nutrition science, implementing nutrition research and a large variety of community nutrition promotion programmes. In the region, NSM initiated the formation of a Southeast Asia Public Health Nutrition (SEA-PHN) Network in 2014, which has provided a platform for collaboration in implementation of a number of nutrition activities.

NSM will not rest on its laurels. We are mindful of our responsibility to our members and to the nation. Recognising that the problems of double burden malnutrition in the country which have not reduced over the years, and indeed have worsened in some areas, NSM is of the view that it cannot be business as usual. There must be rethinking of the approaches to the intervention strategies. There must be greater efforts to put in place what is needed for the prevention of nutritional disorders, as emphasised in the Health White Paper for Malaysia 2023. NSM offers its experiences and expertise and will be happy to collaborate with all key stakeholders, with clear terms of reference, in these efforts.

We are of the belief that we need to be truly working together – all of government, all stakeholders, if we are to be successful in alleviating the malnutrition problems.

Details of the activities of NSM, its contributions to promoting nutrition science and public health nutrition over the past 4 years is documented in the form of a pictorial story in a commemorative book available from the NSM website: https://nutriweb.org.my.

Keynote Lecture 1

Contributions of Asia to Global Health and Nutrition

Jeyakumar Henry

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It is hard to imagine that the science of nutrition is merely a hundred years old. The discovery of vitamin in 1914 is conventionally viewed as the date of inception of nutrition. Asia played a key role in the "discovery "of Vitamins. In 1888, Eijkman working in present day Jakarta, reported polyneuritis in chickens fed polished rice. Observing that the disease in chicken resembled polyneuritis in humans caused by beriberi, Eijkman proposed that beriberi was due to the presence of toxic compounds in polished rice. Subsequently it was demonstrated that the lack of amine (thiamine) in polished rice, was the primary cause of beriberi. This illustrates one of the earliest records of nutritional research emerging from Asia

Two international figures in nutrition science were Prof C Gopalan from India and Prof Junshi Chen from China. Prof Gopalan was responsible for initiating nutrition research in India. Post-independence 1947, India faced numerous nutritional challenges and deficiencies. Gopalan's work on eradicating iron, iodine and other vitamin/mineral deficiencies led to the evolution of public health policies being adopted by numerous other countries in Asia and beyond. Gopalan also pioneered in developing one of the earliest food composition tables in Asia, which even today in its revised form, is extensively used worldwide. Gopalan was the founding member of the Federation of Asian Nutritionist and a binding force in bringing together Nutritionists from all over Asia. Prof Junshi Chen was the first to report a cure for Keshan disease due to Selenium deficiency. He also was instrumental in the China–Cornell–Oxford Project, which is abbreviated as the "China-Oxford-Cornell Study on Dietary, Lifestyle, and Disease Mortality Characteristics in 65 Rural Chinese Counties", collaborating with Dr. T. Colin Campbell from Cornell University and Professor Richard Peto from the University of Oxford. These two doyens of science illustrate how Asians have played a key role in global Nutrition. The presentation will conclude by examining the role Malaysia and NSM have played in Global Nutrition and how collectively, we can continue to make invaluable contributions to global health.

Symposium 1: Clinical Research in Nutrition

Nutrigenetics and nutrigenomics: nutrition unraveled for precision wellness

Vimal Karani S

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Nutrigenetics and Nutrigenomics serve as novel tools for nutritional research and help in mitigating the health-related problems of humans. Individuals differ from each other in their genetic makeup due to which individuals respond differently to various lifestyle factors such as diet and physical activity. These genetic differences are the key enabler of the emerging nutrigenetics and nutrigenomics areas of research. Obesity is a heritable trait that arises from the interactions between multiple genes and lifestyle factors such as unhealthy diet and physical inactivity. Dietary factors play an important role in the development of obesity because of the variation in the food that is being consumed in different parts of the world. Although several studies have examined the gene-nutrient interactions, the findings have been quite inconsistent and hence, unable to develop an optimum diet for each ancestral population. Nutrigenetics has highlighted the complexity of gene-diet interactions, but it offers opportunities to re-evaluate

criteria used to set dietary guidelines and the contribution of genetic variation to optimal nutrition for individuals from different ethnic groups. In line with this, a large-scale collaborative project called GeNuIne (Gene-Nutrient Interactions) Collaboration that aims to develop precision nutrition strategies based on the evidence from nutrigenetics, nutrigenomics, epigenetics, and gut microbiomics using cohorts from various ethnic groups has been initiated. If the interactions between genetic variations and nutritional requirements are better understood in various ethnic groups, dietary recommendations could be personalized according to genotype to ultimately promote health and reduce disease risk.

Exploring dietary pattern's role in aging and cancer survivorship: unravelling telomere clues

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Introduction: Telomere length (TL) serves as a biomarker of cellular aging and is influenced by nutritional and lifestyle factors. Understanding how dietary patterns relate to TL is particularly important among breast cancer survivors, a population at increased risk of accelerated aging. This study aimed to examine the association between dietary patterns and telomere length in breast cancer survivors and cancer free control. **Methods:** A total of 262 breast cancer survivors (mean age: 50.9 ± 7.6 years) and 262 age-matched cancer-free women (mean age: 49.7 ± 7.7 years) were recruited from a teaching hospital. Telomere length was measured using quantitative PCR. Dietary intake was assessed using a validated food frequency questionnaire and dietary patterns were derived using principal component analysis. Multiple linear regression was used to evaluate associations between each dietary pattern and TL, adjusting for confounding factors. All data were analysed using IBM SPSS Statistics version 29. **Results**: Three dietary patterns were derived: (1) Vegetable-Rich Pattern, (2) Fruit and Condiment Pattern, and (3) Ultra-Processed Mixed Pattern. The Fruit and Condiment Pattern was significantly associated with longer TL in both breast cancer survivors (β = 44.239, p = 0.016) and controls (β = 45.918, p = 0.011). The Ultra-Processed Mixed Pattern was associated with shorter TL among survivors only (β = -63.830, p = 0.001), while the Vegetable-Rich Pattern was positively associated with TL in controls (β = 40.363, p = 0.016), but not in survivors. **Conclusion:** This study reveals that specific dietary patterns are linked to biological aging, as indicated by telomere length, in both breast cancer

survivors and cancer-free women. These findings support the role of diet in modulating cellular aging and highlight the importance of targeted nutritional strategies in cancer survivorship.

The dual challenges of physical and social frailty among older adults

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Introduction: Frailty in older adults, whether physical or social, leads to increased vulnerability and adverse health outcomes. **Methods:** A cross-sectional study was conducted among 287 older adults aged ≥ 60 years in Kelantan. Physical frailty was assessed using the Fried Frailty Phenotype while social frailty was determined using the Makizako Social Frailty Index. Adjusted multinomial logistic regression was performed to determine the factors associated with each frailty conditions. **Results**: For each unit increase in muscle strength, the odds of being in the pre-physically frail and physical frailty groups decrease by 23.4% (OR: 0.766; 95%CI: 0.634, 0.926, p-value=0.006), and 35.4% (OR: 0.646; 95%CI: 0.518, 0.806, p-value<0.001), respectively. Supplement intake lowers the risk of pre-physical frailty by 92.4% (OR: 0.076; 95%CI: 0.006, 0.962, p-value=0.047). Pre-social frailty was associated with higher depressive symptoms (OR: 1.261; 95%CI: 1.023,1.553, p-value: 0.030), higher niacin intake (OR: 1.182; 95%CI: 1.035, 1.350, p-value=0.013) and lower fat intake (OR: 0.963; 95%CI: 0.935, 0.993, p-value=0.016). Social frailty was associated with increased adherence to milk and complex carbohydrate dietary pattern (OR: 0.427; 95%CI: 0.193, 0.945, p-value=0.036), smaller household size (OR: 0.692; 95%CI: 0.507, 0.944, p-value=0.020), depressive symptoms (OR: 1.463; 95%CI: 1.114, 1.921, p-value=0.006) and increased niacin intake (OR: 1.356; 95%CI: 1.136, 1.618, p-value<0.001). **Conclusion**: Physical frailty is influenced by muscle strength and nutrition, while social frailty is strongly linked to mental health, dietary intake, and household structure. Addressing both physical and social domains through integrated community-based programmes is essential to reduce the burden of frailty and promote successful aging.

Invited Lecture 1

Targeting 'Skinny Fat' and metabolic health: scientific insights on chicory root fibres and Palatinose™

Goh Peen Ern

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Malaysia is facing a growing public health challenge. The latest National Health and Morbidity Survey reveals that 54.4% of Malaysians are overweight or obese, up from 44.5% in 2011. Abdominal obesity has also risen significantly, from 45.4% in 2011 to 54.5% in 2023. These trends highlight the urgent need for targeted dietary strategies. This is particularly important for Asian populations, who are predisposed to accumulating visceral fat despite having a normal BMI – a phenomenon commonly referred to as "skinny fat."

This presentation delves into the science behind two functional ingredients, chicory root fibres and Palatinose™ (isomaltulose). These ingredients support metabolic health and weight

management through the modulation of GLP-1 (glucagon-like peptide-1), a gut hormone that plays a key role in regulating appetite, blood glucose, and fat metabolism.

Prebiotic chicory root fibres (inulin and oligofructose) are selectively fermented by beneficial gut microbiota, leading to the production of short-chain fatty acids. These in turn stimulate the secretion of gut hormones such as GLP-1, which promote satiety. More than 30 clinical studies show that this prebiotic enhance satiety, reduce caloric intake, thereby supporting improvements in body composition. Additionally, replacing sugar with chicory root fibres has been shown to improve glycaemic control.

Palatinose™ is a low-glycaemic, carbohydrate derived from sugar beets. Due to its slow-release property, Palatinose™ steers metabolism towards a rise in GLP-1 and fat burning as compared to traditional high glycaemic sugars and carbohydrates. Furthermore, its slow-release property helps maintain stable blood glucose levels. Human studies conducted in various populations, including overweight and obese individuals, older adults, and people with diabetes, demonstrate that Palatinose™ increases postprandial GLP-1 levels, preserves insulin sensitivity, and supports cardiovascular health.

Chicory root fibres and Palatinose™ offer science-based dietary solutions to address the "skinny-fat" phenotype and rising metabolic health issues in Malaysia. As demand for functional foods continues to grow, incorporating these ingredients into daily diets presents a promising strategy that aligns with healthier lifestyle trends.

Lunch Symposium

Efficacy of an oral nutrition supplement on the nutritional status of stunted and at-risk of stunting children: a community-based intervention study

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Introduction: Stunting is associated with poor nutritional intake during early childhood. This study evaluated the effect of a 6-month daily 510 mL of an oral nutritional supplement on linear growth among stunted and at-risk children aged 12 – 36 months. **Methods:** A community-based, single arm intervention was conducted among 91 children in Kelantan with height-for-age Z-scores (HAZ) of <-1.5 SD to >-3 SD based on WHO Growth Standards. Participants consumed the oral nutrition supplement daily for six months. Anthropometric measurements were taken at baseline (T0), 3 months (T3), and 6 months (T6) post-supplementation. Nutrient intake was assessed using 24-hour dietary recalls at baseline and endline, and compliance was monitored via returned empty sachets. Zinc protoporphyrin (ZnPP) levels were measured at T0 and T6 to evaluate iron status. **Results:** The mean age at baseline was 26.7 ± 6.5 months, with 37 stunted and 54 at-risk children. Significant linear growth improvement (HAZ) was observed over time ($p < 0.001$) in both stunted and at-risk groups. A significant time-by-group interaction ($p = 0.014$) indicated differential effects between the stunted and at-risk groups. Post-hoc analysis confirmed HAZ improvements from T0 to T6 in stunted and at-risk groups ($p < 0.001$) with the stunted

group showing greater mean differences. Stunting prevalence declined by 37.8% (p = 0.003) in 6 months with significant improvement in height and weight as early as 3-months. Nutrient intake of protein, vitamins D, C, B1, B2, B3, B6, B12, calcium, phosphorus, magnesium, and iron improved significantly. Although overall ZnPP levels did not change significantly (p = 0.238), a reduction was seen in mildly iron-deficient children (p = 0.031). **Conclusion:** Daily intake of 510 mL of oral nutrition supplement improved linear growth and nutrient intakes in both stunted and at-risk children, and improved iron status in mildly iron-deficient children. These findings support the potential of targeted supplementation in addressing child growth faltering and micronutrient inadequacies.

Symposium 2: Nutrition from Womb to Tomb

Transforming food assistance to enhance food security and nutrition for asnaf families in Terengganu

***Sharifah Wajihah Wafa bt Syed Saadun Tarek Wafa*[1], *Fauzilah Salleh*[2], *Chee Yen Wong*[1], *Che Suhaili Che Taha*[1], *Che Wan Nur Amirah Che W Jusoh*[1], *Nazli Amirri Ngah*[3]**

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Introduction: Food insecurity and malnutrition persist among zakat-eligible groups in Malaysia, particularly the asnaf fakir and miskin (extremely poor and poor). In Terengganu, food aid distributed by MAIDAM primarily consists of staple items, with limited attention to nutritional adequacy. This study aimed to reformulate the food basket to better support food security and nutritional needs of asnaf fakir and miskin households in Terengganu. **Methods:** A cross-sectional study involving 50 asnaf fakir and miskin households in Kuala Nerus and Dungun was conducted. Data on socio-demography, food security (Radimer/Cornell scale), and nutritional status of children (aged 4 – 6 years) were collected through anthropometry measurement. In Phase 2, stakeholder consultations with MAIDAM officers, nutritionists, mosque representatives, and asnaf families were held to refine food basket components based on nutritional value, cost, shelf life, and acceptability. **Results:** Food insecurity affected 94% of households, with 78% reporting child hunger. Nutritional assessment showed 38% of children were malnourished; 18% stunted, 16% underweight, and 4% obese. Phase 2 led to the formulation of the Bakul Makanan Sihat MAIDAM, a balanced package containing carbohydrate staples, protein sources (eggs and anchovies), healthy fats, powdered milk, and a variety of fruits and vegetables. This food basket was estimated to meet approximately 92% of the household's weekly caloric needs and emphasized the inclusion of critical micronutrients (e.g., iron, calcium, vitamin A). Its design aligns with Malaysia's dietary guidelines and the principles of Maqāṣid al-Sharī'ah, supporting both nutritional well-being and zakat objectives. **Conclusion:** The revised basket provides a nutritionally balanced, culturally acceptable intervention that can improve dietary adequacy and reduce malnutrition among asnaf fakir and miskin households, advancing zakat's role in achieving SDG 2.

An early life-course model-of-care to transforming maternal and child healthcare

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Introduction: Rising rates of obesity, metabolic and mental health issues among women of reproductive age contribute to adverse outcomes across the preconception, pregnancy, and postpartum periods. The preconception phase offers a pivotal opportunity to transform maternal and child health trajectories through early, sustained intervention. We aimed to examine whether an early life course model-of-care, namely the Healthy Early Life Moments in Singapore (HELMS), that integrates lifestyle support from preconception through pregnancy and postpartum can improve the metabolic and mental health of women with obesity, as well as optimise early child growth. **Methods**: HELMS is a single-arm pilot implementation trial enrolling 500 women (aged 21–40 years; BMI 25 – 40 kg/m²) planning pregnancy, with interventions delivered from preconception to 18 months postpartum. The intervention is delivered via a digital platform, with modules providing anticipatory guidance and supporting goal setting for lifestyle behaviours, including diet, physical activity, mental wellness, and sleep hygiene. Women who conceive within one year of recruitment are followed through pregnancy and assessed with their infants at six time points over the first 18 months of life. Data collection includes questionnaires, anthropometric measurements, and biosamples at each visit. Primary outcomes include pregnancy rate, maternal metabolic and mental health; secondary outcomes include reproductive health, pregnancy outcomes, and offspring growth and feeding practices. **Results**: To date, 474 women have been enrolled, with 142 pregnancies and 76 deliveries. At baseline, 20% had dysglycaemia and 32% met criteria for metabolic syndrome. Preliminary evaluation indicates high feasibility, acceptability, and appropriateness of the preconception phase intervention. **Conclusion**: HELMS offers a scalable, digitally enabled model-of-care that operationalises a life-course approach to maternal-child health. Findings will inform future pragmatic trials and healthcare system integration to promote sustained improvements in women's and children's health.

Maternal nutrition and multiple micronutrient supplementation: breaking the intergenerational cycle of anaemia for a healthier future

Misra Snigdha

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The intergenerational cycle of anaemia – driven by maternal micronutrient deficiencies (iron, folate, vitamin A, zinc, B12) – continues to undermine health in Malaysia and comparable regions, linking poor pregnancy outcomes to lasting consequences like impaired child development and chronic disease susceptibility. This symposium addresses how comprehensive maternal nutrition, specifically Multiple Micronutrient Supplementation (MMS), can break this detrimental cycle. A review of robust evidence establishing MMS's greater efficacy versus iron-folic acid (IFA) in preventing adverse birth outcomes, including low birth weight and preterm birth is presented. The biological rationale for MMS, alongside real-world implementation challenges and policy needs for integration into antenatal care, is discussed. As a scalable, evidence-based intervention, MMS holds immense promise for improving multi-generational health. The goal is to foster collaborative dialogue to accelerate the translation of this evidence into actionable programmes, ensuring every pregnancy benefits from optimal nutrition for a healthier future.

Invited Lecture 2

Expanding healthspan: the science behind dietary interventions for successful ageing

Stephanie Baker

Scientific & External Affairs Expert, dsm-firmenich

In recent decades, life expectancy has risen globally. Populations are living longer, but not always healthier and today, most of us will spend approximately the last 10 years of life battling ill health. As life expectancy rises, so does the prevalence of non-communicable diseases (NCDs) such as cardiovascular disease, cancer and diabetes. These NCDs are often further compounded as we age by fears of losing mobility or struggling with daily activities, degenerating eye health or perhaps memory loss and a decline in cognitive function.

Science shows that harnessing the power of nutrients can promote health expectancy; the years we live in good health. Additionally, getting the right nutritional care in a timely manner is critical in championing the health of senior adults and those living with health conditions, helping to reduce medical complications whilst promoting recovery and independence.

In this session, dsm-firmenich will share the latest insights relating to the top health concerns amongst Asia-Pacific populations, as well as the latest science behind nutritional carotenoids and lipids to promote successful aging in a rapidly aging global population. We will also explore medical nutrition interventions which can support the complex nutritional needs of individuals with specific dietary requirements to support quality of life.

Nutrition Update 1

Effect of nutrition and physical activity applications (apps) on healthy lifestyle and user assessment in Kajang, Selangor

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Introduction: This study aimed to examine the impact of using nutrition and physical activity applications on healthy lifestyles and user evaluations of simpler apps in Kajang, Selangor. The objective was to compare types of applications with complete elements in aiding weight loss among 376 respondents residing in the Kajang district who use such apps. Simple sampling was utilised through questionnaire distribution. **Methods:** The questionnaire comprised four main sections: demographics, application characteristics, elements, and user evaluation. The study duration spanned five months, from August to December 2023. Data analysis was conducted using SPSS version 28.0. The top six apps chosen by respondents — MyFitnessPal, Strava Tracker, HealthifyMe, Fit Coach, FitOn, and FitSEA — showed promising effects in reducing body weight. Respondents selected these apps based on various parameters and guidance, including calorie intake and expenditure, yielding an overall mean score of 3.89 ± 0.97. **Results:** Participants expressed satisfaction and positivity regarding app evaluations, with a mean score of 4.22 ± 0.39. Correlation tests revealed relationships between app elements and body mass index

(p<0.05) as well as user evaluations (p<0.05). **Conclusion:** Thus, complete app elements are crucial for aiding weight loss and providing favourable evaluations.

The impact of sarcopenia on mortality incidence among Malaysian older adults: a prospective cohort study

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Introduction: Sarcopenia, defined as the age-related decline in skeletal muscle mass, strength, and physical performance, is a growing public health issue in aging populations. Despite global recognition, limited evidence exists regarding its impact on mortality among older adults in Malaysia. This study aimed to examine the predictive value of sarcopenia on mortality incidence in a cohort of community-dwelling Malaysian older adults. **Methods:** A prospective cohort study was conducted among 2,322 adults aged 60 years and above from the Long-Term Research Grant Scheme—Towards Useful Aging (LRGS-TUA) study. Participants were followed for five years. Sarcopenia was diagnosed using the Asian Working Group for Sarcopenia (AWGS) 2019 criteria, which include assessments of muscle mass, handgrip strength, and gait speed. Mortality data were obtained from the national registry and follow-up interviews. Cox proportional hazards regression models were applied to estimate hazard ratios (HRs) for all-cause mortality, adjusting for potential confounding variables using IBM SPSS Statistics software. **Results:** At baseline, the prevalence of possible sarcopenia, sarcopenia, and severe sarcopenia was 74.2%, 5.9%, and 8.1%, respectively. Over the five-year follow-up, 332 deaths were recorded. After adjustment, severe sarcopenia was significantly associated with a higher risk of mortality (adjusted HR = 1.733; 95% Confidence Interval: 1.048–2.866; p < 0.05). **Conclusion:** Severe sarcopenia independently predicts higher mortality risk among Malaysian older adults. These findings underscore the importance of early identification and intervention to preserve muscle health and reduce premature mortality in this population.

Anaemia prevalence, knowledge and attitude of anaemia, and chrono-nutritional data among young women: a recent preliminary survey in northern Thailand

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Introduction: Anaemia, an important holistic health problem in Southeast Asia including Thailand, is approximately prevalent >25% in Thai women of reproductive age. This preliminary

study aimed to determine anaemia prevalence, knowledge and attitude of anaemia, and chrono-nutritional data among young women in northern Thailand. **Methods:** The survey was run in 2024 by collecting data from Thai young women aged 18 – 25 years without pregnancy and lactation. Anaemia status was determined using the HemoCue meter via finger prick test. Subjects' demographic data, knowledge and attitude of anaemia, and chrono-nutritional data were obtained using standardized questionnaires. **Results:** A total of 211 women with mean age of 20.14 ± 1.31 years participated in the study. It was found that 37% were anaemic (Hb level<12 mg/dL) with statistical significance (p<0.001). Additionally, 45% were with low-level knowledge of anaemia (n=205) and 63% were with low-level attitude towards anaemia (n=204). But no statistical significance among normal and anaemic subjects was found in both parameters. The chrono-nutritional data revealed that 21%, 43%, and 74% of total subjects (n=203) consumed daily breakfast, lunch, and dinner, respectively. Anaemic women had lower breakfast and lunch meals than non-anaemic ones. Interestingly, a statistical significance of weekly lunch intakes was found in different subject groups (p=0.017). **Conclusion:** Prevalence of anaemia among Thai young women appears to be high. Lack of complete daily meals might cause the prevalence. Energy and nutrients gained from food and malnutrition together with their associations with health-related aspects such as physical fitness, mental health in Thai women should be further investigated.

Risk factors for childhood undernutrition (aged 2 to 5 years): a case-control study in Federal Territory of Kuala Lumpur and Putrajaya, Malaysia

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Introduction: Child undernutrition remains a major health concern in urban areas of Malaysia. This study aimed to identify predictors of undernutrition among children aged 2 to 5 years in Federal Territory of Kuala Lumpur and Putrajaya. **Methods:** A case-control study (120 undernourished cases, 252 controls) was conducted at five purposely selected maternal and child health clinics. Data on children and their mothers—including sociodemographic and socioeconomic characteristics, health status, feeding practices, behaviours, maternal feeding styles, and maternal perceptions of child weight—were collected through face-to-face interviews with eligible mothers using validated questionnaires. Anthropometric assessments were also conducted for both mothers and children. **Results:** Among child-related factors, older age at breastfeeding cessation (AOR = 1.024, 95% CI: 1.001–1.048, p = 0.039) and having more siblings (AOR = 1.354, 95% CI: 1.107–1.656, p = 0.003) were associated with higher odds of undernutrition. Conversely, longer birth length (AOR = 0.799, 95% CI: 0.715–0.892, p < 0.001), emotional undereating (AOR = 0.641, 95% CI: 0.469–0.876, p = 0.005), sleep onset delay (AOR = 0.643, 95% CI: 0.450–0.921, p = 0.016), and screen exposure at mealtime (AOR = 0.553, 95% CI: 0.308–0.993, p = 0.047) were associated with less likelihood of undernutrition. Among maternal factors, greater weight (AOR = 0.978, 95% CI: 0.958–0.997, p = 0.026) and height (AOR = 0.948, 95% CI: 0.900–0.998, p = 0.026) were protective, while mothers perceiving their undernourished child as having normal weight significantly increased the risk (AOR = 3.960, 95% CI: 2.323–6.749, p < 0.001). **Conclusion:** Child and maternal factors were associated with undernutrition. Higher risk was linked to more siblings, later breastfeeding cessation, and maternal weight misperception. These results highlight the importance of early growth

monitoring, promoting timely breastfeeding cessation, accurate maternal perception, and targeted interventions with intra-household dynamics in larger households to prevent undernutrition.

Mindful eating, dietary patterns and its association with metabolic syndrome among overweight and obese teachers in Kota Bharu, Kelantan

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Introduction: The global rise in overweight and obesity affect over 670 million adults due to their unhealthy lifestyle. This trend is associated with an increased risk of metabolic syndrome. Mindful eating can be suggested to minimize the unhealthy eating behaviour. We aimed to identify the mindful eating, dietary pattern, and its association with metabolic syndrome among overweight and obese teachers in Kota Bharu, Kelantan. **Methods:** This was a cross-sectional study involving 317 randomly selected participants from 15 secondary schools in Kota Bharu. A set of validated questionnaires, including the Malay Mindful Eating Questionnaire (MEQ-M) and the Food Frequency Questionnaire (FFQ) were used. Metabolic syndrome (MetS) was determined with body mass index (BMI), body composition, blood pressure, and fasting blood markers. Dietary patterns were analysed using principal component analysis (PCA) with varimax rotation and multiple regression analysis was applied to identify the research hypothesis. **Results:** Majority of participants were female (74.4%), Malays (98.7%), aged 48.89 ± 6.88 years, with 73.2% in the T20 income group. The median BMI indicated overweight (29.25 ± 3.73 kg/m^2), and MetS prevalence was 43.8%. MEQ-M total score was lower in participants with MetS (p = 0.012), particularly for environmental disinhibition (p = 0.009). MEQ-M total score was negatively correlated with BMI, WC, HC, visceral fat, and HDL-C. Higher MEQ-M score were associated with lower intake of 'local cakes, fast-food confectionaries, bread' dietary pattern (p = 0.004). Logistic regression (model 1) showed that higher MEQ-M scores were negatively associated with lower adjusted odds ratio of having MetS (AOR = 0.27, 95% CI: 0.102 - 0.726). Meanwhile model 2 also showed negative associated between MEQ-M scores and MetS (□=-1.434, p = 0.022), while rice and fast-food intake were positively associated. **Conclusion:** Mindful eating, especially in terms of environmental disinhibition, may be an effective strategy to improve eating behaviours and reduce the risk of developing metabolic syndrome among teachers.

Young Researchers' Symposium

A simplified approach to assess diet quality: the Eating Habits Index (EHI) for Malaysian primary schoolchildren

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Introduction: Modernisation and globalisation have accelerated nutrition transition, altering children's eating habits and diet quality. However, assessing diet quality in children remains burdensome due to challenges in collecting accurate dietary data, highlighting the need for simpler and practical methods. Therefore, this study aims to develop and validate an Eating

Habits Index (EHI) for primary schoolchildren in Malaysia. **Methods:** Cross-sectional data were analysed from 1,527 children from South East Asian Nutrition Surveys (SEANUTS II), recruited using multistage cluster sampling. Socioeconomic status (SES) was measured through SES questionnaire, while Child Food Habits (CFH) questionnaire was used for children's eating habits. Dietary intake was obtained using a 24-hour dietary recall, with diet quality assessed via Malaysian Healthy Eating Index (M-HEI). EHI was developed from CFH questionnaire and refined through expert content validation and model fit testing using structural equation modelling. Construct validity was evaluated by comparing differences in EHI scores across SES and diet quality groups. **Results:** The final EHI comprised 14 items reflecting food group intake, meal patterns, and unhealthy eating habits. EHI scores differed significantly across socioeconomic backgrounds, with lower scores observed among disadvantaged groups (p<0.05). Additionally, children in the high EHI score group significantly demonstrated better micronutrient intake, food group consumption, and higher M-HEI (p<0.05). **Conclusion:** A valid and low-burden diet quality index – the EHI – was successfully developed. Its ability to capture diet quality and problematic eating patterns positions it as an invaluable tool for guiding nutrition strategies, ultimately supporting healthier futures for Malaysian children.

Impact and perceptions of a 10-week empowerment-based nutrition communication and leadership training on nutrition advocacy skills and diet quality among nutrition students

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Introduction: Nutrition students lack nutrition advocacy skills and have poor eating practices. Hence, the Nutrition Communication, Empowerment, and Leadership (NutriCEL) Programme was developed in phase 1 and evaluated in phase 2. **Methods:** This cluster randomised controlled study was conducted among nutrition students from two randomly selected public universities in Klang Valley (IG=54; CG=52). For quantitative evaluation, both groups completed online questionnaires on their health promotion competency, youth empowerment, and a 3-day food record to obtain their diet quality at pre-intervention and post-intervention, respectively. The IG participated in the 10-week NutriCEL programme while the CG received a nutrition consultation. For qualitative evaluation, 11 students from the IG were interviewed to explore their perceptions towards the programme implementation. The programme impact was analysed and adjusted for covariates with generalised estimating equations, while the themes from interviews were identified with thematic analysis. **Results:** This study had more Malay (n=58, 54.7%) and female (n=85, 80.2%) participants. After adjusting for covariates, the health promotion competencies (β=3.007, p=0.009), leadership dimension of youth empowerment (β=1.240, p=0.007), fruits and vegetable intake (β=0.293, p=0.028), and total fat intake (β=-0.128, p=0.042) of the IG improved significantly compared to CG at pre-intervention. The informants perceived the programme to help bridge essential nutrition skill gaps, adopt positive behaviour changes, and require

self-driven participation. **Conclusion:** The NutriCEL programme successfully improved nutrition advocacy, leadership, and food intake of nutrition students. Hence, incorporating empowerment theory in designing nutrition curriculum could produce nutritionists with better advocacy skills to improve community health.

Assessing the retail food environment across different socioeconomic neighbourhoods in Kuala Lumpur – spatial analyses to inform urban food policy for sustainable and healthy diets

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Introduction: The food environment plays a critical role in shaping dietary behaviors and health outcomes. Limited studies shed light on examining the external food environment, especially in Kuala Lumpur. This study aims to empirically map and perform spatial analyses of the retail food environment among different socioeconomic neighbourhoods of Kuala Lumpur using Geographic Information Systems (GIS). **Methods:** The retail food environment index (RFEI) was calculated by dividing the total number of fast-food outlets and convenience stores by the total number of supermarkets and traditional markets within a 1000m buffer in each of the 54 urban poor and urban rich neighbourhoods. Data on urban poor neighbourhoods were obtained from municipality database while urban rich neighbourhoods were obtained using property price ranking. Pearson correlation and Chi-Square test were used to test associations between neighbourhood socioeconomic status and RFEI while spatial autocorrelation was assessed using Global Moran's I and Local Indicators of Spatial Association (LISA) to identify clustering patterns. **Results:** Urban rich neighbourhoods were associated with a higher RFEI (7.86) compared to urban poor neighbourhoods (6.47), indicating higher exposure to unhealthy food environment between different socioeconomic neighbourhoods. Spatial analyses also revealed significant clustering of unhealthy food outlets in urban poor areas, confirmed by Global Moran's I and LISA, highlighting spatial inequities in the retail food environment across Kuala Lumpur. **Conclusion:** This study highlights complex spatial inequities of the retail food environment and shows that data driven methods are important to guide nutrition interventions to improve the availability of healthy food outlets, thus achieving sustainable and healthy diets.

Prenatal chrononutrition and chronotype role in infant sleep and growth: a prospective cohort study

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Introduction: Maternal chrononutrition and circadian rhythm play a crucial role in supporting optimal infant growth. Hence, this study aims to determine the association between temporal

aspects of maternal nutrition and circadian rhythm on early life development including infant growth and sleep. **Methods:** This prospective cohort study recruited 149 pregnant women via purposive sampling at third trimester, followed up at birth, and 3 months postnatal. A subsample of salivary samples was collected during pregnancy and 3 months postnatal (n=28). Chrononutrition habits were collected using the validated Chrononutrition Profile Questionnaire-Pregnancy, chronotype using the Morningness-Eveningness Questionnaire, while infant sleep using Brief Infant Sleep Questionnaire. Birth outcomes and growth data were collected from child health records. **Results:** The mean age of pregnant women was 30.7±4.6 years, while mean gestation age was 38.3±1.1 weeks. GEE revealed prenatal breakfast skipping habits was associated with lower infant weight gain (B=-0.137,p<0.001) and lower head circumference growth (B=-0.307,p<0.001) from birth to 3 months. Morning type mothers were associated with greater infant weight gain (B=0.026,p=0.006). Pregnancy cortisol levels were found to be positively associated with infant cortisol levels at 3 months postnatal (B=0.201,p=0.001). Greater prenatal cortisol amplitude was associated with increased infant nocturnal wakefulness duration at 3 months (B=0.293,p=0.023). **Conclusion:** These findings underscore the importance of maternal eating patterns and circadian rhythm in early life growth and sleep development. Larger cohort studies are warranted to explore the long-term effects of chrononutrition in infant growth and sleep development.

40th NSM Scientific Conference | Day 2

Nutrition Update 2

Salt taste preference, sensitivity threshold detection, and their association with salt intake: a cross-sectional study in Kuala Lumpur

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Introduction: Despite rising hypertension rates in Malaysia, limited attention has been paid to the sensory factors that may influence salt intake behaviour. This study aimed to investigate the relationship between salt taste preference, salt sensitivity threshold detection, and total dietary salt intake among adults in Kuala Lumpur. **Methods**: A cross-sectional study was conducted among 250 adults, aged 18 years and above, selected through convenience sampling. After obtaining informed consent, participants completed a validated sociodemographic questionnaire and a three-day dietary recall. Sodium intake was analysed using NutriPro software. Salt taste preference and sensitivity thresholds were assessed using validated salt-impregnated taste strips, based on 9-point and 7-point hedonic scales, respectively. Statistical analysis was performed using SPSS version 28. **Results**: The average salt intake was 5.37 ± 2.44 g/day, with 59% of participants exceeding the Malaysian Ministry of Health's recommended limit of <5 g/day. Positive associations were found between total salt intake and both low (adjusted-β=0.32, 95% CI: 42.88–215.74, p=0.001) and high salt taste preferences (adjusted-β=0.26, 95% CI: 38.10–222.70, p=0.006), as well as between low (adjusted-β = 0.24, 95% CI: 155.10–686.00, p = 0.002) and high salt sensitivity thresholds (adjusted-β = 0.84, 95% CI: 229.61–452.08, p = 0.001). Multivariate analysis confirmed significant positive associations for high salt taste preference (adjusted-β=0.11, p=0.027) and high sensitivity threshold (adjusted-β=0.36,p=0.048). **Conclusion**: The findings underscored the need for targeted salt reduction strategies and tailored health intervention programmes that educate the public the critical role of salt taste perception and the risk of high salt consumption.

Grandparents as food providers for grandchildren: findings from four Malaysian studies and the development of an educational booklet to support healthier feeding practices

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Introduction: Grandparents play a growing role in the dietary care of grandchildren in Malaysia, yet their feeding practices remain underexplored. This compilation highlights four studies investigating their food provision patterns and evaluates an intervention to support healthier practices. **Methods:** Three qualitative or mixed-methods studies explored feeding-related practices, food types, portion sizes, and influencing factors among grandparents across Kuantan, Melaka Tengah, Manjung and Klang Valley. Interviews and dietary assessments were conducted with grandparents caring for children aged 2 – 12 years. The fourth study on the development and validation of nutrition educational material for grandparents caring for their grandchildren involved three phases: needs assessment with 51 grandparents, development of a nutrition education booklet, and content validation by health professionals using the PEMAT-P(M) tool. **Results:** Grandparents often provided carbohydrate-based meals, sugary beverages, and fried foods, with limited inclusion of fruits and vegetables. Portion sizes were frequently excessive, and feeding decisions were influenced by grandchildren's preferences, past experiences, and socio-cultural norms. Challenges included children's food preferences, limited nutrition knowledge, and resource constraints. The 25-page educational booklet developed in Study 4 addressed nutritional needs, picky eating, meal safety, and food labels. It achieved high scores in understandability (89.7%) and actionability (92.9%). **Conclusion:** These studies underscore the critical yet overlooked role of grandparents in children's nutrition. Their current feeding practices often diverge from the dietary recommendations. The validated nutrition booklet provides a promising tool to enhance their knowledge and practices. Broader implementation and further evaluation of this material are recommended to support healthier food provision by grandparents.

Nutritional adequacy and costing of a healthy balanced diet for children and adolescents in Malaysia

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Introduction: A nutritionally adequate diet during childhood and adolescence is essential for optimal growth and long-term health. While dietary guidelines exist to promote healthy eating, the nutritional adequacy and affordability of such diets remain unknown. This study examined the nutrient composition and cost of a healthy balanced diet for Malaysian children and adolescents. **Methods:** This study was conducted in two phases. The first phase involved menu development, in which a 7-day menu was developed for various age groups based on the Malaysian Dietary Guidelines for Children and Adolescents 2023. Nutrient composition was analysed and compared against the Recommended Nutrient Intake 2017. In the second phase, food costing was performed by surveying food prices in Sabah and Johor. **Results:** Nutrient analyses indicated that several nutrients such as saturated fatty acids, alpha-linolenic acid, dietary fibre, calcium, and potassium did not meet the recommended levels across most age groups. The estimated average daily cost of a healthy balanced diet ranged from RM7.61 to RM16.72 in Johor and RM8.79 to RM18.83 in Sabah. Dairy products were the highest cost contributors in both Johor (25 to 42%) and Sabah (22 to 35%), followed by fruits, which accounted for 17 to 36% and 18 to 37% of total daily food cost in Johor and Sabah, respectively. **Conclusion:** This study highlights the challenges in achieving nutritional adequacy, and the cost of a healthy balanced diet may present a financial burden to low-income households. Targeted subsidies and cost-effective food programmes are warranted to improve dietary quality and affordability.

Design and development of NutriDIY-trolley app: a pre-emptive digital strategy to promote nutrition-conscious purchasing and enhance household dietary quality

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Introduction: Unhealthy food purchasing habits contribute significantly to poor dietary quality. Intervening at the point of purchase offers a strategic opportunity to influence consumer behaviour before unhealthy foods enter the home. This protocol illustrates the design and development of the NutriDIY-trolley app as a pre-emptive, behaviour-change digital tool employing cognitive nudging to promote healthier grocery shopping and improve household dietary quality. **Methods:** The NutriDIY-trolley app with theoretically informed content was designed and developed based on the ADDIE model. The research and technical development team worked together to develop and iteratively test the app. In addition, the key stakeholders include the selected seven main grocery chains in Malaysia, consumers, nutritionists, and IT personnel. **Results:** A mixed-method needs analysis identified consumer challenges in healthy food purchasing. A systematic review produced 44 validated criteria for nutrition app development, confirmed by nutritionists, IT experts, and consumers. The NutriDIY-trolley app was designed using the Nutrient Rich Food Score (NRF) and Dietary Inflammatory Index (DII), adapted from existing food scoring models. The app features an intuitive interface, core functions, integration capabilities, and a pricing strategy. A database of 5,000+ audited items from seven major Malaysian grocery chains were categorized into 47 food groups. Key functions include barcode scanning, nutrient calculation per 100g, and health ranking using NRF and DII scores displayed on a 10-colour spectrum. Unhealthy items trigger suggestions for healthier alternatives. **Conclusion:** NutriDIY-trolley app introduces a novel paradigm in preventive nutrition, with the potential to reshape consumer behaviour and advance household-level dietary improvements at scale.

Quality perception and acceptance of suboptimal food among women in Johor

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Introduction: Suboptimal foods are edible items perceived by consumers as having lower value compared to standard products, despite being safe for consumption. Such perceptions are typically influenced by deviations in appearance (visual), expiration proximity (temporal), or packaging damage (peripheral), and can contribute significantly to food waste. While global awareness of suboptimal food has increased in efforts to reduce food waste, research within the Malaysian context remains limited. This study aimed to determine the quality perception and acceptance of suboptimal foods among women in Johor. **Methods:** A cross-sectional study was

conducted involving 309 women in Johor, recruited through convenience sampling. Data were collected using an online questionnaire that gathered information on participants' socio-demographic characteristics as well as their perceptions and acceptance of suboptimal foods. **Results:** Suboptimal foods with temporal deviations (i.e., milk nearing its best-before date) were perceived as having the lowest quality, followed by those with visual deviations (i.e., apples with brown spots), and peripheral deviations (i.e., biscuits in damaged packaging). Overall, only 6.2% of participants accepted suboptimal foods, with the lowest acceptance for visually deviant items (3.4%), followed by peripheral (6.9%) and temporal (8.3%) deviations. Acceptance was also setting-dependent, with greater acceptance at home (34.4%) compared to in supermarkets (1.0%). **Conclusion:** Temporally deviated suboptimal foods were perceived as having the poorest quality, and overall acceptance of suboptimal foods was low among women in Johor. Raising awareness and providing education on the safety and value of suboptimal foods are crucial steps toward improving acceptance and addressing the broader issue of food waste.

Keynote Lecture 2

Addressing micronutrient deficiencies: lessons from Southeast Asia

Geoffry Smith

International Life Sciences Institute (ILSI) Southeast Asia Region

More than a decade ago we celebrated the 100th anniversary of the first "discovery" of the vitamin concept by Casimir Funk (based in large part on research in SE Asia). Now we are entering the 100th anniversaries of the remarkable 25 years (1928-1943) when 14 Nobel Prizes were awarded for vitamin discovery, characterization or synthesis. Despite nearly a century of important research and policy, micronutrient deficiencies are remarkably common with important health impacts.

A brief history of discovery with key relevant highlights will be presented for a few key micronutrients, their roles in specific functions and broader protection against DNA damage and approaches to prevent deficiencies as a public health priority (and difficulties). New discoveries of vitamin synthesis by the microbiome and metabolism aspects will be explored. Future research priorities and potential remediation strategies for SE Asia will be proposed.

Symposium 3: Public Health Nutrition

Enhancing health and well-being in Dayak communities: exploring the possibilities of integrating tradition with modern nutrition science

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The Dayak people, comprising 40% of Sarawak's population, possess a rich tradition of food and unique cooking methods, offering cultural significance and potential health benefits. However, modernization has introduced nutrition related health challenges, including high rates of obesity, hypertension, and non-alcoholic fatty liver disease among indigenous groups. Integrating traditional Dayak food practices with modern nutrition science presents a complex challenge requiring a holistic, interdisciplinary approach. This symposium talk will explore the critical role of collaboration across nutrition science, cultural studies, policy development, and community

engagement to enhance health and well-being in Dayak communities. Central to this initiative is the concept of updating the Food Composition Database, providing a comprehensive resource for dietary planning and policy development. Promoting nutritional awareness and preserving traditional knowledge are key components, ensuring the cultural heritage of the Dayak people is maintained while addressing modern health challenges. Developing supportive policies that recognize the value of traditional foods can empower communities, fostering cultural sustainability and improving health outcomes.

Strengthening UK-SEA research partnership – nutrition policies and action plans in Malaysia for the prevention of double burden of malnutrition in school-age children: highlights of findings

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Introduction: The double burden of malnutrition, where undernutrition exists alongside rising overweight and obesity, remains a serious concern for Malaysian children. This study builds on a BBSRC GCRF-funded project that explored micronutrient deficiencies through a food system perspective. The aim of this study is to develop informed policy recommendations and interventions to address the multifaceted challenges of DBM in this country by reviewing existing nutrition and food security policies, national action plans and programmes among school-age children in Malaysia. **Methods:** A team from the University of Leeds, the Nutrition Society of Malaysia, ILSI SEA Region, and Universiti Putra Malaysia conducted a landscape analysis through document reviews, focus group discussions, key informant interviews, and a strategy workshop. Stakeholders included representatives from government, non-governmental organisations, and the private sectors. **Results:** The review found that Malaysia has various nutrition-related policies and programmes, but gaps remain in multisector coordination, monitoring, and implementation. Stakeholders stressed that supportive food environment, especially in schools and communities, are vital to make policies work on the ground. Enablers include sufficient funding, strong leadership, clear targets, and good inter-agency collaboration. Barriers identified include fragmented efforts, limited resources, weak enforcement, and lack of monitoring. Based on these findings, recommendations on policy directions and strategic plans to address DBM among school-age children shall be shared with all relevant stakeholders. Another important output of this study is the establishment of the UK and Southeast Asia Child Health and Nutrition Network (UK-SEA CHAN), which will support shared learning and practical solutions to strengthen healthy food environment and child nutrition in the SEA region. **Conclusion:** Findings from this study underscores the importance of school and community models, which are supported by robust policies, coordinated action, and sustained investment. A whole-of-government and whole-of-society approach, with nutrition knowledge and healthy food environments at its core, is essential for lasting change and a healthier generation.

Update on National Health and Morbidity Survey (NHMS) 2024: Nutrition

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Introduction: Malaysia's growing burden of non-communicable diseases is deeply intertwined with a rapidly changing food environment, shaped by the increasing popularity of ultra-processed foods and shifting dietary habits. The National Health and Morbidity Survey (NHMS) 2024 presents a pivotal opportunity to inform targeted policy and community-level interventions. The objective of this survey is to determine the nutritional status, nutrient intake, nutrient status and nutrition-related among the population in Malaysia. **Methods:** The NHMS 2024: Nutrition involved a total of 135 Enumeration Blocks consisting of 5,400 Living Quarters. A total of 5,148 respondents were interviewed. Among the adult population, an 88.5% response rate was achieved. Similarly, an 84.7% response rate was obtained among the children, adolescents, and older person population. **Results:** The survey revealed that half of the adult population (53.6%) is overweight or obese. Moreover, the percentage of total energy intake from fats among adults is on the rise. Almost 97.0% of Malaysia's population has inadequate calcium intake, while over half of the population has inadequate vitamin A, vitamin C and iron intake. Moreover, more than 97% of adults and adolescents fail to meet their daily recommended intake of fruits, vegetables, nuts, legumes, milk, and dairy products. **Conclusion:** This presentation highlights how NHMS data can drive evidence-based strategies to improve food accessibility, regulate unhealthy food marketing, and promote healthier dietary choices. By leveraging these insights, Malaysia can make meaningful progress toward Sustainable Development Goal (SDG) 3: Good Health and Well-being, and SDG 2: Zero Hunger, advancing national efforts to create healthier, more equitable food systems.

Invited Lecture 3

Lacticaseibacillus paracasei strain Shirota impact on human immunity and health

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Introduction: *Lacticaseibacillus paracasei* strain Shirota (LcS) is a probiotic strain showing positive effects on gut dysbiosis and stress reduction. Additionally, LcS activates the immune system by increasing NK cell activity and sustaining IgA secretion in saliva. However, the relationship between LcS-induced immune activation and host health remains unclear. Thus, we investigated the impact of LcS intake on peripheral mononuclear phagocytic cells (MPCs) and upper respiratory tract infection (URTI) symptoms. **Method**: 200 healthy Japanese individuals aged 23 – 59 years were randomly assigned to consume either a fermented milk drink containing 40 billion LcS (LcS-FM) or a control unfermented milk drink without LcS (CM). Participants ingested one 80 mL bottle daily for 28 days. URTI symptoms were assessed using a questionnaire. Blood samples were collected on days 0, 14, and 28, and peripheral blood mononuclear cells were analyzed using CyTOF for MPC activation molecules. **Result**s: The URTI symptoms were lower in LcS-FM than in CM, notably from day 15 to 28. MPCs analysis revealed elevated HLA-DR expression in conventional dendritic cells (cDCs) on days 14 and 28 and CD86 expression on day 14 in LcS-FM compared to CM. Monocytes in LcS-FM showed higher HLA-DR expression than those in CM. **Conclusion**: LcS intake suppressed URTI symptoms and maintained high-level expression of activation molecules in monocytes and cDCs. Therefore, LcS impacts MPCs, which have pivotal roles in initiating the immune response, and this may contribute to host health maintenance.

Invited Lecture 4

Sustaining weight management through the power of protein

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Sustaining weight management refers to the ongoing process of maintaining a healthy body weight over time. This requires consistent application of long-term behavioral, dietary, physical activity, and psychological strategies that support both weight stability and overall well-being. Among various nutritional factors, dietary protein has received increasing attention for its potential role in promoting satiety, enhancing energy expenditure, and supporting the preservation of lean body mass. These benefits are especially relevant for maintaining metabolic health. Diets moderately higher in protein, providing approximately 20% to 30% of total daily energy intake, have been shown to improve appetite regulation, increase thermogenesis, and help maintain body composition. Protein's role in reducing hunger and supporting muscle mass may contribute to better energy balance and long-term adherence to healthy eating patterns. Current evidence supports a protein intake of about 1.2 to 1.6 grams per kilogram of body weight per day, ideally sourced from high-quality options such as lean meats, dairy, legumes, eggs, and soy. Distributing protein evenly across meals may further improve its physiological effects. Incorporating protein-centred dietary strategies into broader lifestyle approaches may be an effective way to support weight maintenance. These findings highlight the importance of personalized, protein-focused nutrition planning as part of comprehensive weight management programmes aimed at long-term health.

Nutrition Update 3

Street foods in Malaysia: what is the sugar level content?

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Introduction: In Malaysia, approximately 70% of the population regularly consumes out-of-home foods, including street food, due to its convenience, accessibility, and affordability. However, nutrition labeling is not mandatory for street food vendors, making it difficult for consumers to distinguish between high and low-sugar options. This study aims to determine the individual and total sugar content in 210 commonly available Malaysian street food items. **Methods:** A total of 10,520 street food items were surveyed across all Malaysian states and categorized into three groups: desserts, snacks, and main meals. From this pool, 210 representative items were selected

for analysis. High-Performance Liquid Chromatography (HPLC) with a Refractive Index (RI) detector was used to quantify individual sugars (fructose, glucose, sucrose, maltose, and lactose). **Results:** The recovery values for sugar content were as follows: total sugar (95.6–97.3%), fructose (94.3–100.2%), glucose (95.6–97.9%), sucrose (93.6–96.1%), and maltose (97.3–98.0%). Desserts exhibited the highest levels of total sugars and individual sugars (sucrose, fructose, glucose, and maltose) compared to snacks and main meals. Sucrose was the dominant sugar in 90% of desserts, 79.3% of snacks, and 68.6% of main meals. Most desserts (93.3%) contained medium (5–15 g/100 g) to high (>15 g/100 g) sugar content. In contrast, 82.9% of main meals and 65.5% of snacks were categorized as low in sugar (<5 g/100 g). **Conclusion:** These findings provide critical data to help consumers make informed dietary choices regarding sugar intake from street foods. Additionally, the results may support policymakers in developing strategies to combat obesity and improve public health outcomes through better regulation and awareness.

Nutritional determinants of quality of life in colorectal cancer survivors: a six-month longitudinal study in Malaysia

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Introduction: Colorectal cancer (CRC) is the second most commonly diagnosed cancer in Malaysia, and the third in Asia and worldwide. This study aimed to examine the relationship between nutritional indicators and the quality of life (QoL) among individuals diagnosed with colorectal cancer (CRC). **Methods:** A cohort of 107 newly diagnosed CRC patients in Malaysia was recruited for a prospective six-month observational study. Anthropometric measurements including body weight, body mass index (BMI), waist circumference (WC), hip circumference (HC), fat mass, and fat-free mass were obtained. QoL outcomes were assessed at follow-up using the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30, version 3), encompassing domains such as functional capacity, symptom burden, and psychological well-being. **Results:** At six months, disease stage ($p = 0.017$), body weight ($p = 0.017$), and HC ($p = 0.04$) were significantly associated with overall QoL. Functional declines, particularly in physical, role-based, and cognitive domains, were more pronounced in older participants. Advanced CRC stage was linked to diminished role ($p = 0.002$) and emotional functioning ($p = 0.032$). Lower body weight ($p = 0.001$) and reduced BMI ($p = 0.014$) were correlated with impairments in role and cognitive function, while smaller HC ($p = 0.043$) was

associated with poorer emotional well-being. Insomnia was more prevalent in advanced-stage CRC (p = 0.048), and older patients reported significantly higher levels of pain (p = 0.006). **Conclusion:** Nutritional status plays a crucial role in shaping the quality of life in CRC survivors. These findings highlight the need for targeted nutritional and supportive care strategies to enhance patient outcomes.

Effects of cranberry (poly)phenols on mental health in university students: the Cranmood randomized controlled trial

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Introduction: Increasing evidence indicates that (poly)phenol consumption can have beneficial effects in human brain function. The overall aim of this project is to investigate whether consumption of a (poly)phenol rich cranberry drink improves mental health and cognitive function in university students via the gut-brain axis. **Methods:** A 12-week parallel randomised controlled trial was conducted in 72 young healthy final year university students to investigate whether cranberry (poly)phenol supplementation could influence mental health outcomes via the gut-brain axis. The primary outcome was mood, measured as Total Mood Disturbance (TMD), using the Profile of Mood States (POMS) questionnaire. Secondary outcomes included stress, anxiety and depression levels, measured using the Perceived Stress Scale (PSS), and the Hospital Anxiety Depression Scale (HADS) questionnaire, salivary cortisol levels and cognitive function measured using the Online General Cognitive Assessment Battery (CogniFit). Blood and urine samples were collected to measure inflammatory markers, gut-brain-axis metabolites, short chain fatty acids (SCFA), and cranberry polyphenols metabolites. Faecal samples were also collected for measuring gut microbiome diversity and composition and faecal metabolomics. Diet was assessed using food frequency questionnaires (FFQ), 7-day food diaries (EPIC) and 24-h online dietary recalls (intake 24) during the study. Linear mixed-effect model (LMM) and ANCOVA were used to investigate the relationship between the 2 trial arms. **Results:** No significant differences were found between treatments for mood, stress levels, anxiety, depression, circulating short chain fatty acids or inflammatory markers, however a significantly lower diurnal area under the curve of salivary cortisol (p=0.010) and significantly higher short-term memory (p=0.024) and phonological short-term memory (p=0.014) were found at 12 weeks in the cranberry group compared with the placebo. Besides, significant differences between interventions were found in plasma gut-brain axis metabolites, including the kynurenine and bile acids pathway which were kynurenine (p=0.023), kynurenic (p=0.032), quinolinic (p=0.018), and glycolithocholic acid (p=0.04). Several plasma and urinary cranberry (poly)phenol metabolites were also modulated by cranberry consumption. While significant differences were found in gut microbiota diversity, a significant increase in the levels of Lachnospiraceae NK 4A136 (p= 0.000146, FDR= 0.021) and Lachnospira (p= 0.000872, FDR= 0.062) were found after cranberry consumption. **Conclusion:** In conclusion, daily cranberry (poly)phenol supplementation for 12 weeks did not improve mood, stress, anxiety, and depression symptoms in healthy university students. However, it may modulate cortisol levels and some aspects of cognitive function via the gut-brain axis and change in gut microbiota diversity.

The potential of mushroom seasoning as food flavouring enhancer: market survey, consumer survey, and sensory evaluation

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Introduction: Mushroom presents a potential natural food flavouring enhancer, as it imparts a similar umami taste and offers health benefits when incorporated into food products. This study aimed to determine the type of mushrooms used in seasoning products in Malaysia, investigate perceptions, and evaluate sensory acceptance in vegetable soup. **Methods:** A 3-month cross-sectional investigation was conducted in Malaysia from August to October 2023. Phase one: a market survey on online platforms and physical stores using a self-developed market survey form (n=22); Phase two: a consumer survey using an adapted survey form (n=166); Phase three: sensory evaluation of vegetable soup containing mushroom seasoning (n=51). Data was analysed using IBM Statistical Package for the Social Sciences (SPSS) version 26.0. **Results:** Twenty-two brands of mushroom seasoning products were found in the Malaysian market, predominantly containing shiitake mushrooms (*Lentinula edodes*). The majority of consumers (69.3%) were aware of mushroom seasoning products via family, peers, and electronic media. The most preferred buying platforms were supermarkets (83.7%) and grocery stores (53.0%). Key drivers for purchasing were good taste (69.3%) and serving as natural flavour enhancer (60.8%), while price (63.3%), have certification (61.4%), and taste (58.4%) were key priorities when choosing products. Notably, most consumers had never used mushroom seasoning (75.9%) and expressed interest in trying it (92.8%). Sensory evaluation showed a high acceptance of mushroom seasoning in vegetable soup (mean score ≥ 5.0), with no significant difference ($p>0.05$) compared to other commercial food flavouring enhancer. Furthermore, various ethnicities demonstrated the highest level of acceptance towards different samples. **Conclusions:** Mushroom seasoning is highly acceptable to Malaysian consumers as a food flavouring enhancer. More scientific evidence is needed to validate the comparative flavours and benefits of mushroom seasoning as a healthier alternative, and investigations into suitable natural food flavourings should be conducted to ensure public health.

Tocotrienol-enriched beverage enhances psychological well-being, antioxidant defence, and genomic stability in older adults: a randomized controlled trial

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Introduction: Aging is a multifactorial biological process characterized by the progressive decline in physiological integrity, leading to increased susceptibility to chronic diseases, cognitive decline, and frailty. One promising class of compounds for combating the hallmarks of aging is vitamin E, particularly tocotrienols — a less studied but more potent form compared to the widely known tocopherols. This study investigates the effects of a tocotrienol-enriched drink on cognitive, muscle function, biochemical parameters and genomic stability in older adults over a 6-month period. **Methods:** A total of 67 participants (27 males and 40 females, mean age 60.45 ± 5.75 years) were enrolled in this double-blinded, two-arm, parallel randomized controlled trial. Baseline, mid-point, and end-point assessments were conducted to monitor various health parameters which include cognitive end points, multiple antioxidant parameters, telomerase

activities and muscle function. **Results:** Significant Group × Time interaction effects were observed for several key outcomes. Group A demonstrated significantly better improvements in QOL-Psychological ($p = 0.014$, Partial Eta Squared = 0.153), suggesting a beneficial impact of tocotrienol supplementation on mental well-being. Additionally, Group A showed more favourable trends in TNF-α ($p = 0.04$), T-SOD ($p = 0.04$), Catalase ($p = 0.02$), and Telomerase ($p = 0.02$), suggesting potential antioxidant and genomic stability improvements over time. **Conclusion:** In a nutshell, tocotrienol supplementation may exert beneficial effects on psychological well-being, oxidative stress modulation, and genomic stability in aging populations.

Poster Presentations

Group A: Nutritional Status, Consumption Pattern & Disease

P-1001 Associations between stress during pregnancy and dietary intake with constipation in the second trimester of pregnancy: a preliminary finding of the MYBIOTA cohort study

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Introduction: Constipation is a common gastrointestinal complaint during pregnancy, with a higher prevalence typically observed in the second trimester. Emerging evidence suggests that stress during pregnancy and dietary intake are modifiable factors associated with constipation, which may in turn influence pregnancy outcomes. This study aimed to examine the association between stress levels, dietary intake, and constipation symptoms among pregnant women in their second trimester. **Methods:** A total of 60 pregnant women aged 20 – 41 years from a private clinic in Kajang and two government health clinics at Hulu Langat district completed a self-administered questionnaire on sociodemographic background, stress during pregnancy, and constipation as assessed by The Patient Assessment of Constipation-Symptoms (PAC-SYM). Dietary intake was obtained from 3-day dietary recalls. **Results:** The mean constipation score of pregnant women in this study was 9.15 ± 6.96. Based on symptom severity, 71.7% of participants reported none to mild constipation, 23.3% reported mild to moderate symptoms, and 5.0% experienced moderate to severe constipation. Multiple linear regression analyses revealed that higher stress levels during pregnancy were significantly associated with increased constipation symptoms ($\beta = 0.314$, $p < 0.05$), while higher riboflavin intake was significantly associated with reduced constipation symptoms ($\beta = -0.263$, $p < 0.05$). **Conclusion:** Stress and riboflavin intake were significant predictors of constipation among pregnant women. These findings highlight the importance of incorporating stress management strategies and nutritional guidance, particularly on micronutrient intake, as part of antenatal care to alleviate constipation during pregnancy.

P-1002 Role of cardiorespiratory fitness and physical activity in predicting cardiometabolic risk among children aged 6 – 12 years: findings from SEANUTS II Malaysia

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Introduction: Cardiometabolic risk (CMR) is an emerging public health concern in children. While both physical activity (PA) and cardiorespiratory fitness (CRF) are known to favourably influence cardiometabolic health, their independent and combined contributions to CMR remain underexplored, particularly among Malaysian children. **Methods:** This study aimed to investigate the roles of CRF and PA in predicting CMR among Malaysian children aged 6 – 12 years, who participated in the South East Asian Nutrition Surveys (SEANUTS II). A sub-sample of 234

primary school children (mean age: 9.5±0.15 years, 53% females), from Peninsular Malaysia were included in the analysis. CRF was evaluated using 15-meter shuttle run, and predicted VO2peak was calculated. Physical activity (PA) was assessed using Physical Activity Questionnaire for Children (PAQ-C), completed by parents for children aged 6 – 9 years, self-reported by children aged 10 – 12 years. Cardiometabolic risk (CMR) was assessed using waist circumference (WC), mean arterial pressure (MAP), high-density lipoprotein (HDL), triglycerides (TG), fasting blood glucose (FBG). **Results:** Overall, mean VO2peak of children was 43.1±0.30 $mL \cdot kg^{-1} \cdot min^{-1}$, while PAQ-C score was 2.7±0.04, indicating low-moderate PA level. Elevated WC (24.5% of the sample) was the most prevalent risk factor, followed by high TG (4.8%). Males exhibited significantly higher WC, MAP, and FBG compared to females. Regression modelling (adjusted to age and sex) showed that while CRF was significantly associated with improvements in WC, MAP, HDL, TG and FBG; PA did not predict any CMR factors. **Conclusion:** Overall, higher CRF was associated with lower CMR in children, highlighting the importance of developing CRF in improving cardiometabolic health in children.

P-1003 A syndemic framework for understanding maternal health risks in Malaysia

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Introduction: Food insecurity, psychological distress, and micronutrient deficiency frequently co-occur during pregnancy and may interact synergistically to worsen pregnancy and birth outcomes. While individual associations are well-documented, the biological mechanisms driving their combined impact remain poorly understood. This study applies a syndemic framework to examine the clustering and potential biological interactions of these risks in a Malaysian cohort. **Methods:** Pregnant women aged 18 – 49 years were recruited from selected health clinics and hospitals in Hulu Langat and Sepang Districts. At baseline, participants completed questionnaires on sociodemographic characteristics, pregnancy history, psychological status (sleep, stress, anxiety, depression), supplement use, and dietary intake. Eight millilitres of non-fasting venous blood were collected for micronutrient and biomarker analysis to investigate the biological–biological (bio–bio) interaction component of the syndemic framework. Pregnancy outcomes were retrieved from medical records. A follow-up questionnaire is being administered 6 to 12 months postpartum to assess maternal quality of life, postpartum depression, pregnancy outcomes, and infant feeding practices. Statistical analyses were conducted using SPSS v21. **Results:** Preliminary findings (n=591) showed high rates of poor sleep quality (51.2%), prenatal stress (48.2%), depression (30.1%), anxiety (13.5%), and food insecurity (15.2%). Syndemic clustering revealed 21.9% had no conditions, 31.2% had one, 22.8% had two, 14.1% had three, and 10.0% had four or more. Among 170 participants followed up, 6.7% experienced preterm labour, 12.1% had low birth weight infants, and 9.1% reported probable postnatal depression. **Conclusion:** These findings highlight a significant syndemic burden during pregnancy. Ongoing postpartum follow-up will provide further insight into long-term maternal and child health outcomes.

P-1004 Maternal transportation-related physical activity and food security in relation to infant development: a mother-infant cohort study

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Introduction: Early childhood development is shaped by prenatal and postnatal factors, including maternal physical activity (PA) and food security. This study aimed to explore the associations between transportation-related PA in early pregnancy, postnatal food security, and infant developmental outcomes across the first year of life. **Methods:** A prospective cohort study was conducted with 74 pregnant mothers and 30 infants in Selangor. Infant development was assessed at 1, 4, 6, and 12 months using the Ages and Stages Questionnaire (ASQ-3). Maternal PA was measured using the Pregnancy Physical Activity Questionnaire, while food security was measured using the Six-Item Short Form of the Food Security Survey Module. Linear mixed models were used to analyse associations, with and without adjusting for birth weight. **Results:** The influences of maternal transportation-related PA and food security on ASQ-3 scores varied over time. Lower transportation-related PA was associated with lower ASQ-3 scores at 1 and 4 months, but higher scores at 6 months. After adjusting for birth weight, lower transportation-related PA was associated with higher ASQ-3 scores at 1 and 4 months, particularly among infants with lower birth weights. This association weakened as birth weight increased. Infants from food-secure households had higher ASQ-3 scores at 4 months, especially when maternal transportation-related PA was low at 1 month. Between-individual differences explained 44.9% of ASQ score variance. **Conclusion:** Lower maternal transportation-related PA and better food security may support early infant development. These findings highlight the need to consider both prenatal activity and postnatal environmental factors in supporting child development.

P-1005 Development of a determinants model to address double burden of malnutrition among adolescents in Malaysia: a systems thinking approach protocol

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Introduction: Malaysia is facing a growing concern over the double burden of malnutrition (DBM) among adolescents. Despite the seriousness of this issue, research and targeted interventions specific to adolescents remain limited. As such, there is an urgent need to comprehend the intricate web of contributing factors causing malnutrition in this age group. This study aims to explore and develop a comprehensive determinants model to better understand and address DBM among Malaysian adolescents using systems thinking approach. **Methods**: This study is structured into three phases. Phase 1A explores factors and interrelated variables through systematic scoping review, while Phase 1B analyses secondary data from five cycles of

National Health and Morbidity Survey: (2012-2022) to evaluate the strength and direction of relationships between key determinants using structural equation modelling, and examine trends changes in DBM related factors over time. Phase 2 will develop and refine a Causal Loop Diagram via Group Model Building workshops involving relevant stakeholders. Phase 3 will validate the model and recommend targeted policy actions and intervention strategies to effectively address DBM, in consultation with higher management stakeholders. **Results**: TB. **Conclusion**: By applying a systems thinking approach, this study will deepen understanding of complex and interrelated factors contributing to adolescent malnutrition in Malaysia. The resulting framework is intended to inform future research and guide policymakers in developing integrated, context-specific strategies for prevention and management of DBM among adolescents.

P-1006 Mapping nutrition through PPGIS: linking food source hotspots to nutrition outcomes in Kuala Lumpur

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Introduction: Food environments are a key entry point for improving nutrition. Unlike conventional Geographic Information Systems (GIS) methods, which objectively assess food environments based on outlet density and proximity, this study applied a Public Participatory GIS (PPGIS) approach to examine spatial food accessibility and purchasing behaviours, and their associations with diet quality and nutritional status. **Methods**: Stratified random spatial sampling was employed to recruit 202 adults living in Kuala Lumpur. Participants geocoded their homes, workplaces, and frequently visited food outlets using Maptionnaire. Diet Quality Questionnaire (DQQ), weight, height and waist circumference were assessed. Network-based distance was calculated, and heatmap analysis was performed to identify food source hotspots and healthfulness of food purchasing behaviours based on food groups bought at each outlet. **Results**: The mean Global Dietary Recommendation (GDR) Score was 10.33 (SD=0.16). The average Body Mass Index (BMI) was 24.6kg/m^2 (SD=0.34), with more than half (57.4%) being overweight or obese. Results revealed the geographic distribution of healthfulness of food purchasing behaviours, nutrition status and diet quality. Heat map highlighted areas with high concentrations of healthy and unhealthy food sources. Poor dietary quality is associated with poorer nutritional status. **Conclusion**: The PPGIS is a qualitative GIS approach that integrates spatial and non-spatial components, potentially uncovering the dynamic interactions between food environments and nutrition outcomes. This study revealed the associations between spatial food accessibility, diet quality and nutritional status, enabling the identification of high-risk zones for malnutrition and providing evidence-based recommendations for future policy intervention to reshape obesogenic urban food environments.

P-1007 The positive deviance of child nutrition among caregivers of under-five children from urban low-income in Kuala Lumpur

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Introduction: The positive deviance (PD) approach identifies uncommon yet beneficial caregiver behaviours that support child nutrition despite socioeconomic challenges, making it particularly

valuable for resource-limited communities in preventing child undernutrition. However, PD is seldom explored among Malaysia's urban low-income populations, who face disrupted dietary intake with a high risk of undernutrition. Hence, this qualitative study aimed to uncover the PD among caregivers of urban low-income communities by exploring and comparing their perceptions of feeding practices, healthy eating, child-care, and health-seeking behaviours. **Methods:** Semi-structured in-depth interviews were conducted with 27 caregivers of children aged 3 to 5 years from 8 public low-cost flats in Kuala Lumpur, following a pre-developed interview protocol. Respondents were categorised into Families with Undernourished Children (FWUC; n=12) and Families with Well-Nourished Children (FWWC; n=15) based on children's anthropometric measurements for comparison. Qualitative data were analysed using thematic analysis and NVIVO 12, with theme comparisons to identify PD from FWUC based on pre-set criteria. **Results:** The three main PD findings include responsive feeding (engaging children in food preparation and using positive reinforcement to address feeding challenges), inclusion of PD foods and snacks (e.g., green vegetables, watermelon, tempeh, vegetable finger foods, and legumes) in children's daily diets, and early nutrition education through benefit and consequences awareness approaches. However, PD outcomes for child-care practices and health-seeking behaviours remain inconclusive. **Conclusion:** These PD findings highlight key caregiver behaviours that may inform the development of culturally tailored intervention strategies to effectively prevent or reduce child undernutrition among urban low-income communities in Malaysia.

P-1008 Unlabelled caffeine in ready-to-drink beverages: ergogenic implications for athletes

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Introduction: Caffeine is widely used as a performance-enhancing substance among athletes and individuals with active lifestyle, valued for its ergogenic effects during sports training, competition and recreational activities. However, the absence of caffeine labelling on ready-to-drink beverages may lead to its uncertain level of intake and consequently to its excessive consumption and potential adverse effects. This study aimed to determine the caffeine content in unlabelled ready-to-drink (RTD) canned coffee and energy drinks commonly consumed by athletes and to compare those levels with the recommended serving limits set by the Indonesian Standard Agency (ISA) and the U.S. Food and Drug Administration (FDA). **Methods:** A descriptive, laboratory-based quantitative study was conducted. Using purposive sampling, 24 beverages (12 canned coffees and 12 energy drinks) were selected. Caffeine content was analysed using High-Performance Liquid Chromatography (HPLC). Mean caffeine levels were assessed using descriptive statistics and one-sample t-test. **Results:** Pokka© Real Brewed Premium Rich Coffee contained the highest caffeine level per serving (122.38 mg) while Wonda© Mocha Premium Coffee had the lowest (53.40 mg). The caffeine content in canned coffee drinks was significantly higher ($p<0.001$) than the ISA limit, though still below the FDA limit. Energy drinks showed significantly lower caffeine content compared to both standards ($p < 0.05$). **Conclusion:** HPLC

analysis revealed considerable variability in caffeine content among unlabelled RTD beverages. Many canned coffee drinks exceeded ISA recommendation. These findings highlight the need for mandatory caffeine labelling to ensure safe ergogenic use. Future studies should investigate the performance impact of cumulative caffeine exposure from multiple unlabelled sources, especially in high-intensity training settings.

P-1012 Eat early, stay steady: exploring the associations of meal timing and nighttime energy intake on glycaemic outcomes among Malaysian adults with prediabetes

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Introduction: Meal timing and nighttime calorie intake have been associated with glycaemic outcomes, but evidence in individuals with prediabetes remains limited. This study aimed to examine the associations between meal timing, nighttime energy intake and glycaemic outcomes in Malaysian adults with prediabetes. **Methods:** In this longitudinal study, 120 individuals with prediabetes (mean age 54 ± 15 years) were recruited from healthcare clinics in Malacca. Data on sociodemographic characteristics, anthropometry, 3-day dietary records, physical activity (International physical activity questionnaire) and light exposure (Harvard light exposure questionnaire) were collected. Fasting plasma glucose (FPG), 2-hour postprandial glucose (2hPPG) and glycated haemoglobin (HbA1c) and ambulatory glucose profile via continuous glucose monitoring (CGM) were assessed. Meal timing was classified as daytime (7:00 a.m. – 7:00 p.m.) or non-daytime (outside this range), and nighttime energy intake (6:00 p.m.–11:59 p.m.) was categorized as <25%, 25–50%, or >50% of total daily energy intake. **Results:** Overall, 83% of participants were non-daytime eaters and 17% were daytime eaters. Most participants (72%) consumed 25 – 50% of their total daily energy at night, while 21% consumed <25%, and 7% consumed >50%. Daytime eating status was significantly associated with 2hPPG levels than nighttime energy intake. After adjusting for confounders, non-daytime eaters had significantly higher 2hPPG levels (mmol/L) (β=1.212; 95% CI: 0.41,2.02) compared to daytime eaters across six-month. CGM data showed that non-daytime eaters with >50% nighttime energy intake experienced nocturnal glucose rise from 6.6±1.0 mmol/L to 7.1±0.9 mmol/L between 12.00am to 1.00am, higher than other groups. **Conclusion:** Our findings suggest that delayed glucose peaks among non-daytime eaters may reflect prolonged nocturnal postprandial hyperglycaemia, potentially elevating glycaemic risk during sleep. Aligning meal timing earlier may enhance glucose regulation and delay the progression to Type 2 diabetes mellitus. These results support integrating chrono-nutritional strategies into public health interventions. Funding: Supported by the Ministry of Higher Education of Malaysia (FRGS/1/2021/SKK06/TARUC/02/1).

P-1015 Nutrient adequacy and its association with growth indicators among children aged below 5 years in Peninsular Malaysia

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Introduction: Adequate nutrition is crucial for optimal growth and development during early childhood. Insufficient intake of essential nutrients during this critical period can disrupt normal growth patterns, leading to impaired linear growth, commonly measured by height-for-age z-scores (HAZ). This study aimed to examine associations of Nutrient Adequacy Ratio (NAR) and Mean Adequacy Ratio (MAR) with HAZ among children aged 6 to 59 months in Peninsular Malaysia. **Methods:** This cross-sectional study, part of South East Asian Nutrition Surveys II (SEANUTS II), involved 738 children (53.9% boys) aged 2.8 ± 0.1 years from four regions of Peninsular Malaysia. Children's height was measured and HAZ was calculated based on WHO (2006) growth standards. Dietary intake was assessed through a single 24-hour dietary recall. NAR and MAR were calculated to evaluate nutrient adequacy based on Estimated Average Requirement. **Results:** NAR values for most nutrients exceeded 0.9, except for vitamin D (0.62 ± 0.02) and potassium (0.41 ± 0.01), suggesting that these areas are of concern. Mean MAR value for 15 nutrients was 0.89 ± 0.00. General Linear Model analysis revealed significant positive associations with HAZ for MAR (β=2.61, p<0.001), energy (β=0.91, p=0.008), vitamin D (β=0.64, p<0.001), cobalamin (β=0.67, p=0.001), calcium (β=0.65, p=0.001), phosphorus (β=0.86, p=0.041) and potassium (β=1.04, p<0.001). **Conclusion:** Strong association between nutrient adequacy and HAZ underscores the importance of sufficient and varied nutrient intake for optimal growth in early childhood. Targeted interventions to address deficiencies in key growth-supporting nutrients are essential to reduce stunting and support healthy development.

P-1018 Diet quality, food insecurity status and nutritional health in rural Malaysia: a case study of Negeri Sembilan

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Introduction: Rural populations in Malaysia continue to experience persistent nutritional challenges, shaped by limited access to diverse and nutritious foods, economic instability, and shifting dietary habits. Despite increasing attention to food insecurity and non-communicable diseases, there is limited empirical evidence linking diet quality to food insecurity and nutritional health outcomes in rural Malaysian contexts. This study examines these relationships among households in rural Negeri Sembilan. **Methods:** A cross-sectional study was conducted with 346 adults aged 18 years and above from six rural village clusters in Mukim Kenaboi, Jelebu, Negeri Sembilan. Food insecurity was assessed using the Food Insecurity Experience Scale (FIES), while diet quality was measured by a locally adapted Diet Quality Questionnaire (DQQ). Physical assessments included height and weight for Body Mass Index (BMI), waist circumference, and blood pressure, using standard clinical methods. Descriptive statistics and multiple regression analyses explored associations between food insecurity, diet quality, and health indicators. **Results:** Based on preliminary observations and existing research, it is hypothesized that 45 –

50% of participants will experience moderate to severe food insecurity, particularly among low-income and female-headed households. Food insecurity is expected to be linked with poor diet quality, characterized by low dietary diversity across the five key food groups, as measured by the Dietary Diversity Score (DDS). Poor diet quality and food insecurity are anticipated to be associated with higher rates of overweight, central obesity, and elevated blood pressure. Women are expected to show higher nutritional and cardiometabolic risks compared to men. **Conclusion:** These hypothesized findings emphasize the link between food insecurity, diet quality, and cardiometabolic risk in rural Negeri Sembilan. Using tools like FIES, DQQ, and clinical measures can support targeted interventions to reduce rural health disparities and improve public health in Malaysia.

P-1021 Association between dietary intake and central adiposity among young adults in Perak, Malaysia

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Introduction: Central adiposity is an increasing public health concern among young adults in Malaysia, often linked to poor dietary habits. This study aimed to examine the association between dietary intake and central adiposity among young adults in the Perak state. **Methods:** A cross-sectional study was conducted among 300 young adults aged 18 – 25 years from four tertiary institutions in Kampar and Ipoh, Perak. Participants were selected through multi-stage sampling. Socio-demographic data were collected using a validated questionnaire. Waist and hip circumferences were measured to assess central adiposity. Dietary intake was evaluated using a validated Food Frequency Questionnaire (FFQ). Data were analysed using independent t-tests and logistic regression. **Results:** Intake of rice, bread, and cereals was significantly associated with waist circumference (WC) ($\beta = 1.277$, OR = 3.586, $p = 1.00\times10^{-6}$). Meat intake was associated with both waist to hip ratio (WHR) ($\beta = 0.556$, OR = 1.744, $p = 1.63\times10^{-2}$) and waist circumference (WC) ($\beta = 0.884$, OR = 2.420, $p = 1.66\times10^{-3}$). Carbohydrate intake was linked to WHR ($\beta = 0.006$, OR = 1.006, $p = 3.3\times10^{-5}$) and WC ($\beta = 0.007$, OR = 1.062, $p = 3.3\times10^{-5}$). Calcium intake was associated with WHR ($\beta = 0.003$, OR = 1.003, $p = 1.026\times10^{-3}$). Vitamin D intake showed a protective effect against adiposity WHR ($\beta = -0.074$, OR = 0.928, $p = 8.8\times10^{-5}$). **Conclusion:** High intake of cereals, meat, carbohydrates and calcium may increase central adiposity risk, while vitamin D appears protective among the cohort of young adults studied.

P-1022 Dietary patterns and cognitive health in Indonesia: national survey results

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Introduction: Dietary patterns represent a powerful, modifiable factor in cognitive health. By implementing comprehensive nutritional strategies that address both biological mechanisms and socioeconomic barriers, societies can significantly reduce the growing global burden of cognitive decline. Prioritizing equitable access to brain-healthy diets offers one of our most promising

avenues for preserving cognitive function across the lifespan. **Methods:** The study aimed to identify the association between dietary patterns and cognitive impairment among Indonesian population. This cross-sectional study analysed secondary data from 1,532 participants in the Indonesia Family Life Survey (IFLS-5). Cognitive impairment was assessed using a TICS-based questionnaire, while dietary patterns were evaluated through a 15-item FFQ. Principal component analysis (PCA) identified four dietary patterns (eigenvalues >1). Differences were examined using ANCOVA, and multivariate binary logistic regression analysed cognitive impairment odds. **Results:** This study revealed significant associations between dietary patterns and cognitive impairment in Indonesian adults. Higher consumption of high-calorie, high-sugar foods substantially increased cognitive impairment risk, particularly in the highest consumption group (Tertile 3: OR=2.86, 95% CI=2.01-4.07, p<0.001). Conversely, greater intake of fruits and vegetables demonstrated a protective effect, with cognitive impairment prevalence decreasing from 85.9% in the lowest consumption group to 78.3% in the highest consumers (OR=0.66, 95% CI=0.47-0.92, p=0.015). These findings remained significant after adjusting for age, sex, and education level. The results suggest a clear dose-response relationship, where cognitive impairment risk progressively increased with higher consumption of energy-dense, sugary foods and decreased with greater fruit and vegetable intake. **Conclusion:** These findings highlight the need for dietary interventions targeting high-risk Indonesians, particularly middle-aged adults. Reducing high-calorie, high-sugar foods while increasing fruit or vegetable intake may lower cognitive impairment risk. Early screening and nutritional education should be prioritized to promote brain health. Public health strategies should integrate these evidence-based dietary recommendations for preventive care.

P-1025 Decoding gene-diet-lifestyle interaction: a nutrigenetic framework for predicting obesity risk in Malaysian adults

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Introduction: Malaysia faces a triple burden of malnutrition, further compounded by the population's diverse genetic admixture. The study aims to explore different obesity genetic single-nucleotide polymorphisms with diet-lifestyle factors, and influence on the status of obesity. **Methods:** 290 Malaysian adults between 18 and 65 years were recruited. A pre-tested, validated, and structured questionnaire was utilized for sociodemographic data, medical history, smoking habit, alcohol consumption, physical activity, and dietary intake (3-day dietary recall). The Infinium Asian Screening Array-24 v1.0 BeadChip was used to genotype MC4R, INSIG2, FTO, and APOA genes. IBM® SPSS® Statistics v27 and Nutritionist Pro Version 4.0.0 were used for data analysis. **Results:** A weak but positively significant correlation was found between dietary calories and BMI (r = 0.142, p=0.038). A positive significant correlation was revealed between energy ($r_{partial}$= 0.142, p=0.038), protein ($r_{partial}$= 0.154, p=0.025), alcohol ($r_{partial}$= 0.144, p=0.037), and WC. The interaction between smoking and INSIG2 rs7566605 was significantly correlated with WC ($r_{partial}$= 0.186, p=0.012). Multivariate analysis showed a significant positive association between total daily energy expenditure (TDEE) and WC (adjusted-β=503, 95%CI= 0.007, 0.021, p<0.001). A significant positive association was found between dietary patterns high in carbohydrates, sugar, and fat and BMI, adjusted for gender and marital status (adjusted-β=0.349, 95%CI= 0.048, 0.650, p=0.024). The mean micronutrient index was significantly associated with BF% status (p=0.027). Increased dietary iron density index increased the odds of high BF% almost by 5-fold (AOR=4.70,95%CI=1.07, 20.55, p=0.040). **Conclusion:** Findings of nutrient-gene interaction highlight the need for personalized nutrition and strategies to overcome obesity.

P-1026 Influence of sociodemographic factors, social support, and home environment on physical activity among schoolchildren in peninsular Malaysia: updated findings from SEANUTS II

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Introduction: Despite the importance of physical activity for children's growth and development, recent data on its determinants remain limited and its related factors have not been sufficiently explored in Malaysian context. This study aimed to identify associations of sociodemographic factors, social support and home environment with physical activity among schoolchildren in Peninsular Malaysia. **Methods:** This nationally representative cross-sectional study utilised data from South East Asian Nutrition Surveys (SEANUTS II) Malaysia, analysing 1,451 schoolchildren aged 6.0 – 12.9 years (51.5% boys; 48.5% girls). Sociodemographic data was collected through questionnaire. Physical activity was assessed through Physical Activity Questionnaire for Older Children (PAQ-C), with additional questions on social support and home environment. Parents/guardians reported for schoolchildren aged 6.0 – 9.9 years, while those aged 10.0 – 12.9 years self-reported. Associations between physical activity and sociodemographic were analysed using complex samples general linear model ANOVA, and with social support and home environment using ANCOVA adjusted for sociodemographic. **Results:** Mean PAQ-C score was 2.63 ± 0.02. PAQ-C scores were significantly higher among younger schoolchildren, boys, rural residents, and Indian ethnicity ($p<0.05$). Social support from parents, siblings, and friends, and home environment, including available home space and presence of nearby facilities (indoor/outdoor courts, park, playground, community space and lake/river), were significantly associated with higher PAQ-C scores ($p<0.05$). **Conclusion:** Sociodemographic factors, social support, and home environment significantly influenced physical activity, emphasising the need for culturally appropriate interventions, peer-based strategies and supportive environments to promote physical activity among Malaysian schoolchildren.

P-1027 Chrononutrition and digital exposure patterns as predictors of sleep quality in Malaysian night-shift healthcare workers

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Introduction: Shift work disrupts circadian rhythms, and chrononutrition behaviours such as irregular meal timing, late-night eating, and extended eating windows along with evening screen use may further impair sleep. However, evidence on their combined effect among shift workers remains unclear. **Methods:** This cross-sectional study involved 226 night-shift healthcare workers from KPJ Hospitals in Malaysia. Chrononutrition factors examined included regularity of meal timing, breakfast skipping, late dinner and total daily eating window duration. Digital exposure was assessed by total self-reported night-time screen time and five specific mobile-related sleep risk behaviours: using the phone immediately before sleep, keeping the phone on the bed, within two meters, not using airplane mode, and not activating a blue light filter. Sleep quality was measured using the Pittsburgh Sleep Quality Index, with a score of ≥ 5 indicating poor sleep. Binary logistic regression was used to determine associations between behaviours and sleep quality. **Results:** Poor sleep was reported by 37.3% of the participants. The

average duration of night-time screen use was 7.9 ± 9.4 hours. Individually, neither chrononutrition factors nor total screen time showed a significant association with poor sleep. However, the combination of irregular meal timing and late dinner were significantly associated with increased odds of poor sleep (adjusted OR = 6.35; 95% CI: 0.99–40.65; p = 0.005). Additionally, keeping the phone on the bed (OR 1.75, 95% CI 1.01–3.05, p = 0.046) and not using airplane mode during sleep (OR 1.62, 95% CI 1.01–2.59, p = 0.045) were linked to poorer sleep outcomes. **Conclusion:** Although individual chrononutrition habits and screen time were not linked to poor sleep, the combination of irregular meals and late dinners, along with certain bedtime phone practices, were associated with poorer sleep. Targeted interventions should address both meal timing and nighttime device use to improve sleep in night-shift healthcare workers.

P-1030 Association of physical activity, screen time and sleep duration with metabolic syndrome among primary school-aged children in Peninsular Malaysia

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Introduction: Metabolic syndrome (MetS) is a cluster of metabolic disorders that increases risk of cardiovascular disease and diabetes. This study aimed to investigate associations between physical activity (PA), screen time, sleep duration and MetS among primary school-aged children in Peninsular Malaysia. **Methods:** This cross-sectional survey, conducted as part of South East Asian Nutrition Surveys (SEANUTS II) Malaysia, used multistage cluster sampling method involving children aged 6.0 – 12.99 years old. Data collection method encompassed questionnaire, anthropometry and blood pressure measurements, and blood biochemistry analysis. International Diabetes Federation's MetS definition was used, and continuous metabolic score (cMetS) was calculated using formula by Vukovic et al. (2017). **Results:** Among the 320 children (mean age 9.80 ± 0.14, 50.3% girls) included in this analysis, only 1.0% of children had MetS, with mean cMetS of 1.71 ± 0.04. Mean PAQ-C score was 2.68 ± 0.04, and only 11.4% of children had 60 minutes of moderate to vigorous intensity physical activity (MVPA) daily. Screen time averaged 1.79 ± 0.08 hours per day, and mean sleep duration was 8.50 ± 0.06 hours per night. Regression analysis showed no association between PA, screen time and sleep duration with cMetS. However, children with 60 minutes of MVPA daily were predicted to have lower triglyceride levels (B = -0.150 ± 0.072 mmol/L, $p < 0.05$), and every one-point increase in PAQ-C score predicted lower mean arterial pressure by 1.59 ± 0.77 mmHg ($p < 0.05$). **Conclusion:** Although PA, screen time and sleep duration were not directly associated with MetS, PA was positively associated with MetS metabolic markers. These findings support the importance of promoting PA from an early age.

P-1031 Metabolic syndrome risk awareness, behavioural attitudes, and preventive practices among adolescents aged 13 – 17 years: a systematic review

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Introduction: Metabolic syndrome (MetS) is an emerging global health concern characterized by central obesity, insulin resistance, hypertension, dyslipidaemia, and elevated fasting blood glucose. The prevalence of MetS risk factors among children and adolescents ranges from 2.8% to 4.8% globally. Despite its increasing burden, limited evidence exists on adolescents' knowledge, attitude, and preventive behaviours toward MetS, which are crucial for early intervention. **Methods:** A systematic review was conducted in accordance with PRISMA 2020 guidelines. A comprehensive search was carried out using keywords such as "metabolic syndrome," "adolescents," "teenagers," "youth," "knowledge," "awareness," "attitude," and "practice" with Boolean operators. The databases PubMed, Scopus, and EBSCOhost were searched for peer-reviewed articles published in English between January 2015 and May 2025. Out of 604 articles initially retrieved, four studies met the inclusion criteria and were included in the final review. **Results:** The selected studies from Brazil, India, and Indonesia revealed a generally low level of awareness and understanding of MetS among adolescents. Educational interventions conducted in Brazil and India significantly improved adolescents' knowledge and attitudes toward MetS and encouraged healthier lifestyle choices. The study from Indonesia highlighted high sedentary behaviour, frequent breakfast skipping, low fruit and vegetable intake, and minimal physical activity among adolescents, reflecting poor preventive practices and limited MetS awareness. **Conclusion:** The findings underscore a critical need for culturally tailored and age-appropriate educational interventions to enhance knowledge, attitudes, and preventive practices regarding MetS among adolescents. Promoting early health literacy may contribute to reducing long-term metabolic risks in youth populations.

P-1034 Dietary intake and diet quality among children with autism spectrum disorder in Kelantan

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Introduction: Children with autism spectrum disorder (ASD) are often comorbid with feeding problems, thus they are more vulnerable to malnutrition. This study aimed to determine the dietary intake and diet quality of ASD children. **Methods:** This cross-sectional study was conducted among children between 4 and 12 years old diagnosed with ASD in Kelantan Autism Care Centre (KACC) and primary schools with special education integration programmes (SEIP) in Kelantan. A total of 68 parents of children with ASD completed the sociodemographic questionnaire and the two-day 24-hour dietary recall. Nutritionist Pro™ Diet Analysis software was used to analyse the daily energy and nutrient intake of the children. Diet quality was measured using the Malaysian Healthy Eating Index. Data analysis was performed using simple and multiple linear regression. **Results:** The mean energy intake was 1346.75 ± 435.78 kcal. The majority of the ASD children had inadequate intake of fibre (98.5%), vitamin D (98.5%), vitamin E (92.6%), vitamin K (94.1%), vitamin B1 (83.8%), vitamin B12 (88.2%), folate (100%), calcium (95.6%), magnesium (95.6%) and zinc (80.9%). The prevalence of ASD children having a poor diet quality in this study was 94.1%. Age (B = –0.129, 95% CI [–0.222, –0.037], p = 0.007), maternal Bachelor's degree (B = 7.448, 95% CI [2.082, 12.813], p = 0.007) and maternal PMR/SPM/O-Level (B = 6.491, 95% CI [0.102, 12.880], p = 0.047) were identified as predictors of

diet quality among ASD children. **Conclusion:** ASD children in this study showed poor diet quality and inadequacy in several essential nutrients. Nutritional intervention is needed to improve the diet of these children.

P-1036 Vitamin D status and muscle discomfort among indoor female workers in Malaysia

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Introduction: Vitamin D is essential for musculoskeletal function, yet deficiency is widespread among individuals with limited sun exposure. This study assessed vitamin D status and its association with muscle discomfort in Malay female indoor workers. **Methods:** A cross-sectional study was conducted among 100 female indoor workers (mean age: 39.4 ± 7.0 years) at a public university in Kuala Lumpur. Serum 25-hydroxyvitamin D [25(OH)D] levels were measured using enzyme-linked immunoassay. Deficiency and insufficiency were defined as <30 nmol/L and 30–50 nmol/L, respectively. Validated questionnaires assessed muscle discomfort, dietary intake, sun exposure behaviours and physical activity. UVB exposure was monitored using polysulphone badges. **Results:** The median serum 25(OH)D level was 29.0 nmol/L (IQR: 10.0); 54% were deficient and 36% insufficient. Most participants (93%) did not meet recommended dietary vitamin D intake (median: 3.8 ± 4.6 µg/d). UVB exposure was low (0.087 ± 0.067 SED/day), with sun exposure mainly limited to the face and hands. Muscle discomfort was frequently reported in the neck (90%), shoulders (88%) and lower back (79%). Serum 25(OH)D was inversely associated with muscle discomfort ($r = –0.204$, $p=0.042$), and positively correlated with vitamin D intake ($r = 0.432$, $p<0.001$) and physical activity ($r = 0.445$, $p<0.001$). Dietary intake ($\beta = 0.590$, $p<0.001$) and physical activity ($\beta = 0.250$, $p=0.002$) significantly predicted vitamin D status. **Conclusion:** Vitamin D deficiency is prevalent and associated with musculoskeletal discomfort among indoor female workers. Interventions promoting dietary fortification, supplementation, safe sun exposure and physical activity are essential to improve vitamin D status and musculoskeletal health.

P-1038 Shifting food system and child nutrition in Indonesia: a provincial panel study from 2018 to 2024

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Introduction: Indonesia continues to face a double burden of malnutrition among children under five, despite various national efforts to improve food consumption quality. The country's food system transition — reflected through changes in food group consumption and dietary diversity — requires deeper investigation to understand its implications for child nutritional outcomes across regions. This study aims to analyse the relationship between food consumption patterns, diet quality, and child nutritional status across Indonesian provinces from 2018 to 2024. **Methods:** A panel dataset compiled from SSGI, SKI, and the National Food Agency covering the period 2018 to 2024 includes all provinces with complete records on the prevalence of stunting, underweight, wasting, and overweight among children under five; Food Consumption Score; and annual per capita consumption of eight major food groups (grains, animal-based protein, tubers, fruits and vegetables, legumes, oils and fats, sugars, and oil seeds). Descriptive trend analysis, correlation, and linear regression analyses were conducted using SPSS. Spatial disparities were visualised through QGIS mapping. **Results:** Preliminary findings from 2018 – 2024 indicate average annual reductions of −1.69% in stunting, −0.28% in wasting, −0.03% in underweight, and −0.84% in overweight. The PPH score increased by an average of +0.59 points per year. Significant negative correlations were found between PPH and stunting ($r = -0.698$), wasting ($r = -0.226$), and overweight ($r = -0.282$), all at $p < 0.01$, suggesting that improved diet quality is associated with reduced malnutrition risks. **Conclusion:** These preliminary results suggest that improvements in dietary quality are associated with better child nutrition outcomes.

U-1005 Food insecurity and its socio-demographic associations among public university students in Terengganu, Malaysia

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Introduction: Food insecurity remains a significant public health concern among young adults in Malaysia, particularly those in tertiary education. This cross-sectional study aimed to determine the prevalence of food insecurity among university students in Terengganu and examine its associations with individual and parental socio-demographic characteristics. **Methods:** A total of 473 students were recruited using simple random sampling from four faculties at Universiti Sultan Zainal Abidin and three faculties at Universiti Malaysia Terengganu. Data were collected via face-to face interviews, including information on participants' and their parents' socio-demographic profiles. Food security status was assessed using the validated Food Insecurity Experience Scale (FIES). **Results:** While the majority of respondents were food secure, 43.6% experienced some level of food insecurity. Specifically, 25.8% reported moderate food insecurity, and 17.8% experienced severe food insecurity. Statistically significant associations were observed between food security status and several individual factors, including, including age ($p = 0.001$), gender ($p < 0.05$), academic level ($p < 0.05$), year of study ($p < 0.01$), accommodation expenditure ($p < 0.05$) and place of residence ($p < 0.01$). Furthermore, maternal employment status ($p < 0.01$) and total household income ($p < 0.001$) were also significantly associated with food security status. **Conclusion:** The findings highlight a concerning prevalence of food insecurity among university students in Terengganu and underscore the influence of both individual and familial socio-demographic factors. Addressing these key variables through targeted, context-specific interventions is essential to mitigate food insecurity and improve the nutritional well-being of young adults in higher education settings.

U-1006 Association between stress levels, eating behaviour, and weight status among UNISZA students

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Introduction: There is growing interest in understanding how stress affects eating behaviour and weight status. Stress is one of the factors that can either increase or decrease food consumption among university students, which may lead to risk of overweight or obesity in the future. The objective of this study was to explore the association between stress levels, eating behaviour, and weight status among students at Universiti Sultan Zainal Abidin in Kuala Terengganu, Malaysia. **Methods:** A cross-sectional analysis was conducted on 247 students aged 18 – 25 years, consisting of 75.3% females and 24.7% males. The participants completed a self-administered questionnaire that included sections on demographic information, body mass index (BMI), the Perceived Stress Scale-10 (PSS-10), and the Dutch Eating Behaviour Questionnaire (DEBQ). Data were analysed using descriptive statistics, and associations were determined using the Pearson Chi-Square Test. **Results:** The findings revealed that 86.5% of the students (n=212) experienced high stress, while 57.2% had a normal BMI (n=141). The emotional eating score was the highest among the three eating behaviour types, averaging 34.46 ± 9.41. The study found a significant association between stress levels, restrained eating, and weight status [$X^2(1) = 5.441$, $p = 0.020$]. However, emotional eating [$X^2(1) = 0.814$, $p = 0.367$] and external eating [$X^2(1) = 0.742$, $p = 0.389$] were not significantly associated with stress levels. Students in the low-stress group had lower scores for restrained eating behaviour than those in the high-stress group. **Conclusion:** Stress influences restrained eating behaviours, and further research is needed to better understand this connection.

U-1008 Knowledge, attitude, and practice of anaemia and iron intake, and their associated sociodemographic factors among female university students in Kuala Nerus, Terengganu

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Introduction: Iron-deficiency anaemia is a prevalent global public health issue, affecting a significant proportion of women of reproductive age. Despite high awareness levels in some populations, a gap remains between knowledge and practical implementation, particularly among university students. This study aimed to assess the knowledge, attitude, and practice (KAP) related to anaemia and iron intake among female university students, and to determine the associated sociodemographic factors. **Methods:** A cross-sectional study was conducted among 421 female students aged 18 – 39 years from Universiti Sultan Zainal Abidin and Universiti Malaysia Terengganu. Students who met the inclusion and exclusion criteria were recruited using convenience sampling. They were required to complete a set of questionnaires consisting of: 1) sociodemographic information and 2) a validated Malay version of KAP questionnaire related to anaemia and iron intake. **Results:** Students demonstrated high knowledge scores (median=19.00, IQR=4) and positive attitudes (median=14.00, IQR=12), but low practice levels (median=3.00; IQR=2). Factors significantly associated with KAP levels ($p<0.05$) included year of study, and paternal education. Students in later years and with more educated fathers had higher knowledge. Positive attitudes were linked to not living with family, receiving financial support, higher paternal education, and employed mothers; while low practice levels were associated with

paternal education. **Conclusion:** These findings highlight the gap between knowledge and practice, suggesting that awareness alone is insufficient to drive behavioural change. Targeted interventions that consider students' socioeconomic backgrounds and parental influence are essential to translate knowledge into healthier practices.

U-1011 Mindful eating, dietary intake, and nutritional status among public university students in Terengganu

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Introduction: Nutrition is essential for health and development, yet dietary behaviours are increasingly influenced by socio-economic and lifestyle changes. Mindful eating (ME) — the non-judgmental awareness of hunger, satiety, and the eating experience has gained recognition as a strategy for healthier eating habits. This study examined the correlations between ME, dietary intake, and nutritional status among public university students in Terengganu. **Methods:** A cross-sectional study was conducted among 467 students via simple random sampling from public universities in Terengganu. ME was assessed using the 28-item Mindful Eating Questionnaire (MEQ), dietary intake was via a semi-quantitative Food Frequency Questionnaire (FFQ), and nutritional status through anthropometric measurements. **Results:** The majority of respondents exhibited moderate ME level (median MEQ score: 2.71). Their total energy intake (TEI) from carbohydrates (55.4%), protein (17.3%), and fat (28.1%) was generally within recommended ranges. However, sugar (14.9% TEI) and sodium (2,640.9 mg) intakes were high. Overweight and obesity prevalence were 25.5% and 24.3%, respectively. No significant correlations were found between overall ME scores and macronutrient intake or BMI. However, the MEQ distraction subscale was positively correlated with carbohydrate intake ($p < 0.05$) and negatively with protein and fat intake ($p < 0.05$), while awareness subscale was positively correlated with protein intake ($p < 0.05$). **Conclusion:** Only certain ME subscales showed weak correlations with dietary composition. These findings underscore the complexity of dietary behaviour and suggest that ME alone may not predict nutritional outcomes. Future research should consider the influence of psychological and environmental factors in shaping eating habits.

U-1014 Knowledge, attitude and practice (KAP) of sodium intake and its correlation with sodium intake, blood pressure and nutritional status in young (17 – 21 years old) Terengganu FC footballers

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Introduction: Football requires proper nutrition, including adequate sodium intake, to support performance and recovery. However, excessive sodium intake may increase the risk of hypertension and obesity. In Terengganu, awareness of recommended sodium intake among young footballers is limited. This study aimed to examine the correlation between knowledge, attitude, and practice (KAP) of sodium intake and its correlation with sodium intake, blood

pressure, and nutritional status in young footballers aged 17 – 21 years. **Methods:** A total of 44 footballers participated. Anthropometric measurements included height, weight, BMI, BMI-for-age, and waist circumference using SECA equipment (SECA 213 Stadiometer, SECA 803 Scale, SECA 201 Measuring Tape). BMI and BMI-for-age were classified using standard cut-off points. Sodium intake was assessed through a bilingual Food Frequency Questionnaire (FFQ), while KAP was evaluated using a validated questionnaire. Blood pressure was measured with an OMRON HEM 7051 monitor. **Results:** Footballers showed varying KAP levels. About 71.4% believed a high-sodium diet could cause serious health issues, and 59.5% viewed reducing salt intake as important. However, home meal preparation was low, only 31.3% prepared breakfast and lunch, and 27.7% cooked dinner. Stalls were the main food source. All footballers exceeded the recommended sodium intake of 1,500 mg/day. Most had optimal systolic (46.5%) and diastolic (97.7%) blood pressure, normal waist circumference, and healthy BMI/BMI-for-age. No significant correlation was found between KAP scores and sodium intake, blood pressure, and nutritional status. **Conclusion:** Despite positive health indicators, high sodium intake persisted, indicating a gap between knowledge and practice. Targeted education is essential to improve sodium-related behaviours in young athletes.

U-1015 Food behaviours and its associations with quality of life and mental health among B40 households in Terengganu

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Introduction: Poor food behaviours are frequently associated with a diminished quality of life and adverse mental health outcomes, particularly among low-income families. Addressing these issues is essential to promote overall well-being and improve the mental health of affected communities. Therefore, this study aimed to assess whether food behaviours will influence the quality of life and mental health of B40 households in Terengganu. **Methods:** This cross-sectional study involved 312 participants (23.7% male, 76.3% female) aged 20 to 64 years from Kuala Nerus and Kuala Terengganu, selected using convenience sampling from the B40 income group. Food behaviours were assessed using the Dutch Eating Behaviour Questionnaire, while quality of life was measured using the WHOQOL-BREF, and mental health was evaluated using the DASS-21. All instruments used were validated. **Results:** The mean household income was RM 1799, with 72.1% classified as B1 (earning below RM 2500). Most participants exhibited emotional (70.5%) and restrained eating behaviours (61.2%), while only 10.6% displayed external eating behaviours. Although 70.8% reported good quality of life, mental health assessments showed that 78.8% experienced normal stress levels, and 38.5% experienced moderate anxiety. Food behaviours did not significantly affect quality of life or mental health ($p > 0.05$). **Conclusion:** The findings of this study revealed that food behaviours did not impact quality of life and mental health, despite low income. This suggests the influence of moderating factors such as gratitude and social support. Thus, studies that address both mind and body could be considered in the future.

U-1016 Perceived stress, food addiction and disordered eating behaviour among university students in Kuala Lumpur

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Introduction: Disordered eating behaviour (DEB) represents a concerning pattern of abnormal eating habits, commonly observed among young adults, including university students. This study aimed to determine the associations between perceived stress, food addiction, and DEB among university students in Kuala Lumpur. **Methods:** This cross-sectional study was conducted at UCSI University, Kuala Lumpur campus. A total of 250 students aged 18 – 24 years participated in the study. Sociodemographic background, perceived stress (Perceived Stress Scale), food addiction (Yale Food Addiction Scale 2.0), and DEB (Eating Attitudes Test-26), were assessed using self-reported questionnaires. Weight and height were measured and body mass index (BMI) was calculated. Chi-square tests and logistic regression analysis were performed using SPSS software version 20. **Results:** The overall prevalence of DEB was 21.2%. DEB was significantly higher among overweight/obese (29.4%) than normal weight (24.3%) and underweight (10.3%) students (x^2=7.079, p=0.029). There was no significant association between perceived stress and DEB (p>0.05). The prevalence of DEB among students with severe food addiction was higher (47.2%) compared to students with mild/moderate (8.7%) and no food addiction (5.4%) (x^2=56.135, p<0.001). Students with severe food addiction were also found to have a 15-fold higher risk of having DEB (OR = 15.096; 95% CI = 5.309–42.923) than their counterparts. **Conclusion:** Overweight/obese students and those with severe food addiction were more susceptible to DEB. Interventions focusing on healthy weight management and dietary self-regulation are essential to reduce the risk of DEB among university students.

U-1020 The interplay between sleep quality, eating behaviour and mental health among 18 – 25 years old Asian adults in Malaysia

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Introduction: Sleep quality, eating behaviour, and mental health are interrelated aspects of health, particularly in young adults experiencing academic, social, and emotional stress. However, limited studies have examined these associations among young Asian populations in Malaysia, hindering early identification and intervention efforts. **Methods:** A cross-sectional study was conducted among 250 Malaysian young adults (126 males, 124 females), aged 18 – 25 years. Anthropometric measurements (height, weight, BMI) were taken, followed by self-administered questionnaires: WHO-5 Well-Being Index, Hospital Anxiety and Depression Scale (HADS), Eating Disorder Examination Questionnaire (EDE-Q), and Pittsburgh Sleep Quality (PSQI). Data were analysed using IBM SPSS Version 29. **Results:** Overall, 38.8% of participants reported poor sleep quality and 23.2% had poor psychological well-being. Lower well-being scores were significantly correlated with higher anxiety, depression, and poorer sleep quality (p < 0.001). Anxiety also showed a positive association with disordered eating behaviour. Regression analysis

identified short sleep duration (≤7 hours) as the sole independent predictor of poor sleep quality (AOR = 10.335, p < 0.001), while anxiety (AOR = 0.307, p < 0.001) and depression (AOR = 0.220, p = 0.023) predicted poor psychological well-being. **Conclusion:** Internal psychological factors, especially anxiety and depression, have a stronger impact on mental health than sociodemographic factors. Short sleep duration is a key determinant of poor sleep quality. Integrated, culturally appropriate interventions are essential to improve the psychological well-being and sleep health of young Asian adults in Malaysia.

U-1022 Prevalence and factors associated with adherence to iron-containing supplementation among pregnant women attending selected health clinics in Hulu Langat, Malaysia

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Introduction: Iron supplementation during pregnancy is critical to prevent iron-deficiency anaemia and associated maternal and neonatal complications. However, adherence to supplementation remains a persistent challenge, with limited research addressing this issue among pregnant women in Malaysia. This study aimed to assess the prevalence, barriers, and factor associated with adherence to iron-containing supplementation among pregnant women attending selected health clinics in Hulu Langat, Selangor. **Methods:** A cross-sectional study was conducted at Bangi, Kajang, Beranang Health Clinic. Adherence was assessed using a modified Medication Adherence Questionnaire (MAQ), with adherence defined as reporting no behavioural barriers. Sociodemographic, obstetric, psychosocial factors and supplement intake were collected using structured questionnaires. Bivariate analyses and multiple logistic regression were performed to identify factors associated with adherence. **Results:** 274 pregnant women were recruited and the majority (93.5%, n=261) consumed any type of supplement. Among 213 who reported consuming iron-containing supplements, only 35.7% achieved full adherence. Forgetfulness (58.7%) was the most frequently reported barrier, followed by carelessness (30.0%) and stopping supplementation when feeling worse (17.8%). In multiple logistic regression analysis, history of abortion was significantly associated with lower adherence (adjusted OR = 0.368, 95% CI: 0.150–0.899, p = 0.028). No significant associations were found between maternal age, ethnicity, education, gestational week and adherence to iron supplement. **Conclusion:** Adherence to iron supplementation among pregnant women remains suboptimal, with forgetfulness emerging as the major behavioural barrier. Obstetric history, rather than sociodemographic factors, influenced adherence. Interventions targeting behavioural reinforcement, side-effect management, and psychological support during antenatal care are urgently needed to improve maternal iron supplementation adherence.

U-1023 The mediating role of picky eating behaviour in the relationship between food insecurity and body composition among young adults in Malaysia

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Introduction: Food insecurity and picky eating behaviour are growing public health concerns that may affect body composition among young adults. However, their interrelationship remains underexplored in Malaysia. This study aimed to investigate the mediating role of picky eating behaviour in the relationship between food insecurity and body composition among Malaysian young adults. **Methods:** This cross-sectional study was conducted among 119 young adults aged 18 – 30 years using convenience sampling. Food insecurity was measured using the Food Insecurity Experience Scale, and picky eating behaviour using the Adult Picky Eating Questionnaire. Body composition was assessed with the Omron Karada Scan, and height with a stadiometer. Data were analysed using IBM SPSS version 29.0. **Results:** Food insecurity affected 51.26% of participants, and the mean APEQ score was 37.15 ± 9.63. Before adjusting for sex, food insecurity was positively correlated with body weight, BMI, and visceral fat. After adjustment, it remained positively correlated with BMI, total body fat, visceral fat, and subcutaneous fat, but negatively correlated with skeletal muscle. Picky eating was negatively correlated to height, weight, basal metabolic rate, and skeletal muscle, but positively correlated with total and subcutaneous fat. After adjusting for sex, only the correlation between picky eating and height remained significant. The Sobel test indicated picky eating was not mediating the relationship between food insecurity and body composition. **Conclusion:** Although no mediation relationship was observed, both food insecurity and picky eating were independently correlated with adverse body composition indicators, highlighting the need for tailored nutrition interventions in this population.

U-1024 Association between parental and child emotional overeating, socioeconomic factors, and childhood obesity among Malay children aged 7 – 12 years in Klang Valley, Malaysia

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Introduction: Childhood obesity is a growing public health concern in Malaysia, influenced by behavioural, familial, and environmental factors. This study aimed to examine the association between parental and child emotional overeating, socioeconomic factors and the weight status of Malay children aged 7–12 years in the Klang Valley. **Methods:** A cross-sectional study was conducted involving 48 Malay parent-child dyads. Socio-economic data were collected via a structured questionnaire. Eating behaviours were assessed using the Child and Adult Eating Behaviour Questionnaires. Children's weight and height were measured using standardised protocols, and weight status was classified using BMI-for-age z-scores according to the WHO Growth Reference 2007. **Results:** The mean weight and height of the children were 32.09±13.12 kg and 132.29±11.51 cm, respectively. The average BMI-for-age z-score was –0.01±1.88, with 27% of the children classified as overweight or obese. Higher parental education level ($p<0.001$) and household income ($p = 0.008$) were significantly associated with childhood overweight and obesity. Emotional overeating (EOE) scores were significantly higher among children with overweight or obesity (2.48±0.36) compared to their peers who were non-overweight (2.07±0.71, $p=0.012$), and similarly among their parents (2.94±1.11 vs. 2.16±1.01, $p=0.026$). Parental EOE was significantly associated with child weight status ($p=0.026$). **Conclusion:** These preliminary

findings suggest that higher parental emotional overeating, parental education level, and household income are associated with childhood overweight and obesity. This highlights the importance of family-focused interventions targeting emotional eating to reduce childhood obesity in this population. Further research should involve larger and more diverse populations to confirm and strengthen these associations.

U-1026 Association between folate intake and stunting status among children aged 1 to 5 years old in Kuala Nerus and Kuala Terengganu

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Introduction: Stunting is a chronic form of malnutrition, impairs both physical and cognitive development in children, leading to long-term health and socioeconomic repercussions. Folate is a vital micronutrient involved in DNA synthesis and cell division that plays a fundamental role in growth and tissue development during early childhood. This study aimed to determine the prevalence of stunting, assess dietary folate intake, and evaluate the association between folate intake and stunting status among children aged 1 to 5 years in Kuala Nerus and Kuala Terengganu. **Methods:** A cross-sectional study was conducted among 246 children enrolled in Taska Permata Keluarga preschools using a convenience sampling method. Data collection tools include a sociodemographic questionnaire, a semi-quantitative food frequency questionnaire (FFQ) and anthropometric measurements using a SECA Model 213 stadiometer. Stunting was classified based on height-for-age Z-scores according to WHO Child Growth Standards. Pearson's Chi-square test was used to determine the associations between variables. **Results:** The median age of the children was 3.5 years, with a near-equal gender distribution (50.8% boys, 49.2% girls). The overall stunting prevalence was 11.8% (n=29), including 2.0% (n=5) classified as severely stunted. Most children (71.5%) did not meet the recommended daily folate intake. Specifically, 70% of children aged 1 – 3 years consumed less than 160 µg/day and 74% of children aged 4 – 5 years consumed less than 200 µg/day. However, no statistically significant association was found between folate intake and stunting status ($p > 0.05$). **Conclusion:** Although the study identified moderate prevalence of stunting and widespread inadequacy in folate intake, no significant association between the two was observed. These findings suggest the multifactorial nature of stunting, warranting further investigation into maternal nutrition knowledge, feeding practices and other socioeconomic determinants that may influence child growth outcomes.

U-1027 Correlation between knowledge, attitude and practice (kap) of iron intake and anaemia with dietary iron intake among female university students in Kuala Nerus, Terengganu

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Introduction: Iron deficiency anaemia commonly arises from inadequate intake of iron-rich foods or impaired iron absorption. Previous studies have demonstrated a relationship between knowledge, attitude, and practice (KAP) related to iron intake and anaemia with actual dietary

iron consumption. This study aimed to examine the correlation between KAP of iron intake and anaemia with dietary iron intake among female university students. **Methods:** A total of 368 female university students aged 20 to 24 years participated in this cross-sectional study. Students who met the inclusion and exclusion criteria were recruited through convenience sampling. KAP related to iron intake and anaemia were assessed using a validated Malay version of the KAP questionnaire, while dietary iron intake was evaluated using a validated semi-quantitative food frequency questionnaire (FFQ). **Results:** Findings showed that the median (IQR) scores for knowledge, attitude, and practice were 19.00 (IQR=10), 14.00 (IQR=2), and 4.00 (IQR=2), respectively. The median dietary iron intake was 12.56 mg/day (IQR=15.32), with 70.9% of students not meeting the Recommended Nutrient Intake (RNI) for iron. A significant correlation was observed between knowledge (ρ=0.11, p=0.030), attitude (ρ=0.11, p=0.028), and practice (ρ=0.14, p=0.007) and dietary iron intake. **Conclusion:** These findings suggest that strengthening nutrition-related knowledge, attitudes, and practices can positively influence dietary iron intake among young women. This reinforces the value of KAP-based strategies in nutrition education, supporting targeted behavioural interventions and highlighting the need for further research incorporating clinical indicators to effectively address and reduce the risk of anaemia among university students.

U-1030 The association between eating behaviour, perceived stress level and nutritional status among undergraduate students at the Health Campus, Universiti Sains Malaysia

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Introduction: The prevalence of stress among university students is increasing, impacting their eating behaviours and overall nutritional status such as Body Mass Index (BMI), Waist-to-Hip Ratio (WHR), and body fat percentage. This study aims to explore the relationship between stress and eating behaviour, as well as its association with nutritional status among undergraduates at the School of Health Sciences, Universiti Sains Malaysia. **Methods:** A total of 156 participants were recruited through a convenience sampling method. All participants completed questionnaires that included sociodemographic information, items from Cohen's Perceived Stress Scale, and the Three Factor Eating Questionnaire (TFEQ-R21) and anthropometric measurements were measured by the researcher. **Results:** The analysis revealed that over half of the participants reported moderate stress levels (78.2%). When examining the relationship between stress and various aspects of eating behaviour, only cognitive restraint demonstrated a weak positive correlation. The majority of participants had a normal BMI (41.7%), and most also exhibited a normal body fat percentage (58.2%). No significant association was found between eating behaviour and waist-to-hip ratio (WHR), suggesting that eating behaviour is not linked to body fat distribution. Notably, there was a significant association between cognitive restraint and body fat percentage (r= 0.196, p = 0.014). **Conclusion:** The findings from this study show that only cognitive restraint showed a significant association with nutritional status, specifically BMI and body fat percentage, proving that conscious diet control may affect body composition more than emotional and uncontrolled eating among undergraduate students.

U-1033 Factors associated with nutritional status among older adults with and without Parkinson's disease in the Klang Valley

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Introduction: Malaysia's ageing population faces a rising risk of malnutrition, particularly among older adults with Parkinson's disease (PD). Individuals with PD often experience physical and psychological challenges that can have a negative impact on their dietary intake and well-being. This study examined the associations between psychological distress, quality of life (QOL), and nutritional status of older adults with and without PD in the Klang Valley. **Methods:** This cross-sectional study was conducted among 100 older adults aged ≥ 60 years (30 with PD, 70 without PD). Questionnaires on sociodemographic background, psychological distress (Geriatric Depression Scale, Parkinson Anxiety Scale/Geriatric Anxiety Scale), and QOL (PDQ-39/WHOQOL-BREF) were administered via interview. Weight, arm span, mid-upper arm circumference, and calf circumference were measured. Height was estimated from the arm span, and body mass index (BMI) was calculated. Nutritional status was assessed using Mini Nutritional Assessment (MNA). **Results:** The prevalence of malnutrition was higher among older adults with PD (56.7%) than those without PD (30.0%) (X^2=6.338, p=0.015). Depression and anxiety were significantly associated with the nutritional status of older adults in both groups (p<0.05). QOL was associated with nutritional status in the non-PD group only (X^2=17.055, p<0.001). Having PD (OR=4.17, 95% CI=1.12 – 15.57) and presence of anxiety (OR=12.66, 95% CI=3.44 – 46.58) were associated with a higher risk of being malnourished. **Conclusion:** Older adults with PD and anxiety had a higher risk of malnutrition. An integrated approach that combines psychological therapies and nutritional strategies may help to improve the nutritional status of older adults, especially those with PD.

U-1036 The influence of nutrition on muscle strength in different community-dwelling older adults in China

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Introduction: China's ageing population presents rising public health concerns, particularly with age-related muscle deterioration such as sarcopenia. Sarcopenia, characterized by decreased muscle mass and strength. Dietary quality and physical activity are two modifiable lifestyle factors that could help prevent or delay sarcopenia. **Methods:** This cross-sectional study examined 50 older adults (mean age: 71.16 years) from both urban and rural settings in China. Muscle strength was assessed using the five-times sit-to-stand test (5xSTS). Dietary quality was measured using the Global Diet Quality Questionnaire (GDQQ), while physical activity was assessed via the Physical Activity Scale for the Elderly (PASE). Body composition, BMI, and related health indicators were also collected. **Results:** Participants had a mean BMI of 24.23, indicating healthy weight, but all recorded 5xSTS test above the AWGS2 cut-off, reflecting low muscle strength. GDQQ results showed moderate adherence to protective dietary patterns, though variation suggests inconsistent access to healthy food. Physical activity and performance levels varied significantly across participants. **Conclusion:** The findings support existing literature linking ageing, poor diet, and reduced physical activity to increased sarcopenia risk.

The study emphasizes the need for improved screening methods and encourages further longitudinal research to explore the impact of nutrition and physical activity interventions on muscle strength in older populations.

U-1037 Understanding the use of galactagogues: motivators and perception among breastfeeding mothers of Malay and Indian ethnicities in Klang Valley, Malaysia

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Introduction: Although breastfeeding is widely practiced in Malaysia, exclusive breastfeeding rates remain suboptimal. Galactagogues are substances believed to enhance breast milk production and are often used by mothers who perceive or experience low milk supply. However, little is known about their use among breastfeeding mothers of Malay and Indian ethnicities in Klang Valley. **Methods:** A cross-sectional study was conducted among 61 breastfeeding mothers aged 21 – 42 years (mean age 30.8 ± 4.84 years) in Klang Valley, Malaysia. Participants were recruited using convenience sampling method. Inclusion criteria were currently breastfeeding mothers aged ≥18 years, residing in Klang Valley, and able to complete online questionnaires in English or Malay. Data was collected via a self-administered online questionnaire and two-day 24-hour dietary recall interviews were conducted online or via phone. Chi-square test was conducted with statistical significance set at $p<0.05$. **Results:** More than half of the mothers reported breastfeeding difficulties including sore nipples (54.1%), low milk supply (41.0%), and latching issues (27.9%). About 36.1% used galactagogues. Some of the most used galactagogues include red dates (75.0%), oats (72.7%), and fenugreek (45.5%). Usage of galactagogues were significantly higher among those dissatisfied with milk supply ($p=0.01$), influenced by online sources (63.6%) and advised by healthcare professionals (36.4%). No significant associations were found between galactagogue use with ethnicity, education, or income ($p>0.05$). **Conclusion:** Galactagogue use among breastfeeding mothers in Klang Valley is driven by milk adequacy concerns, information gathered online and professional sources. These findings highlight the need for culturally sensitive and evidence-based breastfeeding support.

U-1038 The association between dietary intake and nutritional status among adolescents in Hulu Terengganu, Terengganu

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Introduction: Adolescence is a critical phase that requires balanced nutrition to support growth and development. In 2022, overweight and obesity affected over 390 million adolescents globally and 30.5% of adolescents in Malaysia. Shifts in dietary patterns, particularly in rural settings, have raised concerns about nutritional adequacy and associated health risks. This study aimed to examine the association between dietary intake and nutritional status among adolescents in Hulu Terengganu. **Methods:** A cross-sectional study was conducted among 357 adolescents aged 13, 14, and 16 years from six randomly selected public secondary schools in Hulu Terengganu. Dietary intake was assessed using a Semi-Quantitative Food Frequency Questionnaire and analysed with Nutritionist Pro™ Diet Analysis software. Anthropometric measurements were used to determine Height-for-Age Z-scores (HAZ) (89.0%) and BMI-for-Age Z-scores (BAZ). **Results:** While the majority of participants had normal HAZ (89.0%) and BAZ (67.2%), notable prevalence

of obesity (14.0%), overweight (11.6%), and stunting (10.7%) were observed. Approximately 57.9% of the participants exceeded energy requirement, 75.0% had inadequate fibre intake, and 70.2% had excessive sodium intake. A significant association was found between added sugar intake and BAZ status ($p < 0.05$), although no significant associations were found between overall dietary intake and HAZ or BAZ status. **Conclusion:** Despite generally normal anthropometric status, substantial dietary imbalances persist among adolescents in Hulu Terengganu. The finding underscores the need for targeted, context-specific, school- and community-based nutrition interventions to promote healthier eating behaviours and mitigate future health risks among adolescents in underserved settings.

U-1044 Understanding the reasons behind inadequate daily intake of fruits and vegetables in final year nutrition and dietetics students: a qualitative research

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Introduction: Fruits and vegetables (FV) are a vital part of a healthy diet. However, studies found that students with high nutritional knowledge do not necessarily translate to healthy eating habits. This study aimed to understand the reasons behind inadequate intake of FV in final-year Nutrition and Dietetics students. **Methods:** A qualitative research design was employed. Individual interview sessions using Zoom were conducted with 11 female final-year students of the Nutrition (n=7) and Dietetics (n=4) programme recruited through purposive sampling from two university institutions in Malaysia. Transcript drafts from the recorded interviews were further improved before applying the thematic analysis. **Results:** Participants were found to have inadequate food group servings and skipped meals in their current dietary practices. Sensory appeal, familiarity, health reasons, personal preference and habits emerged as participants' perceptions and feelings towards FV intake. Moreover, more appealing off-campus options, different home FV preparations and choices, parental and peer influences, knowledge and information-related factors, were found as environmental influences on eating habits. Additionally, the variety and availability of FV on campus, budget, academic activities, motivational and attitudinal barriers emerged as the challenges. Participants also shared ideas to improve FV intake, which included storing fruits in their room, having self-resolve to include FV in their daily diet and choosing cheaper options. **Conclusion:** This study highlights that participants desired to eat enough FV, and the campus dining options were the cause of this issue. Therefore, to increase FV intake in university students, the intervention should focus on these two areas.

U-1046 Relationship between sociocultural influences, social appearance anxiety, and body dissatisfaction among UCSI university students

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Introduction: Body image encompasses an individual's perception, thoughts, and emotional responses toward physical appearance. In a society shaped by social expectations, sociocultural ideals significantly reinforce body image perspectives. This study examined the relationship between sociocultural influences, social appearance anxiety, and body dissatisfaction among UCSI University students. **Methods:** A cross-sectional online self-report survey was conducted, comprising four sections: sociodemographic background, Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATQ-4), Social Appearance Anxiety Scale (SAAS), and the Body Shape Questionnaire-34 (BSQ-34). Descriptive statistics summarised the data. Spearman's correlation tested the associations, and multiple linear regression determined predictors of body dissatisfaction. **Results:** A total of 182 students were recruited, with the majority being female (72.0%) and Chinese (92.3%), and a mean age of 21.37 ± 1.64 years. Greater internalisation of appearance-related sociocultural ideals, as measured by SATAQ-4, indicated increased sociocultural influences. About 41.2% reported moderate appearance anxiety, while 56.6% had mild to marked body shape concerns. Sociocultural influences significantly correlated with both social appearance anxiety ($r = 0.629$, $p < 0.001$) and body dissatisfaction ($r = 0.683$, $p < 0.001$). Social appearance anxiety was also significantly correlated with body dissatisfaction ($r = 0.602$, $p < 0.001$). Regression analysis showed sociocultural influences ($\beta = 0.490$, $p < 0.001$) and social appearance anxiety ($\beta = 0.309$, $p < 0.001$) were significant predictors. **Conclusion:** Sociocultural influences and social appearance anxiety contribute to body dissatisfaction among university students. Intervention strategies and awareness programs are needed to promote positive body image development, as they can influence eating behaviours and nutritional choices.

U-1047 Prevalence and factors associated with protein energy wasting among patients on haemodialysis in Kota Kinabalu

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Introduction: Protein energy wasting (PEW) is characterised by the depletion of protein and energy stores and is a prevalent complication among patients on haemodialysis (HD). The aetiology of PEW is multifactorial, including social determinants of health such as food insecurity, particularly in resource-limited settings. Limited health literacy among HD patients is also linked to poor clinical outcomes and may contribute to PEW. This study aimed to determine the prevalence of PEW and its associated factors among HD patients in Kota Kinabalu. **Methods:** A cross-sectional study was conducted at five dialysis centres in Kota Kinabalu. PEW was diagnosed using the Malnutrition Inflammation Score. Food insecurity was determined using the Food Insecurity Experience Scale while health literacy was assessed via 12-item Health Literacy Survey Short Form. Sociodemographic and clinical data were also collected. Descriptive statistics and binary logistic regression analysis were performed. **Results:** Out of 202 adult patients on HD, 70.8% were diagnosed with PEW and 37.2% experienced food insecurity. More than half (55.7%) of the patients exhibited limited health literacy. No significant association was found

between food insecurity and PEW. However, older patients (OR: 1.038; p=0.024), those with limited health literacy (OR: 2.543; p=0.021), and those treated at government-operated dialysis centres (OR: 4.278; p=0.003) were more likely to develop PEW. **Conclusion:** PEW was highly prevalent among HD patients in Kota Kinabalu. Patients with older age, limited health literacy, and receiving treatment at government centres are at risk of PEW, emphasising the urgent need for targeted interventions to manage PEW in this population.

U-1048 Higher oral lipopolysaccharide in normal-weight individuals and its association with BMI and eating behaviours in university students: a cross-sectional study

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Introduction: Obesity has reached epidemic proportions in Malaysia, with metabolic endotoxemia emerging as a potential contributor to this public health crisis. This study investigated the association between oral metabolic endotoxemia levels, eating behaviour traits, and Body Mass Index (BMI) among undergraduate students at Universiti Malaysia Sabah (UMS). **Methods:** A cross-sectional study was conducted among 88 undergraduates at UMS, selected through stratified random sampling by sex and BMI. Saliva samples were collected and analysed for lipopolysaccharide (LPS) levels using enzyme-linked immunosorbent assay (ELISA). BMI was calculated based on height and weight, and eating behaviours were assessed using the Dutch Eating Behaviour Questionnaire (DEBQ). **Results:** Participants with normal BMI showed significantly higher LPS values (37.33pg/ml [IQR = 4.85]) than overweight participants (34.93pg/ml [IQR = 4.03]; $p < 0.001$). No significant sex difference was found in LPS values. Restrained eating scores were higher in the overweight group (2.93 ± 0.65 vs. 2.26 ± 0.77; $p < 0.05$) and among females (2.80 ± 0.75 vs. 2.39 ± 0.75; $p < 0.05$). Regression analyses revealed significant associations between LPS and BMI ($R^2 = 0.077$, $p = 0.009$, $\beta = 0.258$), and restrained eating and BMI ($R^2 = 0.121$, $p < 0.001$, $\beta = 2.228$). **Conclusion:** Contrary to expectations, higher oral LPS levels were observed in normal-weight participants, warranting further investigation. However, the significant association between restrained eating and BMI highlights behavioural factors that may contribute to weight status.

U-1049 Association between self-efficacy in dieting with dietary adherence among overweight and obese individuals in Kota Kinabalu, Sabah

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Introduction: Obesity among Malaysian adults is a growing public health issue. Behavioural change strategies are essential in addressing obesity, with self-efficacy playing a key role in influencing adherence to dietary recommendations. The study aimed to examine the relationship

between self-efficacy in dieting with dietary adherence among overweight and obese individuals. **Methods:** A cross-sectional study was conducted among 44 overweight or obese individuals in Kota Kinabalu, Sabah, using purposive sampling. A structured questionnaire was used to collect data on socio-demography, self-efficacy in dieting (assessed using the Health Belief Model questionnaire for weight management behaviours), anthropometric measurements (height, weight, body fat, and body mass index), and dietary intake (calorie and macronutrients, assessed using a 2-day 24-hour diet recall). Dietary adherence was defined as a caloric deficit of 300 to 1000 kcal/day from the daily energy requirement or usual intake. **Results:** Of the participants, 47.7% were male and 52.3% female, with a mean age of 23.55 ± 4.22 years. The prevalence of dietary adherence was 77.3%, with significant differences in calorie and macronutrient intake between adherents and non-adherent ($p < 0.001$). The median (Q1, Q3) self-efficacy score in dieting was 13.00 (10.00, 18.50), with 52.3% showing low self-efficacy and 47.7% high self-efficacy. However, no statistically significant association was found between dieting self-efficacy with dietary adherence ($p = 0.724$). **Conclusion:** Although no significant association was observed, self-efficacy remains an important factor in promoting dietary adherence. Further research is warranted to explore its predictive role in weight management.

U-1050 Needs assessment among health service providers on nutritional status of children in Pulau Banggi, Kudat, Sabah

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Introduction: Previous studies in Sabah showed high prevalence of under-nutrition among children in island communities. This study aimed to identify causes contributing to malnutrition among children in Pulau Banggi, Kudat and provide improvement suggestions. **Methods:** A qualitative study was conducted in July 2024 on the island. Participants were 16 healthcare service providers (HSPs) working in Pulau Banggi and Kudat who were recruited using purposive sampling. Two focus group discussions (FGDs) using a validated semi-structured questionnaire were conducted. Each FGD session was recorded for verbatim transcription followed by thematic analysis. **Results:** Five themes were identified as causes of malnutrition problem: (i) socio-economy, (ii) geographical barriers, (iii) cultural beliefs, (iv) environmental conditions, (v) hygiene and sanitation. Only one theme was identified as suggestion to solve the problem, i.e., health-system improvement. HSPs mentioned the need for more clinics on the island and adding a nutritionist. They also highlighted barriers, including interruptions in supply of food basket and high-energy high-protein nutritional supplement, and transportation problems. **Conclusion:** There are suggestions which can be implemented quickly such as ensuring continuous availability of supplies for nutritional intervention. Further studies are necessary to explore the island-wide prevalence of malnutrition among children including in less accessible parts of Pulau Banggi and to evaluate the effectiveness of current nutritional interventions based on this need assessment.

U-1051 Nutrients and cost of food provision in childcare centres and kindergartens in Kota Kinabalu

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Introduction: The food provided by early childcare and education facilities (ECCEFs) is essential for preschoolers' nutrient intake. This study examined food groups, nutrient content, and cost of food provision in ECCEFs in Kota Kinabalu. **Methods:** This cross-sectional study sampled 30 private and public ECCEFs by quota sampling. Menus and food costs were collected by interviewing persons-in-charge. Food portions were measured before and after consumption. Nutrient content was analysed using Nutritionist Pro. Nutrient adequacy was evaluated based on the number of meals measured, compared to 20 to 80% of RNI. **Results:** Median energy (176 kcal), fat (3.32 g), and calcium (28.09 mg) were below recommendations ($p<0.001$); carbohydrate (27.68 g) met recommendations; protein (5.82 g) and iron (1.54 mg) exceeded recommendations ($p<0.05$). In facilities where all meals were measured, 8 facilities out of 13 did not serve fruits, and 3 out of 13 did not serve vegetables. In facilities where not all meals were measured due to operational limitations, 14 out of 17 provided fruits and 15 out of 17 provided vegetables at least once. Median fruit (0.12 serving) and vegetable (0.16 serving) intake were significantly lower than recommended. Fish and milk were inadequate. Nutrients consumed were significantly lower than served ($p<0.05$). Median meal costs in kindergarten were RM0.81/child (1 meal) and in childcare centres RM1.00/child (2 meals). Nutrient levels correlated with food costs ($p<0.05$). Estimated costs following MDGCA 2023 guidelines were RM3.48/child (childcare centre) and RM3.45/child (kindergarten). **Conclusion:** Most ECCEFs provided inadequate nutrients, highlighting the need to improve food menus.

U-1052 Knowledge, attitude and practice towards ultra-processed foods among nutrition and dietetics students in Malaysia

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Introduction: Increasing consumption of ultra-processed foods (UPF) has drawn public health attention globally, including in Malaysia. While some studies suggest links between high UPF intake with adverse health outcomes, classification systems like NOVA have been criticised for oversimplifying roles of formulation and processing. As future health professionals, Nutrition and Dietetics (N&D) students should be equipped with clear understanding of these evolving concepts. Hence, this study aimed to assess levels of knowledge, attitude, and practice (KAP) related to UPF among N&D students in Malaysia. **Methods:** This cross-sectional study included 200 N&D students aged 18 to 25 years recruited from public and private universities in Malaysia. Data were collected using self-administered online KAP questionnaire. KAP scores were categorised as low (0–49%), moderate (50–79%) and high (80–100%). **Results:** Majority of participants demonstrated moderate levels of knowledge (59.0%), attitude (89.5%), and practice (95.5%) regarding UPF, with only 0.5% of participants reporting good practices related to UPF consumption. Nutrition students (12.6 ± 3.1) had significantly higher knowledge scores compared to Dietetics students (11.9 ± 3.2) ($p<0.05$); however, no significant differences were observed in

attitude and practice scores. Although senior students (Years 3 and 4) scored higher in all three KAP domains compared to junior students (Years 1 and 2), these differences were not statistically significant (knowledge: p=0.220; attitude: p=0.333; practice: p=0.465). **Conclusion:** These findings highlight the need to strengthen curricula to bridge the gap between knowledge and practice, while fostering critical understanding of food processing, UPF definitions, and their health implications.

PX-2002 Sociodemographic characteristics, dietary habits, energy and macronutrient intakes of university students who habitually skip breakfast

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Introduction: Skipping breakfast can lead to negative nutrition and health consequences particularly in university students. It is important to understand the socio-demographic characteristics, dietary habits as well as body weight and health risks of breakfast skippers to allow for the development of targeted public health nutrition initiatives. We aimed to investigate the characteristics and dietary habit of university students who habitually skip breakfast and compare them to students who habitually eat breakfast. **Methods:** This cross-sectional study involved 169 undergraduate students at Universiti Malaysia Sabah (UMS) selected through convenient sampling. Their weight, height and waist circumference (WC) were measured using standard procedures. Body mass index (BMI) was calculated. Information on sociodemographic characteristics, health related behaviours and dietary habits were collected using questionnaires. Respondents' macronutrient and energy intake were assessed from their self-reported one-day food dairy. Statistical analysis involved frequency analysis, descriptive statistics, chi-square test and comparison of mean and median values of continuous variables. **Results:** There was statistically no association between breakfast behaviour (eaters or skippers) and sociodemographic factors and health-related behaviours respectively. Intake of energy and most nutrients were similar among breakfast eaters and skippers but a majority of students did not achieve fruit and vegetable intake recommendations. **Conclusion:** These findings could provide insights for future studies that could generate more evidence to be used for the development of targeted strategies to promote healthier eating habits and address potential health risks associated with skipping breakfast especially among university students.

PX-2003 Seeing the signs: exploring socio-demographic and nutritional risk factors for xerophthalmia among vitamin A-deficient rural primary schoolchildren

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Introduction: Vitamin A deficiency (VAD) continues to be a significant public health concern in developing countries, contributing to preventable childhood blindness. However, recent data on xerophthalmia among school-aged children in Malaysia remain scarce. This study assessed the prevalence and associated factors of xerophthalmia among 596 children aged between 8 and 12 years from ten rural primary schools across five states in Malaysia. **Methods:** In this cross-sectional study, children with plasma retinol concentrations <0.70 µmol/L (confirmed VAD) or 0.70 to <1.05 µmol/L (marginal VAD) underwent anterior segment eye examinations using pen torch illumination to detect ocular signs of xerophthalmia, which include conjunctival xerosis (X1A), Bitot's spots (X1B), corneal xerosis (X2), corneal ulceration (X3), and corneal scarring (XS), as classified by WHO. **Results:** The overall xerophthalmia prevalence was 48.8%, with conjunctival xerosis (38.9%) being the most common ocular manifestation. Xerophthalmia was inversely associated with retinol-binding protein 4 (RBP4) (P=0.003), alpha-carotene (P=0.04), haemoglobin (P=0.004), weight (P=0.02), body mass index (BMI) (P=0.04), and weight-for-age z-score (WAZ) (P=0.04). Multivariate logistic regression revealed that boys (adjusted odds ratio [AOR]: 1.7; 95% CI: 1.2 to 2.5) and Orang Asli (indigenous) children (AOR: 2.0; 95% CI: 1.3 to 3.0) had significantly higher odds of xerophthalmia, while those classified as overweight or obese were at lower risk (AOR: 0.5; 95% CI: 0.3 to 0.8). **Conclusion:** These findings highlight a concerning prevalence of xerophthalmia among VAD-affected rural schoolchildren in Malaysia, particularly within the indigenous population. Socio-demographic and nutritional correlates identified in this study may inform targeted public health interventions to mitigate VAD-related ocular morbidity.

PX-2005 Validation of the alternative healthy eating index for Malaysian adolescents (AHEI-MA)

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Introduction: The diet quality of adolescents is an increasing global concern due to its long-term health implications. Tools such as the Alternative Healthy Eating Index (AHEI) are essential for assessing diet quality and identifying nutritional inadequacies. This study aims to validate and apply the newly developed Alternative Healthy Eating Index for Malaysian Adolescents (AHEI-MA), designed to reflect local dietary patterns and nutrient concerns. The AHEI-MA was developed based on the Malaysian Dietary Guidelines for Children and Adolescents (2013), focusing on components known to reduce the risk of chronic diseases. **Methods:** Validation of the AHEI-MA was conducted using data from the Malaysian Health and Adolescents Longitudinal Research Study (MyHeART). A total of 424 adolescents aged 15 years from urban and rural schools participated. Data collected included sociodemographic characteristics, anthropometric measurements, and dietary intake via a 7-day dietary history interview. Diet quality scores were calculated using the AHEI-MA. **Results:** AHEI-MA scores were categorized as good (>80%), needs improvement (51–80%), and poor (≤51%). Urban adolescents had a mean score of 52.35%, while rural adolescents scored lower at 48.55%. Female adolescents achieved significantly higher scores (62.79%) than males (27.03%). For specific components, urban adolescents scored higher for sugar intake (6 vs. 4), while both urban and rural groups scored 0 for sodium, indicating high sodium consumption. **Conclusion:** The AHEI-MA is a potential tool for assessing adolescent diet quality in Malaysia. These findings underscore the need for targeted nutritional interventions. Further validation studies are recommended to enhance its applicability across diverse populations.

PX-2010 Association between self-efficacy in exercise with physical activity adherence among overweight and obese individuals in Kota Kinabalu, Sabah

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Introduction: Obesity is a growing public health challenge among Malaysian adults, contributing to rising comorbidities. Effective behavioural change strategies are crucial for combating obesity, particularly those targeting physical activity (PA) adherence. This study aimed to examine the relationship between self-efficacy in exercise and PA adherence among overweight and obese individuals. **Methods:** A cross-sectional study was conducted with 44 overweight or obese individuals in Kota Kinabalu, Sabah, selected through purposive sampling. Data were collected using a structured questionnaire that included sociodemographic information, anthropometric measurements (body mass index and body fat percentage), the total duration of PA over one week (recorded using a self-reported PA diary), and self-efficacy in exercise (assessed through the Health Belief Model questionnaire for weight management behaviours). PA adherence was defined as engaging in moderate-intensity PA for at least 150 minutes per week, linked to weight loss. **Results:** Of the 44 participants, 47.7% were male and 52.3% female, with a mean age of 23.55±4.22 years. The average BMI and body fat percentage were 29.17±4.23 kg/m² and 32.62±7.50%, respectively. PA adherence was observed in 45.5% (n=20) of participants, while 54.5% (n=24) did not meet the PA recommendations. The adhered group demonstrated significantly greater ($p<0.001$) cumulative PA duration [232.50 (180.00–278.75) min/week] compared to the non-adhered group [30.00 (0.00–116.25) min/week]. Additionally, the adhered group reported significantly higher ($p<0.001$) MET scores [4.96 (2.50–6.38) MET-min/week] than the non-adhered group [1.25 (0.00–2.50) MET-min/week]. Regarding self-efficacy in exercise, 61.4% of participants were classified as having low self-efficacy, and 38.6% as having high self-efficacy. The study found no significant association between self-efficacy levels and PA adherence ($p=0.429$). **Conclusion:** This study identified significant differences in PA levels between adherent and non-adherent groups, but no link with self-efficacy. Future research should investigate additional factors that may influence PA adherence in overweight and obese individuals.

PX-2012 Association between knowledge, perception, and soy food intake with body composition among Chinese women in Bukit Jalil

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Introduction: Soy foods are widely recognised for their nutritional value, being rich in protein, fibre, and bioactive compounds such as isoflavones. Regular soy consumption has been associated with various health benefits, including reduced cardiovascular risk, better bone health, and potential protective effects against hormone-related conditions. Despite these benefits, limited data exist on how knowledge, perception, and dietary behaviours influence soy food intake, particularly among Malaysian Chinese women. This study aimed to investigate the relationship between knowledge, perception, motivators, and barriers with soy food intake, and to

explore its association with body composition indicators. **Methods:** A cross-sectional study was conducted among 110 Chinese women aged 21 – 49 years in Bukit Jalil using convenience sampling. An online questionnaire collected sociodemographic data, knowledge, perception, and influencing factors (motivators/barriers) related to soy food consumption. Anthropometric measurements including BMI, waist circumference, and body fat percentage were taken following ISAK protocols. Soy intake was assessed using a food frequency questionnaire. Associations were analysed using Spearman correlation tests in SPSS Version 28.0. **Results:** Participants reported good knowledge (60.9%) and positive perception (51.8%) toward soy foods, with 83% indicating a preference for soy. Taste was both the main motivator (75.8%) and barrier (47.3%) to consumption. The most commonly consumed soy items were soymilk (32.4 mL/day), soybean dessert (14.1 g/day), and soybean curd (13.6 g/day). Median BMI was 21.6 kg/m² (IQR 4.5), body fat percentage 28.7% (IQR 5.6), and waist circumference 68.5 cm (IQR 10.1). No significant associations were found between soy intake and knowledge, perception, BMI, body fat, or waist circumference ($p > 0.05$). **Conclusion:** Despite favourable knowledge and perception, soy intake was modest and not significantly linked to body composition. Broader public nutrition education may help bridge the gap between awareness and consumption behaviours.

PX-2019 Sweat sodium profiles under different environmental conditions among Malaysian field hockey athletes

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Introduction: Understanding athletes' sweat sodium profile is essential in developing individualized hydration strategies that optimize performance and reduce the risk of dehydration and cramping. **Methods:** Twelve male athletes participated in two sessions of same intensity: Session 1 (8:00–10:00 am, 28°C, 65% humidity) and Session 2 (3:00–5:00 pm, 32.8°C, 83% humidity). Sweat was collected using forearm sweat patches and analysed with a LAQUAtwin Na-11 sodium ion meter. Athletes were categorized into low (<30 mmol/L), moderate (30–60 mmol/L), and high (>60 mmol/L) sweat sodium groups. **Results:** In Session 1, 50% (n=6) of athletes had high sweat sodium concentration, 33.3% (n=4) moderate, and 16.7% (n=2) low, with a mean concentration of 51.2 ± 19.3 mmol/L. Mean body weight loss was 1.72 ± 1.1%, with sodium loss of 1.47 ± 1 g. In Session 2, under hotter and more humid conditions, mean body weight loss and sweat sodium loss increased to 1.84 ± 0.7% and 1.56 ± 0.8 g, respectively. In terms of the sodium concentration, 33.3% (n=4) exhibited high sweat sodium, 58.4% were (n=7) moderate and the remaining 8.3% (n=1) were in low sodium group with a lower mean concentration of 49.3 ± 15.8 mmol/L. Inter-individual differences were observed, with a mean change of 1.8 ± 10.9 mmol/L in sodium concentration and 0.09 ± 1.0 g in sodium loss between sessions. **Conclusion:** This study highlights inter-individual variability in sweat sodium profiles of Malaysian field hockey athletes, emphasizing the need for personalized hydration strategies based on environmental conditions and individual sweat sodium profiles.

PX-2020 Food insecurity linked to unhealthy dietary patterns among preschoolers in Peninsular Malaysia

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Introduction: Food insecurity can influence children's dietary patterns by limiting access to nutritious foods, often leading to unhealthy eating patterns. This increased vulnerability to poor dietary choices may disrupt children's optimal growth, contribute to poor nutritional status, and exacerbate health risks in children. This study aimed to assess relationship between household food security and dietary patterns among preschool children in Peninsular Malaysia. **Methods:** Data of 635 preschoolers (51.3% boys, mean age 4.88 ± 0.05 years) from South East Asian Nutrition Surveys (SEANUTS II) Malaysia were analysed. The Radimer/Cornell Hunger and Food Insecurity Instrument consisting of 10 items was used to evaluate food insecurity. Dietary intakes were assessed using a single, triple-pass 24-hour dietary recall method and dietary patterns were derived using principal component analysis. The relationship between household food security and dietary patterns was examined using complex sampling logistic regression. **Results:** Five dietary patterns were identified, explaining 47.3% of total variation in dietary intake. In this study, about 39.7% of preschoolers were affected by food insecurity. Children living in food-insecure households were 1.94 times more likely than those from food-secure households to have greater consumption of high salt and sugar pattern ($p<0.05$). Food insecurity was also associated with increased odds of adhering to a high sugary drinks and legumes pattern ($p<0.01$). **Conclusion:** Food insecurity is linked to greater adherence to unhealthy dietary patterns among preschoolers. This study emphasises the need for targeted interventions to improve food access and promote healthier eating habits in vulnerable populations.

PX-2025 Investigating the link between body mass index (BMI), micronutrient deficiency, and iron-induced inflammation in anaemia: a bioinformatics-assisted review (BaR) approach

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Introduction: Elevated BMI, including overweight and obesity, is a known risk factor for several comorbidities, including anaemia, primarily due to its association with low-grade chronic inflammation and micronutrient deficiencies. Given the inconsistent findings in the literature, advanced bioinformatics approaches may help provide clearer insight into the link between BMI, anaemia, and micronutrient status. This study aimed to identify potential biomarkers of iron-induced inflammation that may be involved in the association between BMI, dietary intake of vitamins B12, C, and D, and haemoglobin (Hb) concentration, using BaR analysis. **Methods:** Utilising secondary data from a cross-sectional study involving 227 female students (mean ± SD age: 21.6±11.3 years), associations were analysed using logistic regression analyses and BaR analysis involving genes/proteins in iron metabolism. **Results:** No significant associations were observed between BMI and all vitamin intakes with Hb concentrations, though a significant linear association was observed between body weight and Hb concentration ($r=0.137$, $p=0.039$).

Participants who were overweight, but not obese, were found to have a 2.77 times higher risk of anaemia compared to those in other BMI categories (OR = 2.772, 95% CI: 1.194 – 6.437, p = 0.018). A highly significant enrichment in the protein-protein interaction network (PPIN) (p-value < 1.0e-16) was observed, with two main genes/proteins including TFRC (eigenvector centrality score: 1.00) and HAMP (eigenvector centrality score: 0.99) found to be influential and significant within the network, potentially linking adiposity, micronutrient metabolism, and inflammation. **Conclusion:** These findings emphasise the value of bioinformatics in nutrition-related research and highlight its potential to inform more targeted interventions.

PX-2029 Minimum dietary diversity and its associated factors among children aged 6 – 24 months in rural Sabah

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Introduction: Dietary diversity during the first two years of life is critical for optimal growth and development. In many low-resource settings, achieving minimum dietary diversity (MDD) remains a challenge. This cross-sectional study aimed to identify factors associated with not meeting MDD among 342 children aged 6 – 24 months attending public health clinics in Kudat, Sabah. **Methods:** Data were collected via face-to-face interviews using a structured questionnaire, which included maternal and infant characteristics, household food security, and infant dietary intake. MDD was defined as the consumption of at least five out of eight WHO-recommended food groups in the past 24 hours. Multivariable logistic regression was used to identify associated factors. **Results:** Overall, 26.3% of children did not meet MDD. The most commonly consumed food groups were grains, roots, and tubers (98.0%), vitamin A-rich fruits and vegetables (91.5%), and flesh foods (82.7%), while pulses, nuts, and seeds were least consumed (11.1%). Compared to the Rungus ethnic group, children from other minority groups had higher odds of inadequate dietary diversity (OR=2.39, 95% CI=1.23–4.67). Children aged 12 – 18 months (OR=0.31, 95% CI=0.17–0.58) and 18 – 24 months (OR=0.53, 95% CI=0.29–0.98) were more likely to meet MDD than those under 12 months. Low birth weight was associated with higher odds of not meeting MDD (OR=2.19, 95% CI=1.01–4.79). **Conclusion:** A significant proportion of children in Kudat did not achieve MDD. Targeted nutrition education and culturally sensitive interventions are needed to promote diverse complementary feeding practices, especially in vulnerable subpopulations.

PX-2030 Supplement prescription among national elite athletes: comparison between sports group

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Introduction: The use of supplements is a common practice among athletes to enhance their sports performance, support recovery and manage nutrition-related issues associated with the sports. This study examined patterns of supplement prescription among national elite athletes. **Methods:** Supplement records from 1st January to 31st December 2024 were retrieved from the Institute's database. Supplements provided in-house by the Supplement Unit were prescribed by the Institute's sports nutritionists to elite athletes. Athletes were categorized into sports group: aquatic (n=83), combat (n=113), racquet (n=71), skill (n=87), strength and power (n=103) and team sports (n=89). **Results:** Supplement use was prevalent across all sports, with the highest

usage in combat sports (27.5%). Sports confectionery was the most prescribed category (27.8%), followed by health supplements (24.8%) and protein and recovery supplements (20.1%). Prescription patterns varied by sports, suggesting different physiological demands. In strength and power, protein and recovery supplements accounted for the highest proportion (34.4%). Health supplements comprised 29.6% of prescriptions in combat sports and 34% in racquet and skill sports, while team sports relied most on sports drinks and electrolytes (30.2%). Sports confectioneries were highest in combat sports (27.0%), followed by strength and power (24.5%) and aquatic sports (23.2%). Performance-enhancement supplements were most common in strength and power sports (2.3%). **Conclusion:** The study highlights how supplement prescriptions are tailored to the physiological demands and nutritional needs of each sport, emphasizing the role of qualified sports nutritionists in ensuring safe, evidence-based strategies. Further efforts are needed to establish standardized protocols and monitor long-term outcomes related to efficacy, compliance, and anti-doping.

U-2001 Validity of diet quality questionnaire (DQQ) in assessing diet quality among adults in Kuala Lumpur, Malaysia

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Introduction: Low diet quality is linked to rising obesity and non-communicable diseases in Malaysia, underscoring the need for a valid, low-burden tool to assess dietary patterns. The Malaysian version of Diet Quality Questionnaire (DQQ) — a list-based tool assessing previous-day intake developed by the Global Diet Quality Project — may address this need. This cross-sectional study aimed to validate DQQ for assessing diet quality among adults aged 18-59 years in Kuala Lumpur, using 24-hour diet recall as the reference method. **Methods:** A total of 207 participants (60.9% females, mean age 33±13 years) were assessed on their dietary intake using DQQ, followed by a triple-pass 24-hour diet recall. Six diet quality scores namely Minimum Dietary Diversity for Women of Reproductive Age (MDD-W), Dietary Diversity Score (DDS), All-5: Consumed all five recommended food groups (All-5), NCD-Protect, NCD-Risk, and Global Dietary Recommendations (GDR) score were calculated based on relevant food groups consumption data from DQQ and 24-hour diet recall. **Results:** The intake of five out of 29 DQQ food groups (17.2%) was significantly higher via 24-hour diet recall method. However, all diet quality scores were not significantly different, and strong correlations (r_s=0.80–0.87, $p<0.01$) and good agreement (ICC=0.77–0.86, $p<0.001$) were found between the two methods. MDD-W and All-5 achieved high correct classification percentages (%CC=87.1% and 94.7%, respectively), indicating near-perfect agreement. **Conclusion:** These findings suggest that DQQ is a valid tool for assessing diet quality among adults in Kuala Lumpur. Future studies should examine its repeatability across more diverse rural and urban adult populations.

U-2002 Food insecurity and its association with nutritional and psychological well-being among public university students in Terengganu, Malaysia

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Introduction: Food security, nutritional status, and psychological health are interrelated dimensions that shape the well-being of young adults. University students are particularly vulnerable to food insecurity due to distinct academic and economic stressors, which can

exacerbate its adverse effects on physical and mental health. This cross-sectional study examined the associations between food security status, nutritional status and psychological health among public university students in Terengganu, Malaysia. **Methods:** A total of 467 of respondents aged 18 to 26 years were randomly selected from multiple faculties at two public universities in Kuala Nerus, Terengganu. The Food Insecurity Experience Scale (FIES) was employed to assess food security status. Nutritional status was determined based on Body Mass Index (BMI), while psychological health was evaluated using the Depression Anxiety Stress Scale 21 (DASS-21). **Results:** Findings showed that 43.3% of respondents experienced food insecurity, and 49.7% were classified as overweight or obese. High levels of depression (19.3%), anxiety (39.4%), and stress (13.1%) were observed. Food insecurity was significantly associated with depression ($p = 0.001$), anxiety ($p < 0.001$), and stress ($p = 0.031$), but not with BMI ($p = 0.978$). Furthermore, BMI was not significantly associated with any psychological health indicators ($p > 0.05$). **Conclusion:** Food insecurity is significantly linked to adverse psychological health among university students, highlighting the need to integrate food security into mental health promotion strategies within higher education settings. Future research should incorporate additional biopsychosocial factors to inform comprehensive health interventions for young adults.

U-2003 SCARF study: linking sleep, circadian rhythms, and emotional wellbeing in Malaysian female undergraduates

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Introduction: Young adulthood is crucial, especially for females, for establishing healthy eating and lifestyle habits that persist into later adulthood, affecting metabolic and reproductive health. This study aimed to determine associations between sleep quality, circadian phase, and mood with chrono-nutrition characteristics among female university students. **Methods:** A cross-sectional study was conducted among 702 female students aged 18 – 25 years from May to November 2023. Sociodemographics were collected via self-administered questionnaires; chrono-nutrition habits via standardised questionnaires; and sleep, circadian phase and mood via the Sleep Quality, Circadian Phase, and Mood Questionnaire. **Results:** Nearly half (54.7%) of participants showed poor sleep quality, 36% exhibited morningness, and 15% showed tendencies of depressed moods. Breakfast was the most frequently skipped (66.4%) and irregular meal. Morningness was positively associated with breakfast ($B=0.220$, $p=0.010$) and morning snack frequency ($B=0.313$, $p=0.020$). Most participants were non-eating jetlaggers (69.7%), had fair last meal timings (20:00–22:59), and short evening latency (<3 hours) on weekdays and weekends. Negative associations were found between weekend last meal time with sleep quality ($B=-0.280$, $p=0.007$) and morningness ($B=-2.039$, $p<0.001$), weekend evening latency ($B=-1.886$, $p<0.001$) with morningness, and eating jetlag ($B=-0.822$, $p<0.001$) with sleep quality. Depressed mood was not significantly associated with chrono-nutrition variables, except for significant differences in mood scores by dinner regularity ($Z=-3.295$, $p=0.001$). **Conclusion:** Poor chrono-nutrition habits are prevalent among female university students and are significantly associated with sleep quality, circadian phase, and mood. Future longitudinal studies could explore causal relationships and provide insights to improve female reproductive and metabolic health.

U-2005 Factors influencing vegetable and fruit consumption behaviours among secondary school students aged 13 – 14 years in Selangor

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Introduction: This study aimed to assess the level of vegetable and fruit consumption and the factors influencing it among secondary school students aged 13 and 14 years in Selangor. **Methods:** A cross-sectional study was conducted using a structured questionnaire and anthropometric measurements (weight, height, waist circumference). A total of 167 respondents were selected via stratified random sampling from two secondary schools in Selangor. The questionnaire covered sociodemographic data, frequency of vegetable and fruit intake, and factors within personal, social, and physical environmental domains. **Results:** The findings revealed low levels of vegetable and fruit consumption, with only 22.2% consuming vegetables daily and 13.8% consuming fruits daily. Age was significantly associated with fruit intake ($p=0.002$), with 13-year-olds more likely to meet recommended intake levels. Personal factors such as attitude ($p=0.002$), taste preference ($p<0.001$), intention ($p<0.001$), and habits ($p<0.001$) were significantly associated with vegetable intake, while self-efficacy was negatively associated ($p=0.006$). Social factors including parental ($p=0.006$) and teacher encouragement ($p=0.027$) also showed significant associations. No significant associations were observed for fruit intake. Physical environmental factors were not significantly related to either vegetable or fruit intake. **Conclusion:** The study found that vegetable and fruit intake among adolescents was generally low, influenced by personal and social factors such as attitude, taste preference, intention, habits, and parental and teacher encouragement. In contrast, no significant factors were identified for fruit intake. These findings highlight the need for a more targeted understanding of the determinants affecting adolescent vegetable and fruit consumption.

U-2006 Relationship between clinical symptoms and physical activity among paediatric cancer patients at Hospital Tunku Azizah, Kuala Lumpur

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Introduction: Children and adolescents undergoing cancer treatment often experience clinical complications and side effects, leading to reduced physical activity levels. This study explored the relationship between clinical symptoms and physical activity level among paediatric cancer patients. **Methods:** This cross-sectional study involved 47 paediatric cancer patients aged 2 to 15 years, recruited via purposive sampling at Hospital Tunku Azizah, Kuala Lumpur. Clinical symptoms were assessed using Symptom Screening in Pediatrics Tool (SSPedi), while physical activity levels were measured using GENEActiv Accelerometers with logbooks. **Results:** Frustration or sadness were the most common symptoms, with no significant differences across cancer types. The majority 97.9% of patients did not meet the daily recommendation of 60 minutes of moderate-to-vigorous physical activity (MVPA) based on accelerometer measurement. Sedentary time was the longest among other activities, averaging 885.8 ± 107.6 minutes per day. Physical activity levels did not vary significantly by cancer type. A moderate-to-low correlation was found between clinical symptoms and physical activity levels. Oral pain scores were

positively associated with sedentary time ($p < 0.01$), while general pain scores (excluding headaches) correlated with MVPA ($p < 0.05$). Oral pain and vomiting or nausea also showed significant correlations with total physical activity ($p < 0.05$). **Conclusion:** Clinical symptoms, such as oral pain, general pain, and vomiting or nausea, significantly influence sedentary time, MVPA, and overall physical activity. These findings emphasise the importance of effective symptom management strategies to help maintain or improve physical activity levels in paediatric cancer patients.

U-2007 The association between environmental light exposure and sleep among preschoolers in Kuala Lumpur and Selangor

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Introduction: This study examines the association between light exposure—both natural and artificial—and sleep quantity and quality among Malaysian preschoolers. With increasing indoor and screen-based activities in early childhood, understanding how these environmental factors influence sleep is essential for supporting healthy development. **Methods:** A cross-sectional design was used. Data were collected retrospectively through parent-reported questionnaires, including the Light Exposure and Behaviour Assessment (LEBA), the Pittsburgh Sleep Quality Index (PSQI), and the Screen Time Questionnaire (Screen-Q). These tools assessed natural light exposure, screen time, sleep duration, mid-sleep timing, sleep latency, sleep disturbances, and daytime dysfunction. **Results:** Significant positive associations were found between screen time after dinner on weekdays ($\rho = 0.313$, $p = 0.001$) and total weekday screen time ($\rho = 0.211$, $p = 0.031$) with delayed mid-sleep timing. Screen use before school on weekdays ($\rho = 0.415$, $p < 0.001$) and total weekday screen exposure ($\rho = 0.207$, $p = 0.035$) were associated with increased daytime dysfunction. Sleep disturbances were significantly associated with screen time before school on weekdays ($\rho = 0.205$, $p = 0.037$), total weekday exposure ($\rho = 0.203$, $p = 0.039$), weekend exposure before 12 PM ($\rho = 0.254$, $p = 0.009$), after-dinner screen use on weekends ($\rho = 0.237$, $p = 0.016$), total weekend screen time ($\rho = 0.244$, $p = 0.013$), and overall screen exposure ($\rho = 0.220$, $p = 0.025$). **Conclusion:** Excessive screen exposure is associated with reduced sleep quality and delayed sleep timing in preschoolers. These findings underscore the need for collaborative strategies involving parents, educators, and policymakers to regulate screen time and promote healthy sleep patterns during early childhood.

U-2009 Eating attitudes and its associated factors among selected adult vegetarians in Penang

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Introduction: Eating attitudes encompass beliefs, feelings, thoughts, behaviours, and relationships with food. The practice of vegetarianism may encourage individuals to focus more closely on the quality of their food and dietary intake. However, vegetarians' perceptions of

healthy eating may inadvertently legitimise food avoidance and dietary restriction, potentially increasing the risk of disordered eating over time. This cross-sectional study aimed to examine the associations between socio-demographic factors, dietary practices, body weight status, and body image perception with disordered eating among adult vegetarians in Penang. **Methods:** A total of 219 adult vegetarians (34.7% males, 65.3% females) with a mean age of 52.65 ± 17.26 years were recruited from selected organisations and religious centres in Penang between August and October 2024. Participants completed a self-administered questionnaire comprising socio-demographic information, the MyNutriLifeCOVID-19 survey, the VITAL Study supplement questionnaire, the Contour Drawing Rating Scale (CDRS), and the Eating Attitudes Test-26 (EAT-26). Anthropometric data, including height, weight, and body fat percentage, were measured using a portable stadiometer and a body composition analyser (InBody 270). Data were analysed using IBM SPSS Statistics Version 29.0.2.0. **Results:** A total of 14.6% of participants were identified as having disordered eating, with a mean EAT-26 score of 10.84 ± 8.50. Approximately one-third were overweight, and nearly 65% had an unhealthy body fat percentage. Multiple linear regression analysis revealed that working in the private sector was the strongest predictor of disordered eating ($\beta = 0.203$, $p = 0.015$). Other significant predictors included the frequency of obtaining free or donated food and drinks ($\beta = 0.170$, $p = 0.021$), being employed in the government sector ($\beta = 0.169$, $p = 0.022$), and the frequency of breakfast consumption ($\beta = -0.153$, $p = 0.033$). **Conclusion:** The findings underscore the need for targeted health promotion interventions among employees in both the private and public sectors. Additionally, educational efforts should focus on promoting regular breakfast consumption among adult vegetarians to help reduce the risk of disordered eating.

U-2012 Association between parental and child food insecurity and adiposity of Malay children aged 7 – 12 years in Klang Valley, Malaysia

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Introduction: Food insecurity and childhood obesity are two coexisting nutritional challenges in many developing countries, including Malaysia. Understanding how food insecurity at both parental and child levels relates to adiposity is essential for addressing this double burden of malnutrition. This study investigated the association between parental and child food insecurity and adiposity among Malay children aged 7 – 12 years in the Klang Valley, Malaysia. **Methods:** Socio-demographic data were collected, and food insecurity was assessed using the Radimer/Cornell Hunger and Food Insecurity Scale. Parental and children's weight and height were measured using standardized protocols. Children's weight status was determined by calculating BMI-for-age z-scores using WHO AnthroPlus software and the WHO Growth Reference 2007. Parental weight status was classified using WHO adult BMI cut-off points. **Results:** Obesity prevalence was 54.2% among parents and 22.9% among children. Food insecurity was reported in 72.9% of households. Higher food insecurity levels were observed among children with non-[R1] overweight. No statistically significant associations were found between food insecurity and adiposity at the household ($C^2=2.091$, $p=0.239$), individual ($C^2=4.795$, $p=0.058$), or child hunger levels ($C^2=1.002$, $p=0.354$). **Conclusion:** These preliminary findings found a high prevalence of both food insecurity and obesity among Malay families, with no significant association observed between food insecurity and adiposity. The borderline trend observed at the individual level warrants further investigation with larger, more comprehensive studies

U-2014 Exploring growth patterns using HAZ among children aged 0–76 months in urban Shah Alam, Selangor

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Introduction: Childhood stunting remains a critical form of chronic undernutrition, leading to long-term health consequences. Despite urbanisation and improved access to services, undernutrition continues to affect children in urban areas. This present study aims to determine the prevalence of stunting and explore associated child and maternal factors among children in urban Shah Alam, Selangor. **Methods:** A cross-sectional study was conducted involving 101 healthy children aged 0–76 months from various households across Shah Alam. Data were collected via online caregiver-administered questionnaires. Anthropometric measurements such as height/length and weight were obtained at the kindergartens/nurseries and were then analysed using WHO AnthroPlus software to calculate height-for-age z-scores (HAZ). Children with HAZ<–2SD were classified as stunted. Associations between child and maternal characteristics and household income were analysed using Fisher's Exact Test. **Results:** Stunting and severe stunting were observed in 21.8% and 3.0% of children, respectively. Although no statistically significant associations were found, higher proportions of stunting were noted among older children (24–76 months; p=0.766), those with normal birth weight (≥ 2500g; p=0.731), and children of mothers with normal stature (≥ 150cm; p=0.326), normal weight mother (≥ 18.5kg/m^2; p=0.096), higher education (p=0.776) and higher household income (> RM5,250; p=0.462). **Conclusion:** Stunting remains prevalent among young urban children in Malaysia. Although no significant associations were found, observed trends align with existing literature and suggest early-life and maternal factors may still influence child nutrition. Larger studies are needed to confirm these findings and guide interventions.

U-2017 The mediating role of diet quality in the relationship between screen time-based sedentary behaviour and body mass index among young adults in Malaysia

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Introduction: The rising prevalence of obesity in Malaysia has been linked to lifestyle factors such as poor diet quality and excessive screen time. Therefore, this study aimed to examine whether diet quality mediates the relationship between screen time-based sedentary behaviour and body mass index (BMI) among young adults in Malaysia. **Methods:** This cross-sectional study recruited 120 young adults aged 18–30 years using convenience sampling. Screen time-based sedentary behaviour was assessed using the HELENA Sedentary Behaviour Questionnaire, while diet quality was evaluated with the Diet Quality Questionnaire for Malaysia. Body weight (kg) was measured using an Omron weighing scale, while body height (cm) was quantified using a stadiometer. The BMI was then calculated based on the measured weight and height. Statistical analysis was performed using IBM SPSS version 29.0. **Results:** Young adults in this study reported an average of 7 hours and 45 minutes of daily screen time, and the diet quality score was 6.38 ± 2.25. Among 120 young adults, 44.2% were classified as overweight or obese. The findings from linear regression showed that there were no significant direct or indirect relationships between screen time-based sedentary behaviour, diet quality and BMI. In addition, the Sobel test indicated that diet quality did not mediate the relationship between screen

time-based sedentary behaviour and BMI among young adults. **Conclusion:** Although diet quality did not mediate the relationship between screen time-based sedentary behaviour and BMI among young adults, the findings underscore the multifactorial nature of obesity. Factors such as physical activity, sleep quality, and psychological health may play a more significant role. Further longitudinal studies are warranted to inform targeted interventions.

U-2018 Assessment of vitamin D status among pregnant women at Hospital Pakar Universiti Sains Malaysia (HPUSM)

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Introduction: Vitamin D is vital in maternal and fetal health. However, its deficiency remains widespread among pregnant women. This study aims to assess serum vitamin D status, dietary intake, and their association among pregnant women in Malaysia. **Methods:** A cross-sectional study was conducted among 207 pregnant women in their third trimester at HPUSM. Serum vitamin D levels were measured using blood analysis, while dietary vitamin D intake was assessed through a validated semi-quantitative food frequency questionnaire (FFQ). Sunlight exposure was evaluated via a structured log. Correlation tests were performed to determine associations between dietary vitamin D intake and serum levels. **Results:** Total mean serum vitamin D level was 1.65 ± 0.72 ng/mL, with 49.3% classified as deficient (<12 ng/mL), 36.7% as insufficient (12–20 ng/mL), and 14.0% as sufficient (20–30 ng/mL). Dietary analysis indicated that 94.2% of participants had inadequate vitamin D intake (<15 mcg/day), whereas 5.8% of participants had adequate vitamin D intake (>15 mcg/day), with a mean intake of 1.06 ± 0.02 mcg/day. Deficient and insufficient groups did not spend significantly less time outdoors per day than sufficient groups based on the Sun Exposure Index (SEI), $F(2, 203) = 0.5$, $p = 0.6$. **Conclusion:** Vitamin D deficiency remains a major concern during pregnancy.

U-2019 Association of neighbourhood environments on lifestyle behaviour among urban poor adult community aged 18–59 years in Klang Valley, Malaysia

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Introduction: Modifiable lifestyle factors such as poor nutrition, inactivity, and inadequate sleep contribute to this risk. Urban poor communities often lack supportive physical and social environments. This study aims to determine the association between neighbourhood

environments and lifestyle behaviours among urban poor adults aged 18–59 years in Klang Valley. **Methods:** This cross-sectional study design involved 252 respondents. Data were collected using a validated questionnaire to assess socio-demographic characteristics, physical and social environment factors, eating behaviour, physical activity and sleep. **Results:** Almost half (48.4%) reported eating any available food, while 25.4% reduced high-fat and high-sugar intake. Average time spent on vigorous physical activity was 51 minutes daily. Mean sleep duration was 6.13 hours per night. Chi-square test showed males had significantly higher perception on neighbourhood cleanliness ($x^2 = 12.591$, $p = 0.010$) and night-time safety ($x^2 = 10.290$, $p = 0.006$). Social environmental factor like comfort expressing opinions in neighbourhood was significantly associated with breakfast consumption ($x^2 = 4.538$, $p = 0.033$), where higher breakfast consumption frequency was observed among those frequently communicating in the neighbourhood, garbage disposal services with supper ($x^2 = 13.06$, $p < 0.001$), and community event participation with hawker centre eating ($x^2 = 6.835$, $p = 0.033$). No significant association was found between neighbourhood environments with sleep or physical activity level. **Conclusion:** Social neighbourhood environments appear more influential in shaping eating behaviours but not physical activity and sleep. Programs and interventions should consider the social and physical environmental factors to promote healthy lifestyle among urban poor communities.

U-2020 Perception and motivators on the use of galactagogues among Chinese breastfeeding mothers around Klang Valley, Malaysia

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Introduction: Galactagogues are substances believed to enhance breast milk production that include medication, herbs, or food. Breastfeeding mothers often face challenges such as perceived low milk supply that may lead them to use galactagogues. However, little is known about their perceptions and motivations on galactagogue use, particularly among Chinese mothers in Malaysia. This study aims to explore the perceptions and motivators of the use of galactagogues among Chinese breastfeeding mothers in Klang Valley, Malaysia. **Methods:** A cross-sectional study was performed among 61 mothers (mean age 34.5 ± 4.1 years) in Klang Valley using convenience sampling. Data was collected through a self-administered online questionnaire and a 2-day 24-hour diet recall interview. The Chi-square Test of Independence was conducted using SPSS software, with statistical significance set at $p < 0.05$. **Results:** Despite experiencing challenges such as sore nipples (44%), blocked ducts (44%), breast engorgement (44%), and cracked nipples (41%), 66% of mothers reported continuing to exclusively breastfeed. While 67% of mothers had previously used galactagogues, only 25% were current users. Commonly used galactagogues were red dates (71%), lactation cookies (54%), oats (52%) and fenugreek (31%). A significant association was found between receiving information from confinement centres/ladies and galactagogue use. However, no significant association was found between breastfeeding practices and difficulties with galactagogue use. **Conclusion:** Despite experiencing common breastfeeding challenges, the majority of Chinese mothers were committed to exclusive breastfeeding. Findings highlight the influential role of traditional postpartum practices and support networks.

U-2021 Association between anaemia, perinatal depression, and postpartum quality of life among pregnant women

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Introduction: Perinatal depression, encompassing antepartum (APD) and postpartum depression (PPD), is associated with adverse pregnancy and birth outcomes. Untreated APD may persist into PPD, negatively affecting postpartum quality of life (QoL). Iron deficiency, a leading cause of anaemia, alters neurotransmitter and emotional regulation, increasing the risks of perinatal depression. However, limited studies have explored associations between second-trimester anaemia, perinatal depression, and postpartum QoL. This study aimed to determine the associations between maternal anaemia, APD, PPD, and postpartum QoL. **Methods:** This follow-up study involved pregnant women previously recruited at Hospital Sultan Abdul Aziz Shah (HSAAS). Participants were followed up through texts and calls to complete an online questionnaire assessing PPD and QoL. APD was assessed during pregnancy, and second-trimester haemoglobin (Hb) levels were retrieved from antenatal records. APD and PPD were assessed using the Patient Health Questionnaire-9 (PHQ-9) and the Edinburgh Postnatal Depression Scale (EPDS), respectively. QoL was measured using the World Health Organization Quality of Life-BREF (WHOQOL-BREF). Associations were analysed using Pearson/Spearman correlations. **Results:** A total of 165 pregnant women completed the follow-up. The prevalence of anaemia, APD, and PPD was 17.4%, 53.3%, and 7.3%, respectively. The mean postpartum QoL score was 77.0%. Anaemia showed no significant association with QoL, APD, or PPD. However, APD (r = –0.365) and PPD (r = –0.605) were significantly associated with lower QoL. **Conclusion:** APD and PPD, but not anaemia, were significantly associated with reduced postpartum QoL. Early maternal mental health screening is essential to support early intervention and improve maternal QoL and infant outcomes.

U-2022 Associations of socio-demographic, child, parental, and household factors with probiotic and prebiotic consumption among primary school students in Selangor

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Introduction: Functional gastrointestinal disorders (FGIDs) affect over 30% of children aged 4–18. Studies suggest probiotics and prebiotics may support gut and mental health. However, the consumption patterns and influencing factors of Malaysian children remain unclear. This study aimed to assess probiotic and prebiotic intakes, and their associations with socio-demographic, child, parental, and household factors. **Methods:** This cross-sectional study involved 115 pairs of primary school students (mean age: 10.31 ± 0.47 years) and their parents/guardians in Selangor. Parents completed an online questionnaire covering socio-demographics, children's food neophobia and screen time, parenting style, and household food security. Children completed online assessments of depression, anxiety, and stress, and a semi-quantitative food frequency questionnaire focusing on probiotic and prebiotic intakes. Anthropometric measurements were

conducted using the InBody 270 bioelectrical impedance analyser for weight and a SECA stadiometer for height. BMI-for-age z-scores were calculated using WHO Growth Reference Standards. **Results:** Only 0.9% of children met the criteria for 'desirable' probiotic and prebiotic intakes. Mean depression, anxiety, and stress scores were 4.30 ± 4.85, 4.91 ± 4.51, and 6.33 ± 4.57, respectively. The prevalence of overweight and obesity was 13.9% and 9.6%. Most parents exhibited an authoritative parenting style (mothers: 63.12 ± 11.89; fathers: 61.60 ± 11.94). Higher levels of depression ($p < 0.001$), anxiety ($p < 0.001$), and stress ($p = 0.002$) were significantly associated with greater probiotic and prebiotic intakes. **Conclusion:** Despite low overall intake, children with higher psychological distress reported better probiotic and prebiotic consumption. Future studies should investigate possible compensatory dietary behaviours or parental responses. Interventions should simultaneously address mental well-being and promote gut-friendly dietary habits.

U-2023 Associations of personal, lifestyle and environmental factors with dietary habits among secondary school students in Sungai Petani, Kedah

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Introduction: Adolescents' dietary habits play a crucial role in shaping their overall health and development. However, they have been found to consume high amounts of processed foods and sugars, resulting in poor nutritional quality. This study aimed to determine the relationships between personal, lifestyle, and environmental factors with dietary habits among adolescents in Sungai Petani, Kedah. **Methods:** A cross-sectional study was conducted among 365 adolescents (37.3% males and 62.7% females) aged 13 to 16 years from two randomly selected secondary schools in Sungai Petani. Data were collected using a self-administered Malay-language questionnaire that assessed sociodemographic characteristics, nutrition literacy, sleep duration, physical activity and dietary habits. Body weight and height were obtained from the Standard Kecergasan Fizikal Kebangsaan Untuk Murid Sekolah Malaysia (SEGAK) records. Dietary habits were assessed using the Adolescent Food Habit Checklist (AFHC). **Results:** The mean AFHC score was 12.00 ± 3.95 (range: 2–20). Common healthy behaviours included rarely consuming takeaway meals (79.5%), reducing fat intake (75.9%) and lowering sugar intake (72.1%). Males (11.46 ± 4.06) had significantly lower mean AFHC scores than females (12.32 ± 3.86; $t = –2.02$, $p = 0.044$). Physical activity ($r = 0.182$, $p < 0.001$), nutrition literacy ($r = 0.306$, $p < 0.001$), sleep duration ($r = 0.105$, $p = 0.044$) and home food availability ($r = 0.425$, $p = 0.003$) were significantly correlated with dietary habits. **Conclusion:** Interventions to improve adolescent dietary habits should focus on enhancing nutrition literacy, promoting physical activity, ensuring adequate sleep, and increasing access to healthy foods at home.

U-2030 Factors associated with diet quality among undergraduate students in Universiti Putra Malaysia

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Introduction: Poor diet quality has been identified as a significant determinant of obesity. Limited access to healthy food and demanding academic schedules often lead students to adopt unbalanced diets. This study assessed diet quality and associated factors among undergraduate

students at Universiti Putra Malaysia. **Methods:** A cross-sectional study was conducted among 350 undergraduate students (65.4% female; mean age = 20.78 ± 1.36 years) from three randomly selected bachelor programmes at UPM. Data were collected between October and November 2024. Participants completed a self-administered Google Form including sociodemographic characteristics, diet quality, chronotype, nutrition literacy, eating behaviours, physical activity, sleep quality, on-campus food purchasing behaviour, and psychological distress. Diet quality was assessed using the Diet Quality Questionnaire. Weight, height, waist circumference, and body fat percentage were measured by researchers following standard procedures. **Results:** The mean diet quality score was 5.39 ± 2.14 out of 10, indicating potential for improvement. The prevalence of underweight, overweight, and obesity was 18.3%, 15.1%, and 8.0%, respectively. Males reported significantly higher diet quality scores than females (5.80 vs. 5.17; $p < 0.01$). Nutrition literacy, specifically knowledge ($r = –0.122$, $p = 0.023$) and application skills ($r = 0.141$, $p<0.01$), emotional eating ($r = 0.141$, $p = 0.008$) and uncontrolled eating ($r = 0.167$, $p = 0.002$) were significantly correlated with diet quality. **Conclusion:** Future interventions should explore gender differences in diet quality, improving nutrition literacy, and encouraging healthier eating habits to improve students' overall diet quality.

U-2031 Association of sociodemographic factors, social media influence and psychological factors on the risk of eating disorders among undergraduate students in Universiti Putra Malaysia

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Introduction: Eating disorders are serious psychological conditions marked by abnormal eating behaviours and distorted body image perceptions. University students are particularly vulnerable due to academic pressure, body image concerns, and pervasive social media influence. This study aimed to determine the association of sociodemographic, social media, and psychological factors with the risk of eating disorders among undergraduate students at Universiti Putra Malaysia. **Methods:** A cross-sectional study was conducted involving 188 undergraduate students selected from three faculties through simple random and convenience sampling. Data were collected via self-administered questionnaires, including validated tools: Eating Attitude Test-26 (EAT-26), Social Media Intrusion Questionnaire, Body Image Disturbance Questionnaire, and Rosenberg Self-Esteem Scale. Descriptive and correlational analyses were performed using SPSS. **Results:** The prevalence of high-risk eating disorders was 37.2%. Significant associations were observed between eating disorder risk and age ($r = –0.150$, $p = 0.031$), faculty ($r = –0.118$, $p = 0.006$), social media influence ($r = 0.581$, $p < 0.01$), body image disturbance ($r = 0.310$, $p < 0.01$), and self-esteem ($r = 0.420$, $p < 0.01$). Gender, ethnicity, and monthly allowance showed no significant associations. **Conclusion:** The findings highlight the need for early intervention strategies, particularly targeting social media use and psychological wellbeing, to mitigate the risk of eating disorders among university students. Health promotion and mental health support initiatives should be tailored to high-risk groups based on age and academic faculty.

U-2036 Stress-induced cortisol and restrained eating are associated with BMI in young adults at Universiti Malaysia Sabah: a cross-sectional study

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Introduction: Rising obesity rates among university students highlight the need to explore behavioural and psychological risk factors. The study investigated the association between acute-induced salivary cortisol level, eating behaviour traits, and body mass index (BMI) in young adults. **Methods:** A cross-sectional study was conducted among 88 undergraduates at Universiti Malaysia Sabah, selected through stratified random sampling by sex and BMI. Acute psychosocial stress was induced via the Trier Social Stress Test (TSST). Saliva samples were collected pre-stressor and at 10 and 30 minutes post-stressor to calculate cortisol reactivity using the area under the curve with respect to ground (AUCg). BMI was measured, and eating behaviours were assessed using the Dutch Eating Behaviour Questionnaire (DEBQ). **Results:** Overweight participants showed significantly higher AUCg values (127.7ng·min/mL [IQR=23.5) than normal-weight participants (104.2ng·min/mL [IQR=7.3]; $p<0.001$), indicating a stronger cortisol stress response. No significant difference in AUCg was observed between the sexes. Restrained eating scores were higher in the overweight group (2.93±0.65 vs. 2.26±0.77; $p<0.05$) and in females compared to males (2.80±0.75 vs. 2.39±0.75; $p<0.05$). Regression analyses showed significant associations between AUCg and BMI ($R^2=0.320$, $p<0.001$, $\beta=0.161$), AUCg and restrained eating ($R^2=0.093$, $p<0.001$, $\beta=0.013$), and restrained eating and BMI ($R^2=0.139$, $p<0.001$, $\beta=2.455$). **Conclusion:** These findings show that higher cortisol reactivity and restrained eating are linked to increased BMI in young adults. This highlights the role of stress-related behaviours in obesity risk and the importance of addressing them in prevention efforts.

U-2037 Health literacy and dietary protein adherence among individuals with pre-dialysis chronic kidney disease in Kota Kinabalu, Sabah: a cross-sectional study

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Introduction: Adherence to a low-protein diet is essential to delay kidney failure progression. Health literacy (HL) is the ability to understand health information and make informed decisions, and may influence dietary choices. This study assessed the association between health literacy and protein adherence in patients with chronic kidney disease (CKD). **Methods:** This cross-sectional study recruited 209 patients with pre-dialysis CKD from Hospital Queen Elizabeth via convenience sampling. HL was assessed using Short-Form Health Literacy Questionnaire and protein intake was assessed using a 2-day 24-hour dietary recall. Dietary mis-reporters were identified using Goldberg's Index. Patients were categorized into 'adhere' or 'non-adhere' to the

protein recommendation and their health literacy was classified as 'limited,' 'sufficient', or 'excellent'. **Results:** Among the 116 acceptable dietary reporters, 62.9% had limited health literacy, and 19% adhered to the protein recommendation. Female patients (OR: 2.669, 95% CI: 1.165–6.115, p=0.020), having secondary education and above (OR: 13.898, 95% CI: 2.722–70.966, p=0.002), and having monthly income ≥RM2000 (OR: 4.835, 95% CI: 1.671–13.991, p=0.004) were associated with greater health literacy, while Kadazan-Dusun ethnicity (OR: 0.332, 95% CI: 0.116–0.950, p=0.040) was associated with lower health literacy. There was no significant association between health literacy and protein adherence. Only diabetes mellitus was significantly associated with protein adherence (OR: 14.91, 95% CI: 2.821–78.814, p=0.001). **Conclusion:** Limited health literacy is prevalent among patients with CKD but it was not associated with protein adherence. Further study is needed to explore other factors influencing protein adherence.

U-2038 Chrono-nutrition characteristics and anthropometric status among university students in Kota Kinabalu, Sabah

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Introduction: Chrono-nutrition explores the relationship between meal timing and circadian rhythms, where disruptions are linked with an increased risk of obesity. Therefore, this study aimed to assess the association between chrono-nutrition characteristics and anthropometric status among university students in Kota Kinabalu, Sabah. **Methods:** This cross-sectional study recruited 263 university students aged 18 to 29 years in Kota Kinabalu using a convenience sampling approach. The data were collected through a self-administered questionnaire, which included sociodemographic information and chrono-nutrition characteristics assessed using the Malay validated Chrono-nutrition Profile Questionnaire (CPQ). Anthropometric measurements included body mass index (BMI), body fat, visceral fat, and skeletal muscle. **Results:** The university students had a mean age of 21.1±1.7 years, with 58.6% being female. Most had a normal BMI (76.4%) and body fat percentage (53.6%) while overweight/obesity rates were higher among males (3.8%). The chrono-nutrition characteristics showed that 86.3% had inadequate sleep, 15.2% regularly snacked at night, 3.4% consumed late-night meals, and 36.1% skipped breakfast. Mean time spent on sleep duration, eating window, morning and evening latency were 2.1 ± 8.8, 9.9 ± 4.1, 2.8 ± 1.8, and 10.7 ± 9.3 hours per day, respectively. This study found age was significantly associated with evening latency (p=0.010). Income was significantly associated with sleep duration (p=0.028). Sleep duration was significantly associated with BMI (p<0.001) and visceral fat (p=0.002). Evening latency was significantly associated with BMI (p=0.005) and visceral fat (p=0.004). **Conclusion:** Overall, addressing chrono-nutrition through targeted nutritional and lifestyle may be beneficial for weight management and metabolic health among university students.

U-2041 Relationship between eating behaviours, body mass index, perceived stress, and dysmenorrhea among university students in Kota Kinabalu, Sabah

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Introduction: University is a transformative time for young adults, bringing new experiences, challenges, and life events. Struggling to cope with the shift from secondary school to university can lead to unhealthy eating behaviours, which may affect body mass index (BMI). Stress from academic pressures and dysmenorrhea (menstrual pain) may influence eating behaviour. **Methods:** A cross-sectional study was conducted to examine the relationship between eating behaviours (emotional, restrained, and external eating), BMI, perceived stress, and dysmenorrhea. A total of 190 university students from Universiti Malaysia Sabah (UMS), Politeknik Kota Kinabalu, and Tunku Abdul Rahman University of Management & Technology (TAR UMT) participated. Data were collected using a self-administered questionnaire that included sociodemographic information, anthropometric measurements, the Dutch Eating Behaviour Questionnaire (DEBQ) to assess three types of eating behaviours, the Perceived Stress Scale (PSS-10) to measure perceived stress, and the WaLIDD score to assess dysmenorrhea. **Results:** The findings revealed that most students exhibited external eating (55.3%), followed by restrained (32.1%) and emotional eating behaviours (12.6%), with corresponding scores (mean ± SD) of 3.16 ± 0.57, 2.84 ± 0.83, and 2.63 ± 0.73, respectively. Most students had normal weight (60.5%), reported medium stress (80.5%), and experienced moderate dysmenorrhea (51.1%), with corresponding mean of 22.31 ± 4.40 kg/m^2, 20.89 ± 4.96, and 5.93 ± 2.59, respectively. The study found a significant correlation between BMI and external eating ($r=0.320$, $p<0.001$), but not with emotional ($p=0.153$) or restrained eating ($p=0.844$). Meanwhile, emotional and external eating behaviours were significantly correlated with perceived stress ($r=0.227$, $p=0.002$; $r=0.183$, $p=0.012$, respectively) and dysmenorrhea severity ($r=0.223$, $p=0.002$; $r=0.288$, $p<0.001$, respectively). **Conclusion:** In conclusion, university life presents challenges that affect students' eating behaviours, BMI, stress, and dysmenorrhea. The links between eating behaviours, stress, and dysmenorrhea emphasise the need for strategies to promote healthier eating habits and help students manage these factors for better well-being.

U-2042 Types, amounts, adequacy and cost of fruit and vegetable intake by adults in Sabah

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Introduction: The Malaysian Dietary Guidelines recommend adults to consume at least two servings of fruits and three servings of vegetables daily. The aim of this cross-sectional study was to determine the types, amounts, adequacy, and cost of fruit and vegetable consumption among adults in Sabah, as well as the association between socio-demography and fruit and vegetable intake. **Methods:** Adults (≥18y years, n = 336) who have been living in Sabah for at least one year

were involved in this study. Convenience sampling was used. Questionnaires were interviewer-administered to obtain socio-demographic data and single 24-hour dietary recall. **Results:** Most adults (87.8%) consumed less than 2 servings of fruits and 3 servings of vegetables daily. The median (IQR) cost of fruit and vegetable intake were RM1.10 (2.37) and RM0.93 (1.02) respectively. Adequacy of fruit intake (p=0.013) and vegetable intake (p=0.002) were associated with age. Adequacy of vegetable intake was also associated with marital status (p=0.005) and household income level (p=0.047). Significant differences in fruit intake were found between young and middle-aged adults (p=0.005). There were significant differences in vegetable intake between young and older adults (p=0.004), middle-aged and older adults (p=0.046), single and married adults (p=0002), and top 20- and middle 40-percentiles of income (p=0.002). Cost to achieve recommended servings of fruits and vegetables were calculated as RM 3.34/person/day. **Conclusion:** Information from this study could be utilized in community nutrition intervention to tackle high prevalence of inadequate fruit and vegetable intake in Sabah.

U-2043 Chrononutrition characteristics and anthropometric status among working adults in Kota Kinabalu, Sabah

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Introduction: Chrono-nutrition explores how meal timing influences the body's circadian rhythm and metabolic health. Irregular eating patterns have been linked to obesity. This study aimed to evaluate the relationship between chrono-nutrition characteristics and anthropometric status among working adults in Kota Kinabalu, Sabah. **Methods:** A cross-sectional study was conducted among 150 working adults aged 18 to 59 years, using convenience sampling. Data were collected through a self-administered questionnaire, including sociodemographic data and the Malay-validated Chrono-nutrition Profile Questionnaire (CPQ). Anthropometric measurements included BMI, body fat, visceral fat, and skeletal muscle mass. **Results:** The working adults had a mean age of 38.2 ± 8.9 years, with 53.3% male. Most participants were overweight or obese (66.7%), with high body fat (66%) and low skeletal muscle mass (86.7%). The prevalence of overweight/obese, body fat and skeletal muscle were higher among males. [R1] Breakfast skipping (14.7%), night-time snacking (20.7%), and late-night eating (4.7%) were observed. The mean sleep duration was 11.3 ± 8.2 hours, with an eating window of 11.8 ± 1.9 hours. Morning and evening latency averaged 2.7 ± 1.4 and 3.2 ± 8.0 hours, respectively. Age and monthly income were significantly associated with sleep duration and evening latency ($p<0.05$). Morning latency showed significant associations with BMI ($p<0.05$), body fat ($p<0.05$), and visceral fat ($p<0.05$). **Conclusion:** Chrono-nutrition characteristics, particularly meal timing, are significantly associated with anthropometric outcomes. Targeting these characteristics may aid in managing weight and improve metabolic health among working adults.

U-2046 Knowledge, attitude and practice of supplement intake among female football players in Selangor and Kuala Lumpur, Malaysia

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Introduction: Supplement use is common among football athletes to enhance performance and recovery. Knowledge and attitude may influence supplement intake, though research is limited, particularly female football athletes. This cross-sectional study aimed to determine knowledge, attitude, and supplement intake practices among female football players in Selangor and Kuala Lumpur. **Methods:** Convenience and snowball samplings were used to recruit subjects in this study. Questionnaire was adapted from two previous studies, validated by sport nutrition experts and pre-tested, was used to access sociodemographic, anthropometry, body composition, knowledge, attitude, and supplement intake practices. **Results:** A total of 76 female football players from seven teams in Selangor and Kuala Lumpur, aged between 18 to 37 years, were recruited, with 43.4% competing at state level. Mean score of knowledge regarding nutrition, supplements, and doping was 45.1%, while mean score of attitude towards supplement intake and doping risks was 72.4%. Nearly half (47.4%) of the sample used supplements, with a frequency of 3 – 4 days per week, with 40.5% advised by nutritionists or dietitians. Common supplements included sports/energy/isotonic drinks (39.2%), protein drinks (37.3%) and vitamins (7.8%). Primary factors encouraging supplement use were provision of energy (28.7%), enhancement of performance (27.7%), and acceleration of recovery (17.0%). Knowledge and attitude scores showed a weak positive correlation ($r=0.255$, $p<0.05$), while the number of supplements taken strongly correlated with intake frequency ($r=0.926$, $p<0.01$). **Conclusion:** Knowledge and attitude influenced supplement intake and should be addressed through targeted nutrition education to ensure appropriate use. Future research should consider assessing dietary intake as it may impact supplement intake.

U-2047 Crunch or cringe? Food neophobia and acceptance of edible insects among Muslim adults in Malaysia

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Introduction: The growing interest in entomophagy highlights its potential as a sustainable protein source to meet increasing global demand driven by rapid population growth. This study investigated the acceptance of edible insects and its association with food neophobia among Muslim adults in Malaysia. **Methods:** A cross-sectional survey was conducted among 1349 subjects (mean age: 33.7 ± 8.9 years; 75.3% women). Data was collected using a self-administered bilingual questionnaire comprising three sections: socio-demographic information, the 10-item Food Neophobia Scale (FNS), and questions assessing acceptance of edible insects, including factors influencing willingness to consume them. **Results:** Only 12.5% of subjects expressed willingness to consume insects and 5.9% were ready to include them into their daily diet. The main motivator for acceptance was perceived safety of insect consumption (14.4%), while unfamiliarity with edible insects was the main barrier (17.3%). A significant negative association was observed between food neophobia and insect acceptance ($p < 0.001$). Men were more likely to accept edible insects than women (OR 2.54, 95% CI: 1.79–3.61), with even higher odds for daily consumption (OR 3.88, 95% CI: 2.37–6.34). Subjects aged 31–45 years showed significantly higher acceptance compared to those aged 61 years and above (OR 11.57, 95% CI: 1.66–8.90). Unmarried individuals also showed higher willingness to consume insects than their married counterparts (OR 2.37, 95% CI: 1.35–4.16). **Conclusion:** Acceptance of edible insects among Muslim adults in Malaysia remains low and is significantly associated with food neophobia. Public education on the benefits of edible insects may help reduce neophobia and encourage entomophagy.

U-2049 Association between dietary intake and myopia among Malaysian Chinese children aged 4 to 7 years in Klang Valley

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Introduction: Myopia is increasingly prevalent among Malaysian Chinese children. While environmental and genetic factors are known contributors, the potential role of nutrition remains underexplored. This study aimed to assess associations between dietary intake, sociodemographic factors, and myopia status in early childhood. **Methods:** A cross-sectional study was conducted among 111 Chinese children aged 4 to 7 years from kindergartens in Klang Valley, Malaysia. Myopia status was parent-reported. Sociodemographic data were obtained through an online parent-completed questionnaire. Dietary intake was assessed using 3-day 24-hour diet recalls, including 2 weekdays and 1 weekend day, conducted via telephone interviews with parents. To aid portion size estimation, a visual guide showing standard household measurements was sent to parents electronically prior to the interview. Dietary data were analysed using Nutritionist Pro software. **Results:** Among the 111 children, 44 were parent-reported myopic and 67 non-myopic. Myopic children had significantly lower energy intake (median = 1058 kcal, IQR = 173.6; p = 0.006), carbohydrate intake (mean = 142.84 g ± 21.95; p = 0.014), and zinc intake (median = 2.23 mg, IQR = 1.7; p = 0.046). In multivariate analysis, older age remained a significant predictor of myopia (AOR [95% CI]: 2.39 [1.28–4.49]; p = 0.006). **Conclusion:** Older age was an independent predictor of myopia. Although some dietary intakes differed between groups, no nutrient was independently associated with myopia. Longitudinal studies are recommended to clarify nutritional influences and inform early prevention strategies.

U-2050 Prevalence and associated factors of fruit and vegetable intake among adolescents in urban and rural Sabah

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Introduction: Adequate fruit and vegetable intake is essential for adolescent health but remains low in Sabah. This study aimed to examine personal, social, and physical-environmental factors influencing intake, as well as differences between urban and rural adolescents. **Methods:** A cross-sectional study involving 228 adolescents aged 13 – 16 years was conducted using multi-stage stratified random sampling in selected urban and rural schools in Sabah. Validated questionnaires were used to assess personal, social, and environmental factors, while anthropometric measurements were collected. **Results:** Urban adolescents had significantly higher vegetable intake (p = 0.026), while no significant difference was observed in fruit intake (p = 0.513). Only 24.6% of adolescents met the recommended vegetable intake, and 43.0% met the recommended fruit intake. Significant personal factors included preferences (vegetables: r =

0.371, p < 0.001; fruits: r = 0.131, p = 0.050), habits (vegetables: r = 0.219, p < 0.001; fruits: r = 0.170, p = 0.010), and self-efficacy (vegetables: r = -0.290, p < 0.001; fruits: r = -0.170, p = 0.010). In terms of social-environmental factors, parental modelling in urban areas (vegetables: r = 0.286, p = 0.011; fruits: r = 0.337, p = 0.002) and teacher encouragement in rural areas (vegetables: r = 0.163, p = 0.047) showed significant associations. For physical environmental factors, food availability at home was significantly associated with vegetable (r = 0.174, p = 0.034) and fruit intake in rural areas (r = 0.248, p = 0.002). **Conclusion:** Fruit and vegetable intake among adolescents in Sabah remains inadequate, with urban adolescents demonstrating slightly better intake. Key influencing factors vary by setting and domain. These findings suggest the importance of tailored interventions that enhance food accessibility, strengthen parental support, and implement school-based strategies to promote healthy eating habits among adolescents.

Group B: Community Nutrition Promotion, Education & Interventions

P-1010 Urban gardening activities and nutrition education through board games improved knowledge related to vegetables and fruits among girls and overweight children in Malaysian primary school: a pilot study

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Introduction: Fruits and vegetables are crucial for children's growth and provide essential nutrients for maintaining a healthy body. However, most Malaysian children consume inadequate fruits and vegetables. This study aims to determine the effectiveness of urban gardening and nutrition education through a board game on the knowledge, attitudes and practices of fruit and vegetable consumption among primary school children in Malaysia. **Methods:** A quasi-experimental study was conducted on 10-year-old children at a selected Primary School in Selangor. 72 participants were recruited through convenience sampling method. The intervention group received the intervention program within 3 months, which consisted of a talk about fruits and vegetables, educational gardening, cooking activities and playing an educational board game. While the control group only received a talk about fruits and vegetables. The height and weight of the participants were measured to obtain their Body Mass Index (BMI). The changes in knowledge, attitudes and practices of fruit and vegetable consumption were measured using a self-administered structured questionnaire. **Results:** This study successfully enhanced awareness and knowledge of fruit and vegetable consumption among female children (p = 0.010) but not among male children (p = 0.272) in the intervention group. In addition, knowledge related to fruit and vegetable consumption was significantly improved among overweight and obese participants (p = 0.033), but no significant improvement was observed among participants with normal BMI or underweight (p = 0.215) in the intervention group. The attitude (p = 0.980) and practice (p = 0.233) of fruit and vegetables showed no statistically significant improvement after the intervention. **Conclusion:** Engaging in these experiential activities has the potential to be used as a strategy for enhancing knowledge about fruit and vegetable consumption among girls and children who are overweight and obese.

P-1011 Emphasis on digital health education leveraging Instagram for nutrition education: A study on improving label literacy in adolescents

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Introduction: National Health and Morbidity Survey data show a decline in food label usage among adolescents, from 82.7% in 2017 to 71.3% in 2024. Despite the widespread availability of labelled packaged foods, many adolescents lack the skills to interpret them. This study evaluates the effectiveness of a food label literacy intervention among adolescents aged 13 to 16 years across four domains: comprehension and interpretation, skills in usage, attitudes, and healthy food choices. **Methods:** An 8-week intervention using a food label education module, Info-Nutriteen, was conducted among secondary school students aged 13 to 16 years in Selangor. Participants (n=66) were divided into an intervention group (n=34) and a control group (n=32), selected through convenience sampling. The intervention was delivered online via Instagram, featuring structured weekly topics on food labels, presented through infographics and videos, followed by quizzes. Pre- and post-intervention questionnaires were completed via Google Forms to assess changes in food label literacy. **Results:** Significant improvements were observed in the intervention group: understanding and interpretation scores increased from 3.53±0.80 to 5.60±1.17 ($p<0.001$); usage skills from 4.20±2.28 to 8.82±1.57 ($p<0.001$); attitudes from 4.13±0.92 to 5.74±0.90 ($p<0.001$); and healthy food choices from 3.88±1.05 to 5.10±0.74 ($p<0.001$). **Conclusion:** This study demonstrates that a structured, Instagram-based intervention significantly improved food label literacy among adolescents. Social media can serve as an effective educational platform, warranting further research into its long-term effects and scalability in broader populations.

P-1019 Impact of sleep quality and screen media use on body mass index among premyopic preschoolers

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Introduction: Childhood obesity is widely recognized as a public health concern which is associated with lifestyle factors, including sleep duration and screen media use. The objective is to assess the association between sleep quality, screen media use, and body mass index (BMI) among premyopic preschoolers. **Methods:** This study recruited 76 premyopic preschoolers aged five to six years from kindergartens in Kuala Lumpur and Selangor, Malaysia. Sleep duration was objectively measured using GENEActiv actigraph. Anthropometric measurements were obtained

to calculate BMI. Parents or guardians participated in face-to-face online interview to complete Screen Time Exposure Assessment (SCREENS-Q) and Pittsburgh Sleep Quality Index (PSQI). The result was analysed using SPSS 26.0 software, descriptive analysis and Spearman's correlation analysis to determine the association between sleep quality, screen media use, and BMI. **Results:** The mean BMI of the preschoolers was 15.08 (2.31) kg/m^2, and their mean sleep duration was 8.38 (1.48) hours. Fifteen (20%) preschoolers had poor sleep quality. Preschoolers with higher BMI were significantly associated with increased screen media use (p = 0.043, r = 0.233), greater time spent on non-handheld gaming (p = 0.003, r = 0.363), handheld gaming (p = 0.003, r = 0.336), and smartphone (p = 0.015, r = 0.279). Furthermore, higher BMI was negatively associated with shorter sleep duration (p = 0.019, r = -0.0269). **Conclusion:** Higher BMI among preschoolers is significantly associated with shorter sleep duration and higher screen media use, specifically in smartphone, non-handheld, and handheld gaming. The findings of this study suggest the need for screen media use and sleep promotion to reduce risks associated with overweight and obesity among preschoolers.

P-1020 Use of smartphone apps and wearable trackers for monitoring physical activity in children and adolescents

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Introduction: The emerging availability of mobile networks, smartphones and wearable sensors increases the capability to collect real-time data from many participants and allow remote PA monitoring. This study aimed to explore the experiences of children and adolescents in the UK and Malaysia using smartphone apps and wearable activity trackers (WATs) for physical activity (PA) monitoring. **Methods:** A cross-sectional online survey (February 2022–May 2023) involved 261 participants aged 5 –17 years (54.0% children, 46.0% adolescents; mean age = 11.1 ± 3.8 years). Surveys were conducted in English and Malay, tailored by age group, with parents completing them for younger children. **Results:** Smartphone ownership was 41.3% (73.1% in Malaysia), while WAT ownership was low (15.7%). Most participants (74.3%) had medium SES scores, with devices often received as gifts. SES influenced behaviour changes, particularly sleep, but not motivations for use. **Conclusion:** Smartphones present opportunities for PA monitoring, particularly in Malaysia, but WAT ownership is limited. Further research is needed to assess the effectiveness of these technologies in low- and middle- income countries.

P-1024 Empowering urban poor families through nutrition education and urban gardening: findings from the PUTRACNAP cluster-randomized trial

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Introduction: The double burden of malnutrition remains a significant challenge in urban poor communities. Mothers play a vital role in shaping children's eating habits and health. The PUTRA Community Nutrition Ambassador Programme (PUTRACNAP) was designed to empower

mothers-child dyads through integrated nutrition education and urban gardening, aiming to improve nutritional knowledge, maternal-child relationships, fruit and vegetable intake, and nutritional status. **Methods:** This cluster-randomized controlled trial involved 37 mother-child dyads (children aged 7 – 12 years) from 10 low-cost flats in Kuala Lumpur. The intervention group (n = 19) completed a 12-week programme featuring interactive nutrition and gardening activities, while the control group (n = 18) received standard nutrition advice. Assessments using structured interviews, questionnaires, and health measurements were conducted at baseline, post-intervention, and six-month follow-up. **Results:** The intervention group showed significant improvements in children's nutrition knowledge and mother-child relationships over time ($p < 0.05$) compared to the control group. Mothers in the intervention group also reported a significantly increased vegetable intake, while children demonstrated improved height-for-age z-scores (HAZ) at the six-month follow-up ($p < 0.05$). Mothers described gardening and cooking as "bonding moments" that fostered shared learning and healthier habits. No significant differences between groups were observed in maternal nutrition knowledge, maternal body composition, children's vegetable intake, or maternal and children's fruit intake. While mothers reported barriers such as limited space and time, the programme's "farm to table" concept was described as "eye-opening," with suggestions for broader community involvement **Conclusion:** Integrated nutrition and gardening interventions are a feasible strategy to improve selected health and relational outcomes in urban poor families.

P-1033 Purchasing patterns among students and other community members in urban poor areas of Kuala Lumpur - findings from South East Asia Obesogenic Food Environment (SEAOFE) study

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Introduction: Food environment plays a critical role in shaping consumer's dietary behaviours. However, food choices within food retail settings in Malaysia remain underexplored. This study examined purchasing patterns of students and other community members in selected urban poor areas of Kuala Lumpur. **Methods:** Three most densely populated urban poor areas, namely Batu, Kepong, and Bandar Tun Razak, were identified using data from Dewan Bandaraya Kuala Lumpur and Department of Statistics Malaysia. Consumer intercept survey was conducted across various types of food retail outlets, i.e., hypermarkets, supermarkets, convenience stores, and

traditional stores, located within 1 – 4 km radius of the selected areas. **Results:** A total of 1,004 respondents participated in the study (35.5% male, 64.8% female), with the majority aged 18 – 30 years (53.1%). Of these, 33.7% were students and 66.3% were other community members in the selected areas. Students primarily purchased bread (87.9%), eggs (83.1%), and instant noodles (81.1%), reflecting preferences for quick and affordable food products. The other community members also frequently purchased bread (76.1%) and eggs (73.7%), but reported higher tendency to purchase cooking oil and fats (70.9%), indicating more frequent home meal preparation. **Conclusion:** This study highlights similarities and differences of food choice among students and other community members in Kuala Lumpur's urban poor areas, presumably influenced by affordability and convenience. Understanding these purchasing patterns is important for developing targeted interventions to improve food access and promote healthier food choices within urban poor populations.

P-1035 Worksite nutrition and wellness programme for university employees: a cluster-randomised trial protocol

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Introduction: The increasing prevalence of overweight and obesity among office workers represents a growing public health concern, primarily driven by sedentary lifestyles and unhealthy eating habits. This study aims to evaluate the effectiveness of a 12-week worksite-based nutrition and wellness intervention in improving body composition, metabolic health, and physical fitness among employees at Universitas Brawijaya (UB). **Methods:** A cluster-randomised controlled trial involving 172 employees from six faculties will be conducted. Eligible participants are adults aged 20–40 years with a body mass index (BMI) ≥23 kg/m² or body fat ≥25%, sedentary behaviour ≥5 hours/day, and no regular vigorous activity. Participants will be assigned to intervention or control groups. Data will be collected at baseline, week 6, and week 12, including body composition (Omron HBF-375), waist circumference, aerobic capacity (Rockport Test), handgrip strength, physical activity (GPAQ), quality of life (SF-12), and blood glucose and cholesterol (EasyTouch). The intervention group will receive six biweekly sessions of personalised nutrition counselling, individualised physical activity plans, and twice-monthly Zumba sessions. The control group will receive standard group education using Ministry of Health resources. Data will be analysed using appropriate statistical methods, including general linear models. Ethical approval was granted by UB's Health Research Ethics Committee (25F171213064M). **Results:** The intervention group is expected to show significant improvements in body composition, aerobic fitness, and metabolic health compared to the control group. Enhancements in physical activity levels and quality of life are also anticipated among participants receiving the intervention. **Conclusion:** This protocol outlines a targeted workplace intervention that may inform future strategies for obesity prevention and employee wellness in academic settings.

P-1037 Preschool teachers' perspectives on implementing the ToyBox Study Malaysia (TSM): a qualitative study

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Introduction: ToyBox Study Malaysia (TSM) is an intervention designed to improve energy balance-related behaviours (EBRB) in early childhood to prevent obesity in later years. TSM was implemented in government preschools under the Department of Community Development (KEMAS) in Klang Valley as part of a feasibility study. This study explored preschool teachers' experiences in implementing TSM. **Methods:** Using purposive sampling, teachers and assistant teachers from 15 preschools were invited to participate in focus group discussions (FGDs). The sessions were conducted using a structured discussion guide and facilitated by trained moderators. Discussions were audio-recorded, transcribed verbatim, and thematically analysed by four researchers. **Results:** Three FGD were conducted, involving two groups of teachers (n=7 each) and one group of assistant teachers (n=10). Four key themes emerged from the analysis: 1) usability of TSM materials and activities; 2) observed children's behavioural changes; 3) challenges in conducting TSM; and 4) potential for sustainability. Participants reported that TSM materials and activities were attractive and practical as teaching aids. They observed positive behavioural changes in children, including preference for plain water, enthusiasm to try new healthy foods, and increased opportunities to be active. Reported challenges included limited classroom space for suggested activities and disruptions to learning caused by unrestricted water access. Overall, participants felt that TSM aligned well with KEMAS curriculum and could be scale-up to other KEMAS preschools in Malaysia. **Conclusion:** TSM contributed to positive changes on EBRBs among preschoolers. Insights shared by participants offer guidance for future implementation of similar interventions within preschool settings.

U-1001 Relationship between social media usage, self-esteem and body dissatisfaction among UCSI University students

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Introduction: The rising use of social media among youth has raised concerns about its psychological impact, particularly on body dissatisfaction. Visual-based social media platforms amplify social comparison, potentially leading to body dissatisfaction. Despite extensive global research, limited local data exists on how these factors interact among Malaysian university students. **Methods:** A cross-sectional online self-report survey was conducted, comprising four sections: sociodemographic background, the Social Media Use Scale (SMUS), Rosenberg

Self-Esteem Scale (RSES), and Body Shape Questionnaire (BSQ). Spearman correlation tested the associations among variables, while the Mann–Whitney U test and Kruskal–Wallis test compared body dissatisfaction across gender and other demographic characteristics. Multiple linear regression determined the significant predictors of body dissatisfaction. **Results:** Among the 180 respondents, the majority were female (67.8%), Chinese (85.6%) and aged between 21 to 23 years (64.4%). 42.8% of respondents reported no notable body shape concerns, while the rest showed mild to marked levels of concern (57.3%). Body dissatisfaction was positively associated with social media use ($\rho = 0.338$, $p < 0.001$), and the social comparison subscale ($\rho = 0.492$, $p < 0.001$), and negatively with self-esteem ($\rho = –0.161$, $p = 0.031$). Multiple linear regression analysis showed that social media usage ($\beta = 0.343$, $p < 0.001$) and self-esteem ($\beta = –0.190$, $p = 0.004$) significantly predicted body dissatisfaction. **Conclusion:** Interventions promoting media literacy and self-esteem are essential to help students manage appearance-oriented content online, as it can influence not only body dissatisfaction but also their dietary behaviours and nutritional well-being.

U-1002 Household's food insecurity and their association with food safety beliefs and practices among urban poor mothers in Kuala Lumpur

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Introduction: Food insecurity and poor food safety practices are critical public health concerns. In Malaysia, urban poor mothers face the dual burden of limited food access and the need to maintain safe food handling at home. This study aims to determine the prevalence of food insecurity among urban poor mothers in Kuala Lumpur using three different measurement tools (FIES, HFIAS, and MCSI). It also examines associations between food insecurity, food safety beliefs and practices, and variations across sociodemographic groups. **Methods:** A cross-sectional study was conducted among 181 urban poor mothers living in 12 randomly selected PPR flats in Kuala Lumpur. Using structured questionnaires, data on food insecurity, food safety beliefs, and practices were collected and analysed with SPSS. **Results:** Food insecurity prevalence was highest using HFIAS (65.19%), followed by FIES (60.22%), and MCSI (39.78%), with significant correlations among them. Over half (53.6%) demonstrated good food safety practices, 37.6% moderate, and only 8.8% poor, indicating generally positive safe food handling. Food insecurity was not associated with food safety practices but showed weak association to perceived barriers and benefits, the dimension of beliefs. Regression analysis revealed that perceived benefits ($\beta = 0.333$) and barriers ($\beta = –0.254$) significantly predicted practices. Additionally, older age and higher education were associated with better food safety practices. **Conclusion:** Food safety practices were generally positive and more influenced by specific beliefs and sociodemographic factors than by food insecurity status. Future programs should target tailored strategies to address barriers, especially for younger and less-educated groups.

U-1004 Qualitative study: Social media education on anaemia among anaemic female university students

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Introduction: This study aimed to explore the perspective and user experience of anaemia education delivered through Instagram among anaemic female university students in Malaysia. **Methods:** This study adopted a qualitative design under the SCARF (Study to Combat Anaemia – Research for Female Students) framework. A total of 30 anaemic female university students (aged 18–25) were recruited from two private universities, with 83.3% having mild anaemia and 16.7% with moderate anaemia. Participants engaged in a 6-week Instagram-based anaemia education. In-depth, semi-structured interviews were conducted with 17 participants (60–90 minutes each) and analysed thematically. **Results:** Five major themes emerged: (1) use of social media for health purposes, (2) motivators and demotivators of using social media for health education, (3) perception, user experience and acceptability of using social media for health education, (4) content and delivery preferences and priorities and (5) impact on knowledge, awareness and behaviour changes. While 88% of participants reported primarily using Instagram for entertainment and social interactions, 59% used it for health-related information. All participants reported increased awareness and understanding of anaemia and iron-rich foods, and 71% reported behavioural changes, such as increased intake of iron-rich foods and separating tea/coffee with meals. Most participants (77%) preferred practical, visual content (e.g., cooking videos), and 88% expressed willingness to engage in similar future Instagram-based health education. **Conclusion:** Overall, all participants described increased awareness and understanding of anaemia and iron-rich foods, and 88% were open to future Instagram-based health education. Instagram shows potential as a digital health communication tool among young women in Malaysia.

U-1007 Physical activity literacy, physical activity, and anthropometric status among university students in Kota Kinabalu, Sabah

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Introduction: Obesity remains a significant global health challenge, necessitating the promotion of physical activity literacy and regular physical activity as essential components of a healthy lifestyle. This study aimed to evaluate the associations between physical activity literacy, physical activity, and anthropometric status among university students in Kota Kinabalu, Sabah. **Methods:** A cross-sectional study was conducted among university students aged 18–25 years using convenience sampling. Physical activity literacy was assessed using a validated, modified questionnaire adapted from the Physical Literacy Knowledge Questionnaire (PLKQ) and the Perceived Physical Literacy Questionnaire (PPLQ). Physical activity levels were measured using the Global Physical Activity Questionnaire (GPAQ), while BMI and body fat percentage were assessed using standard protocols. **Results:** A total of 260 students (mean age 21.2 ± 1.8 years) participated. About 39.2% were highly active, with males showing higher activity levels (5113.9 ± 6038.8 METs) and less sedentary time (353.7 ± 210.1 minutes) than females. The average physical activity literacy score was 24.07 ± 8.40, indicating moderate literacy. Around 64.6% had normal BMI. Physical activity literacy showed significant correlations with physical activity (r =

0.387, p < 0.001) and body fat (r = -0.366, p < 0.001), but not with BMI (r = 0.011, p = 0.862). Physical activity correlated significantly with both BMI (r = -0.368, p < 0.001) and body fat (r = -0.420, p < 0.001). **Conclusion:** Physical activity literacy is closely linked to both physical activity and anthropometric status, highlighting the importance of tailored strategies to enhance literacy and promote healthier lifestyles in university populations.

U-1017 Factors associated with nutrition literacy among university students in Universiti Putra Malaysia

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Introduction: Nutrition literacy is the ability to understand and use nutrition information for informed dietary choices. Given the limited research among university populations, this cross-sectional study determined the associations between personal, lifestyle, and socio-environmental factors and nutrition literacy among university students in Universiti Putra Malaysia. **Methods:** 350 participants were recruited from three randomly selected faculties. They completed a self-administered questionnaire on sociodemographic, nutrition literacy, attitudes, physical activity, diet quality, food security, and social support for healthy eating. The 12-item short-form Nutrition Literacy Scale (NL-SF12) was used to assess nutrition literacy. Anthropometric measurements (body weight, height, waist circumference, and body fat percentage) were measured by the researcher using standard protocols. **Results:** The total mean scores of the NL-SF12 were 42.61 ± 9.83, ranging from 12 to 60. The highest mean score of all dimensions of the NL-SF12 was for knowledge (8.44 ± 2.27), followed by interactive skills (7.53 ± 2.00), understanding (7.35 ± 2.03), obtaining skills (7.05 ± 2.02), critical skills (6.74 ± 1.97), and the lowest score was for applying skills (5.51 ± 2.03). Nutrition attitudes were positively correlated with nutrition literacy (r = 0.333, p < 0.001), while no significant associations were found with other variables, including age, gender, income, physical activity, food security or diet quality. **Conclusion:** The findings show that university students need to improve their ability to apply nutrition knowledge. Future interventions should strengthen application skills and promote positive nutrition attitudes to enhance overall nutrition literacy among university students.

U-1018 What do Malaysian parents think about food and non-alcoholic beverages (FNAB) advertisements on television? A qualitative study

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Introduction: The marketing of unhealthy food and non-alcoholic beverages (FNAB) on television potentially contributes to poor dietary intake among children and risk of childhood obesity. As parents are the primary decision-makers for their children's food choices, understanding their perceptions on television food marketing is crucial. This qualitative study explored parents' perceptions of FNAB advertisements on Malaysian television. **Methods:** This study purposively sampled parents from Kuala Lumpur and Selangor who had children aged 7–12 years, with regular access to television. Video clips of commonly advertised FNAB products on television were

sourced from a previous multinational study. Data collected through interviews were transcribed verbatim and thematically analysed using NVivo software (Version 15). **Results:** Seventeen parents (15 mothers, 2 fathers) participated in this study. Three overarching themes emerged regarding perceptions of television FNAB advertisements: (1) marketing strategies, (2) unethical advertising practices, and (3) the influence of advertisements on children's food requests and eating habits. For the influence of television FNAB advertisements on parental purchasing decisions, three pathways were identified: (1) direct influence, (2) indirect influence via children's requests, and (3) no influence. Parents proposed four strategies to protect children from the impact of unhealthy television FNAB marketing: (1) improving advertisement content, (2) enforcing stricter regulations, (3) increasing children's awareness, and (4) parental mediation. **Conclusion:** Parents recognized the influence of unhealthy FNAB advertisements on their children and their own purchasing decisions. They emphasized the need for stricter advertising regulations and a multifaceted approach. These findings can support advocacy efforts and inform public health policies to reduce childhood obesity in Malaysia. Future studies should explore the ample food marketing strategies used in social media.

U-1028 Social media use, body image and physical activity among UCSI university students in Kuala Lumpur

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Introduction: Physical inactivity among Malaysian university students is a growing concern. However, limited research has examined how behavioural and psychological factors, such as social media use and body image perception, influence their physical activity levels. This study aimed to investigate the associations between social media use, body image, and physical activity among UCSI University students. **Methods:** A cross-sectional study was conducted among 208 students (aged 18 – 24 years) at UCSI University, Kuala Lumpur. Participants completed the Bergen Social Media Addiction Scale (BSMAS), Figure Rating Scale (FRS), and International Physical Activity Questionnaire-Short Form (IPAQ-SF). **Results:** The mean total MET-min/week was 1290.69 ± 892.60, with 66.8% of the participants engaged in moderate physical activity level. There were more female (71.0%) than male (29.0%) students with low physical activity level ($p=0.012$). The prevalence of body dissatisfaction was 76.4%. Instagram was the most frequently used social media platform (93.8%), with 22.6% were at risk of social media addiction. Social media use was not associated with physical activity level ($p>0.05$). However, students who were dissatisfied with their body image had lower physical activity level ($p=0.043$) and higher BMI ($p=0.03$) than those who were satisfied with their body image. Higher BMI (B=53.29, SE=18.85, $p=0.005$) was associated with greater physical activity, while being female (B=-324.50, SE=122.57, $p=0.009$) and having body dissatisfaction (B=-326.63, SE=146.75, $p=0.027$) were associated with lower physical activity. **Conclusion:** This study highlighted the influence of body image on physical activity level. Interventions to promote positive body image and encourage active lifestyle are warranted in this population.

U-1031 Accuracy of food portion size estimation among Nutrition and Dietetics students in Malaysia

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Introduction: Image-Based Dietary Assessment (IBDA) has been increasingly used to assess energy and dietary intake. The present study aimed to evaluate the ability of Nutrition and Dietetics students across Malaysia in estimating food portion sizes based on digital images. **Methods:** A total of 393 participants (mean age: 21.0 ±10 years, 86% females) from 15 public and private universities completed an online questionnaire. They were asked to estimate portion sizes of a plate of Mixed Rice, a bowl of Mihun Soup, and seven common local food items. Participants were required to estimate portion sizes in grams and serving size units. Accurate estimation in grams were within ±10% of the actual food weight, while accurate estimation in serving size units was defined as matching the exact number of servings shown. **Results:** The percentage of accurate estimations for food on a plate (13.3%) was higher than for food in a bowl (9.4%). Additionally, more participants estimated accurately using serving size units (32%) than grams (18%). The percentage of accurate estimation for seven food items in grams and serving size units, respectively, reported as follows: white rice (20.6% and 23.2%), fried noodles (18.3% and 29.0%), peanut butter spread (17.8% and 45.3%), mixed vegetables (14.8% and 11.5%), fried anchovies (13.0% and 27.5%), fried tempeh (20.6% and 40.5%) and turmeric fried chicken (20.9% and 47.1%). **Conclusion:** The ability of Nutrition and Dietetics students to estimate portion sizes remains low in Malaysia. Continuous training is necessary to ensure these future nutritionists and dietitians develop competency on this important skill.

U-1035 Knowledge, attitudes and practices of food handlers on food safety in Chinese food premises in Klang Valley

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Introduction: Foodborne illnesses remain a significant public health concern, particularly within Malaysia's food service industry, where adherence to food safety practices is critical. While existing research has examined the knowledge, attitudes, and practices (KAP) of food handlers across various sectors, limited studies have focused specifically on Chinese food premises in the Klang Valley. This study aimed to assess the food safety KAP of food handlers in Chinese food premises, examining interrelationships among KAP components and identifying sociodemographic factors influencing compliance. **Methods:** A quantitative, cross-sectional design was employed using structured questionnaires to evaluate KAP among food handlers. Correlation analyses were conducted to explore associations between KAP scores and sociodemographic variables. **Results:** Findings revealed a high level of food safety knowledge among respondents (95.8%). Attitude scores were generally positive, with significantly higher scores observed among individuals who had attended food handler training (mean: 98.80 ± 2.83) compared to those without training (95.58 ± 4.97). However, practice scores were less consistent, evidenced by a weak correlation between knowledge and practice ($r = 0.070$, $p = 0.560$). Sociodemographic variables such as age and education exhibited limited influence on KAP outcomes. **Conclusion:** Despite high awareness levels, food safety practices among food handlers in Chinese food premises remain inconsistent. Tailored interventions, culturally sensitive approaches, and continuous training are recommended to bridge the gap between knowledge and practice, thereby improving food safety compliance in this sector.

U-1039 Development and validation of "PEMACU": A nutrition education booklet for grandparents caring for grandchildren

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Introduction: Grandparents often play a key role in caregiving and food provision for their grandchildren. However, limited nutritional knowledge among the elderly has been linked to suboptimal feeding practices, contributing to childhood obesity. This study aimed to develop and validate a nutrition education booklet titled "PEMACU: Pemakanan Cucu, Pemacu Negara" to support grandparents in preparing healthier meals for their grandchildren. **Methods:** The study was conducted in three phases. Phase I involved a needs assessment with 51 grandparents from Kuala Lumpur and Selangor, using a structured questionnaire that explored their knowledge of healthy food preparation, meal patterns for grandchildren, and desired booklet content. In Phase II, a 25-page booklet was developed using Canva, guided by Malaysia's Ministry of Health dietary recommendations. The content was organised into six sections: "Introduction," "Children's Nutrition Needs," "Picky Eaters," "Malnutrition in Children," "Safe Lunchbox Preparation," and "Understanding the Healthier Choice Logo (HCL)." Phase III involved content validation by six health professionals, including nutrition and dietetics lecturers, a nutritionist, and a geriatric medicine specialist, using the Patient Education Materials Assessment Tool (PEMAT-P). **Results:** The developed booklet scored highly on understandability (87.3%) and actionability (90.5%), indicating its effectiveness in delivering clear and practical health messages. **Conclusion:** The "PEMACU" booklet is a potentially effective educational tool for enhancing grandparents' ability to provide nutritious meals for their grandchildren. Future research should explore its acceptability and impact in real-world settings, including further development into a series.

U-1040 Food safety knowledge, attitudes, and practices among food handlers in Malay food premises in Klang Valley

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Introduction: Foodborne illness affects approximately 600 million people annually. In 2020, Malaysia experienced 1,751 unsanitary food premises closures and 29,286 violations, affecting 2,581 out of 67,976 inspected facilities. Food handlers play a crucial role in ensuring food hygiene and safety. This study aims to investigate the sociodemographic profile and the level of knowledge, attitudes and practices (KAP) on food safety among food handlers in Malay food premises in Klang Valley. **Methods:** A cross-sectional study involving 72 food handlers was conducted using convenience sampling. Data collection involved face-to-face interviews, a structured questionnaire, and an observational checklist to collect data on personal hygiene, cross-contamination, foodborne diseases, and safe food handling. Statistical analysis included descriptive statistics and assessed associations between sociodemographic variables and KAP (significance level $p<0.05$). **Results:** Significant associations were found between knowledge and age (21 – 30 years, $p = 0.042$), working experience ($p = 0.031$) and food handler training ($p = 0.005$). Attitudes were significantly associated with education level ($p = 0.014$). Positive correlations were observed between knowledge and attitude ($r = 0.543$), knowledge and practice ($r = 0.391$), and attitude and practice ($r = 0.318$). The study revealed high knowledge and

self-reported practices among food handlers, but identified gaps in hygiene behaviours, suggesting that training, reinforcement, supervision, and supportive environments could enhance compliance. **Conclusion:** The study indicates a strong correlation between food safety KAP levels among food handlers, emphasizing the need for enhanced food safety training to enhance compliance with the Malaysian Food Hygiene Regulations 2009.

U-1041 Association between vitamin B12 intake and stunting among children aged under 5 years in Kuala Terengganu and Kuala Nerus

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Introduction: Stunting is a chronic form of undernutrition that has significant implications for the physical and cognitive development of children, particularly in low- and middle-income countries. Vitamin B12 (cobalamin) is an essential micronutrient involved in DNA synthesis, red blood cell formation, and neurological function, all of which are critical during periods of rapid growth such as early childhood. Deficiency in vitamin B12 has been associated with impaired cell division and neurological delays, potentially contributing to growth faltering. This study aimed to determine the prevalence of stunting among children under five years old in Kuala Terengganu and to examine its potential association with dietary vitamin B12 intake. **Methods:** A cross-sectional study was conducted involving 246 preschool children enrolled in Taska Permata Keluarga preschools. Parental consent was obtained, and an online questionnaire was administered to collect demographic and socioeconomic data. Anthropometric measurements were recorded and stunting was classified using height-for-age Z-scores based on WHO standards. Dietary intake, including vitamin B12, was assessed using a semi-quantitative Food Frequency Questionnaire (FFQ). **Results:** The prevalence of stunting was 11.8%, with 34.6% exhibiting mild stunting, 9.8% moderate, and 2.0% severe. Most participants (91.1%) met the recommended daily intake for vitamin B12, whereas 5.2% fell below the recommendation. Statistical analysis revealed no significant association between vitamin B12 intake and stunting status ($x^2 = 4.885$, $p = 0.384$). Notably, 50% of participants belonged to the B40 income group, suggesting limited access to diverse, nutrient-dense foods. **Conclusion:** Although vitamin B12 is critical for neurological and haematological functions, its role in linear growth may be limited. The findings suggest that stunting is a multifactorial condition influenced by a combination of nutritional inadequacies, recurrent infections, and socioeconomic constraints. Addressing stunting requires comprehensive strategies that encompass nutritional education, dietary diversification, and socioeconomic support interventions.

U-1045 Exploring food environment and food purchasing behaviour among university students at residential colleges

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Introduction: The food environment plays a crucial role in shaping food purchasing behaviour, particularly among university students who often face challenges related to nutrition, including limited accessibility to healthy options and financial constraints. This study aimed to evaluate the food environment and purchasing behaviour among students residing in university residential

colleges. **Methods:** A modified Food Environment Quality Index was used to assess the food environment quality of food and beverage outlets located within 12 residential colleges at a local public university. A cross-sectional online survey involving 1,223 students was conducted to examine their purchasing behaviour and perceptions of the food environment. **Results:** Vending machines made up 50% of food outlets, followed by cafeterias and food stalls (20.6% each). None of the food outlets met the criteria for a "Healthy" food environment. The majority (76.2%) were categorized as "Satisfactory", while 23.8% were deemed "Unhealthy." Students reported daily food and beverage expenditures ranging from RM5 to RM20.99, with the highest spending occurring at lunch (82.7%) and dinner (71.9%). Breakfast was less prioritized, with only 55.6% of students reporting expenditure during this time. Price and taste were the primary factors influencing food choices, while unfamiliarity with food options was the least influential. **Conclusion:** The study highlights critical gaps in the residential college food environment, particularly the absence of healthy options and limited availability of nutrient-dense foods. Reform is needed to improve food access by providing healthier, affordable, and diverse options, alongside effective nutrition education, to support students' health, well-being, and academic success.

PX-2001 What foods are hypermarkets promoting? A content analysis of hypermarket flyers in Malaysia.

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Introduction: Hypermarkets use marketing strategies that influence food choices and consumer buying behaviour. This study aimed to identify the prevalence of promotions for 'healthy' and 'unhealthy' foods (on the front page vs the entire flyers) in hypermarket flyers in Malaysia and compare the healthiness of food products advertised during festive and non-festive seasons. **Methods:** The top three hypermarket chains (by market share) operating in Malaysia were selected and online flyers were collected for 16 weeks from January to August 2020 (n=23 flyers with 3559 food products). Food products were categorized into four categories: 'core' (healthy), 'discretionary' (unhealthy), 'alcohol', and 'other', and 24 sub-categories, based on the Australian Guide to Healthy Eating (AGTHE). The Chi-square for Goodness of Fit test was used to determine the relationship between the number of promotions for all 4 categories and between food products advertised during festive and non-festive seasons. **Results:** The result showed that promotion of the 4 food categories was only significant in the entire flyers (X^2=17.762, p<0.001), with 'discretionary' (48.7%) being the highest food advertised. Food and drinks that were promoted more during the festive compared to the non-festive season in the entire flyers were 'discretionary' food (49.3% vs 47.8%, X^2=40.852, p<0.001) and alcohol (6.7% vs 3.9%, X^2=28.846, p<0.001). **Conclusion:** The study highlights the dominance of unhealthy food products in hypermarket flyers in Malaysia. As part of efforts to address unhealthy diets and obesity prevalence in Malaysia, an increased focus on addressing the marketing of unhealthy foods in food retail settings is warranted.

PX-2006 Socio-environmental and motivational factors of physical inactivity among Malaysian school children: findings from a TPACS survey

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Introduction: Physical inactivity and obesity among school children are increasingly significant global public health concerns with long-term health complications. This study aimed to assess

physical activity (PA) behaviours and identify related contributing factors among Malaysian school children. **Methods:** A cross-sectional study design was employed, involving 348 school children aged 7 – 17 years recruited through multi-stage stratified sampling across primary and secondary schools in Kuala Lumpur. Using adapted Thailand Physical Activity Children Survey (TPACS), PA patterns and multi-dimensional factors such as screen time, parental influence, community engagement, and children's motivational perspectives were evaluated. **Results:** The findings revealed a high prevalence of physical inactivity among primary (62.3%) and secondary (81.5%) school children. Secondary students exhibited higher sedentary behaviours, with 90.2% indicating excessive screen time. Despite parental support for PA, active participation remained insufficient. Likewise, limited utilisation of available community resources was observed. Although children possessed positive perceptions of the importance of PA, their motivation for ongoing participation was low. **Conclusion:** This study showed a higher level of physical inactivity in school children attributed to excessive screen time, insufficient use of community facilities, and a lack of motivation, even though they have a positive perception of parental support and physical activity. TPACS was demonstrated as an effective tool in identifying key socio-environmental and motivational determinants influencing PA behaviours beyond traditional assessments. While limited to Kuala Lumpur, these findings offer insights for developing targeted strategies aiming at tackling the multi-faceted factors contributing to physical inactivity among Malaysian school children.

PX-2007 Promoting physical activity and healthy eating among physically inactive adolescents: a study protocol for an interactive web-based intervention

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Introduction: Engaging in physical activity and optimal nutrition are crucial for promoting healthy development during adolescence. However, 80% of adolescents globally are insufficiently active. Physical inactivity not only contributes to poor physical and psychosocial health but it is also associated with obesity and other non-communicable diseases. This study outlines the protocol for a health education and gamified intervention via web-based, namely 'Active Teen Healthy Life' (ATHeL) aimed at promoting physical activity, healthy eating and positive body image among adolescents who are physically inactive. **Methods:** This study is a clustered randomised controlled trial that will involve a minimum of 86 adolescents aged 15 to 16 years from two secondary schools located in the Sepang district, Selangor, Malaysia. A web-based, gamified educational module will be used as a tool to convey information and promote healthy behaviours related to physical activity, balanced nutrition and positive body image. The parameters that will be assessed are physical activity level, dietary intake, disordered eating, body weight, height, BMI z-score, waist circumference, percent of body fat, self-efficacy and health beliefs on physical activity and healthy eating, body image and knowledge, attitude and practice toward a healthy lifestyle. Assessment will be conducted at two time points: baseline and post-intervention. The adolescents in the intervention group will be exposed to the ATHeL programme for 12 weeks, while adolescents in the control group will continue their normal routine activity. **Results:** It is hypothesized that ATHeL intervention will contribute to improve the physical activity level and the

betterment of nutritional status, preventing obesity, disordered eating and a positive body image perception among the adolescents. **Conclusion:** While using a fun and attractive web-based method, this study can promote the use of digital platforms in a positive way to reach and engage adolescents' interest and motivation towards a healthy lifestyle.

PX-2008 The development of a portion size guideline for children aged 1 to 3 years

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Introduction: Healthy eating guidelines for young children are widely advocated in Malaysia, however there is no clear guideline on portion sizes for children aged 1 to 3 years. This may lead to over- or under-feeding. Therefore, this study aimed to develop a portion size guideline for this age group. **Methods:** The ADDIE model was used, which includes five phases; Need analysis, Design, Development, Implementation and Evaluation. In Phase 1, a needs assessment was conducted through a survey. In phase 2 and 3, relevant literature was reviewed. Total energy requirements for children aged 1 to 3 years were obtained from the RNI (2017). These were translated into portion sizes based on recommended macronutrient distributions (45 – 65% carbohydrate, 30 – 40% fat and 5 – 20% protein). The guideline was validated by five nutrition experts. In Phase 4, a pilot study was conducted, followed by an evaluation of the guideline's feasibility using a 5-point Likert scale in Phase 5. A total of 165 parents and 165 healthcare providers were recruited in this study. **Results:** The main findings showed high Content Validity Index (CVI) scores [0.88 (Phase 2) and 0.99 (Phase 3), indicating good content validity. In Phase 5, mean feasibility scores were also high [4.61 ± 0.46 (from parents) and 4.39 ± 0.56 (from healthcare providers)]. The final guideline includes portion size ranges for 116 commonly consumed foods. **Conclusion:** This guideline is a useful resource that provides parents and other childhood settings with dietary guidance of children aged 1 to 3 years.

PX-2009 The impact of 6-month nutrition intervention programme among children in community feeding programme (PCF) at Pos Legap, Kuala Kangsar, Perak

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Introduction: Malnutrition among Orang Asli (OA) children remains a serious issue for public health, with high rates of underweight and stunting (Khor & Zalilah, 2008). The Community Feeding Programme (PCF), initiated by the Ministry of Health Malaysia, intends to enhance the

condition of the nutrient intake of OA children in rural areas. **Methods:** This study evaluates the impact of a six-month intervention programme at Pos Legap, Kuala Kangsar, involving 20 children (aged 6 months to 6 years). During the intervention programme, nutrient-dense meals were served five days a week prepared by two well trained OA volunteers, with pre- and post-intervention anthropometric assessments. Throughout the intervention programme, education on healthy eating were given continuously to the parents and the volunteers. **Results:** The findings indicated a significant increase in mean weight (11.5 ± 2.3 kg to 12.4 ± 2.6 kg, p = 0.0001) and height (84.8 ± 9.95 cm to 88.5 ± 9.98 cm, p = 0.000007), though body mass index (BMI) changes were not significant (p = 0.28229). These findings highlight the effectiveness of structured nutritional interventions in improving nutritional status among vulnerable OA children. **Conclusion:** The six-month PCF intervention programme improved weight and height in OA children, demonstrating its effectiveness. Long-term success requires parental involvement, community engagement, and continuous monitoring to combat malnutrition and promote healthier growth in indigenous populations.

PX-2011 Nutrition intervention and its effects on performance, hydration, and dietary behavior in Malaysian football teams

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Introduction: The existence of full-time football team nutritionists in Malaysia is scarce, yet the importance and demand of nutrition for football players extends beyond just managing diets. This study reviews the impact of nutrition intervention on football performance, body composition, hydration status, and nutrition application for a Malaysian football team. **Methods:** Body composition, hydration assessment, and nutrition education were conducted for players in the team throughout (before and during) the season. The players were divided into group A (n=25, no sports nutrition experience) and group B (n=24, partial sports nutrition experience). Football performance based on Malaysian Football League results, trends of body composition data, players' dehydration status, dietary intake behaviour, and attitude were analysed and compared between groups. **Results:** Group B had a lower number of players with high body fat (>12%) (14 vs 15 for group A), and lower average body fat % before pre-season (12.9 ± 2.3 vs 14 ± 3.5 for group A), before on-season (11.0 ± 2.4 vs 13.2 ± 2.9), and throughout on-season (10.1 ± 0.8 vs 11.8 ± 0.5). Group A had fewer dehydrated players (14% vs 19%) due to different training times. For nutrition application, group B showed more concern about their own nutrition intake (e.g. carbo-loading strategies, supplementation) and had greater initiative to reach out for nutrition consultation compared to group A. Group B achieved a better standing in the Malaysian Football League, finishing second place. **Conclusion:** Football players with sports nutrition support demonstrated better football performance, body composition, and dietary intake behaviour and attitude throughout the season.

PX-2015 An interventional study to reduce sodium levels of foods sold on a university/college campus in Malaysia

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Introduction: Sodium reduction is one of the most cost-effective strategies to reduce the burden of hypertension. The "Less Salt, Oil, Sugar (SOS)" campaign, launched in August 2024 at Sunway University/Sunway College, aimed to reduce sodium levels in campus canteen foods and promote healthier eating habits. **Methods:** A total of 81 popular food items from eight food categories were sampled from 17 campus canteen stalls. Regular serving-size portions of foods as sold were weighed. Sodium levels were determined using a gold-standard method—closed acid digestion followed by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)—at an ISO/IEC 17025-certified laboratory. **Results:** The average sodium content decreased from 0.46 g/100g at baseline to 0.43 g/100g at 3 months and 0.41 g/100g at 7 months. The UK Traffic Light Sodium Classification improved: "High" sodium items decreased from 28.4% to 16.0%, and "Medium" sodium items increased from 71.6% to 82.7%. By 7 months, 48.1% of food items achieved some sodium reduction, while 13.6% met the WHO-recommended ≥30% sodium reduction target. Significant reductions were observed in food categories such as "Burger/fries," "Pasta," and "Snacks." However, sodium levels increased in "Noodle-based" dishes (up 23.1%) and "Meat with gravy" (up 17.5%). A cross-sectional study at other Sunway Group premises showed a similar average sodium content of 0.43 g/100g, with most foods in the "Medium" sodium category. **Conclusion:** The "Less SOS" campaign effectively reduced sodium levels in certain campus foods, demonstrating a positive impact. Continued efforts and targeted reformulation are needed to address high-sodium categories and maintain long-term improvements.

PX-2016 Needs assessment among parents on nutritional status of children in Pulau Banggi, Kudat, Sabah

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Introduction: Nutritional status of children is a concern in island communities. This study assessed the nutritional status of children aged 7 – 12 years in Pulau Banggi through the perspectives of parents. The objectives were to identify factors influencing nutritional status, propose solutions, and evaluate dietary intake against recommendations. **Methods:** Three focus group interviews (n=19) and diet history were conducted. Thematic analyses were used to identify key factors influencing child nutrition and potential solutions for improving children's nutritional status. **Results:** Feeding practices included parental guidance and child decisions, but picky eating was an issue. Parents demonstrated limited nutritional knowledge, often relying on traditional practices, and lacked awareness of growth milestones and children's nutritional needs. Socioeconomic constraints and environmental issues like water shortages and power outages were reported. Children were moderately active. Participants mentioned inclusion of finely

chopped vegetables, reducing oil use, and minimizing unhealthy cooking methods for healthier meals. They preferred digital platforms for nutrition education. They suggested regular community-based programmes with health checks and sports activities at accessible locations, and provision of financial assistance to alleviate economic burdens. Children's diets were adequate in carbohydrate and protein from rice and fish, but lacked vegetable, fruit, dairy, and legume. Food availability, affordability, and cultural practices influenced dietary habits. **Conclusion:** There is a need to diversify food group consumption. The study showed the need to address environmental and socioeconomic barriers to nutrition. These insights provide a foundation for targeted interventions and policy development aimed at improving the health outcomes of children in isolated communities.

PX-2017 Validation and determination of cut-off points for the food insecurity experience scale (FIES) in Malaysia

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Introduction: Food security can be defined as the availability of and accessibility to food, acquired in an acceptable means at any given time and place in a way that could maintain health and wellbeing. One critical dimension of food security is continued access to adequate food. To assess this dimension, the UN Food and Agriculture Organisation (FAO) created Voices of the Hungry project (FAO-VoH) which is the Food Insecurity Experience Scale (FIES), the first tool to assess individuals who face food insecurity worldwide. This study aimed to validate the construct validity, reliability and national cut-off point for the FIES in Malaysia. **Methods:** The Rasch modelling procedure was applied to data collected by Gallup World Poll in 2014, 2015 and 2018 on 3010 respondents aged ≥15 years in Malaysia. **Results:** FIES met the Rasch model assumptions with all items having an infit value of between 0.7 – 1.3 and an outfit value of <2.0. The item and person reliability were 0.99 and 0.55, respectively; while the item and person separation were 10.65 and 1.10, respectively. The FIES item severity indicated that the items "few food," "healthy," "skipped," "ate less," and "runout" were disordered. The cut-off points for Malaysia are classified into 4 categories: 1) Food Secure with raw scores 0; 2) Mild FI, with raw scores = 1 – 2; 3) Moderate FI with raw scores: 3 – 7; 4) Severe FI, with raw scores=8. **Conclusion:** The FIES is a valid and reliable tool for assessing individual food insecurity in Malaysia. Furthermore, the severity of item in FIES was different in terms of order from the original FIES, suggesting that the same items may be interpreted differently due to cultural or societal differences. The establishment of national cut-off points enhances the FIES applicability for monitoring, policy development, and targeted food security interventions.

PX-2021 Beyond food waste reduction: nutritional contributions of food rescue initiatives. A systematic review

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Introduction: Food rescue programmes are increasingly recognized for their environmental and social benefits, yet their nutritional impact remains underexplored. Traditional assessments focus predominantly on food volume, economic efficiency, or environmental outcomes, leaving a critical gap in evaluating nutritional adequacy. This review supports global sustainability efforts (SDGs 2, 3, and 12), by assessing the nutrition-related outcomes of food rescue initiatives. **Methods:** Following PRISMA guidelines, a comprehensive literature search was conducted in April 2025 across PubMed, Scopus, Web of Science, and grey literature via Google Scholar. Eligibility criteria included peer-reviewed empirical studies published in English that evaluated the nutritional outcomes of food rescue programmes. **Results:** Forty-eight studies were included. Five thematic domains emerged: nutritional intake, food security, food basket quality, nutritional status, and nutritional behaviour and environment. While many studies reported improved dietary intake, findings revealed consistent inadequacies in fibre, vitamins, and minerals. Food security improvements were documented in 11 intervention studies, although baseline food insecurity remained high (46 – 95.3%). Food basket audits revealed mixed quality, often lacking fresh produce and nutrient-dense foods. Limited anthropometric and biochemical assessments indicated persistent challenges such as obesity, and micronutrient deficiencies. Models integrating food provision with education and client-choice models showed more promising outcomes. However, findings suggest the need for standardized, context-sensitive metrics that go beyond calorie counts to include diet quality and health outcomes. **Conclusion:** Despite some positive effects, gaps remain in achieving nutritional adequacy and the long-term health impact. Future food rescue initiatives should adopt multi-component approaches, recipient empowerment strategies, and cross-sector collaborations to maximize their health benefits and align with global nutrition and sustainability goals.

PX-2023 Diagnostic accuracy and methodological validation of the InBody 970S multi-frequency bioelectrical impedance analysis device with dual-energy x-ray absorptiometry in assessing body composition among healthy Malaysian adults

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Introduction: Accurate evaluation of body composition is critical in managing obesity and sarcopenia. While dual-energy X-ray absorptiometry (DXA) remains the gold standard, its high cost and limited accessibility hinder large-scale application. Multi-frequency bioelectrical impedance analysis (MF-BIA) presents a promising alternative, however, population-specific validation is needed. This study aimed to determine the diagnostic accuracy and validate the InBody 970S MF-BIA device in estimating body composition parameters against DXA among

healthy Malaysian adults. **Methods:** A prospective validation study was conducted among 148 healthy adults aged 20 – 45 years. Participants underwent standardised assessments using MF-BIA and full-body DXA. Linear regression, paired t-tests, Bland–Altman plots, and diagnostic performance indices (sensitivity, specificity, PPV, NPV) were used to evaluate the agreement between methods for fat mass (BFM), lean body mass (LBM), fat-free mass (FFM), percent body fat (PBF), bone mineral content (BMC), and skeletal muscle mass index (SMI). **Results:** MF-BIA showed strong correlations with DXA across all parameters (R^2 = 0.72 – 0.97). The predictive models for BFM, LBM, and PBF demonstrated high accuracy (e.g., BFM: R^2 = 0.96; LBM: R^2 = 0.96; FFM: R^2 = 0.97). Diagnostic agreement was particularly strong for sarcopenia (sensitivity = 95.1%, NPV = 98.0%) and obesity classification (specificity and PPV = 100%), though obesity sensitivity was lower (75.2%). Bland–Altman analysis confirmed acceptable limits of agreement. **Conclusion:** MF-BIA offers a clinically valid, non-invasive, and accessible method for body composition assessment in Malaysian adults, especially in resource-limited settings.

PX-2024 Association of electronic device use and pre-bedtime routines, with sleep habits among preschoolers in Peninsular Malaysia

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Introduction: Sleep habits can be influenced by behavioural and environmental factors, including screen use and bedtime routines. Understanding these associations is essential for promoting healthy sleep patterns, particularly among young children. This study examines associations of device use and pre-bedtime routines with sleep habits among Malaysian preschoolers. **Methods:** This cross-sectional study is part of South East Asian Nutrition Surveys (SEANUTS II) Malaysia. Parent-reported data from 842 preschoolers aged 3–6 years (mean age = 4.82, SE = 0.04 years; 53% boys) were analysed, including daily screen time, device types, pre-bedtime activities, bedtime, and total sleep duration. **Results:** On average, preschoolers went to bed around 21:53 on weekdays and 22:35 on weekends, and slept for 10.2 hours/day. Over one-third (35.3%) spent ≥2 hours on screen time, with televisions (56.1%) and smartphones (38.1%) being the most used devices. More than half of preschoolers adhered to age-appropriate screen time (57.1%) and sleep duration (55.3%) guidelines. The most frequent pre-bedtime activities included watching television (70.5%), using smartphones (55.6%), and reading books/magazines/comics (49.2%). Complex samples general linear model ANCOVA revealed later bedtime on both weekdays and weekends among preschoolers who did not adhere to screen time guidelines, used smartphones/tablets as primary devices, and engaged with electronic devices before sleep ($p < 0.05$). Total sleep duration showed no significant association with device use or pre-bedtime activities. **Conclusion:** This study highlights that preschoolers' sleep can be influenced by various factors in their daily routines, emphasising the importance of promoting appropriate screen use and consistent bedtime practices to support healthy sleep.

PX-2026 Exploring gender-specific predictors of vitamin D deficiency in subfertility

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Introduction: Subfertility, affecting up to 15% of reproductive-aged couples in Malaysia, is influenced by multiple modifiable lifestyle factors, including nutrition and micronutrient status. Vitamin D deficiency, increasingly recognised as a concern in fertility care, may be shaped by gender-specific eating patterns. This study aimed to examine the role of evening eating behaviour and gender in relation to vitamin D status among subfertile individuals. **Methods:** A cross-sectional study was conducted among 140 subfertile patients attending fertility clinics in two hospitals in Selangor, Malaysia. Data were collected using self-administered questionnaires, including a food frequency questionnaire and the Chrononutrition Profile Questionnaire (CPQ). Serum 25-hydroxyvitamin D [25(OH)D] levels were assessed through venous blood sampling. Participants were categorised as vitamin D deficient based on local clinical cut-offs. Binary logistic regression was used to identify predictors of deficiency. **Results:** Vitamin D deficiency was observed in 76.7% of female participants, significantly higher than in males ($p < 0.001$). Evening eating behaviour, characterised by high energy intake post-8pm, was significantly associated with vitamin D deficiency (adjusted odds ratio [AOR] 10.553, $p < 0.05$). Female gender remained a strong independent predictor (AOR 5.186, $p < 0.001$), after adjusting for dietary and lifestyle factors. **Conclusion:** Evening eating habits and female gender appear to be significant predictors of vitamin D deficiency in subfertile patients. These findings underscore the importance of gender-sensitive dietary counselling and meal timing strategies in fertility nutrition care.

PX-2027 Bone mass, bone turnover markers and muscle-bone unit of Malaysian preadolescent children

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Introduction: Establishing normative values for bone mass, bone turnover markers (BTMs) and the muscle-bone unit (MBU) in healthy Malaysian children is essential for accurate skeletal health assessment. This cross-sectional study aimed to characterise bone mineral density (BMD), bone mineral content (BMC), BTMs and MBU in 243 healthy Malaysian preadolescents aged 9 to 11 years, as part of the baseline data for the PREBONE-Kids Study. **Methods:** Total body BMD (TBBMD), total body BMC (TBBMC) and body composition were assessed using dual-energy X-ray absorptiometry (DXA). MBU was calculated by dividing BMC by lean body mass (LBM). Serum CTX1, P1NP, BAP and osteocalcin (OC) along with intact parathyroid hormone (iPTH) were analysed. **Results:** Based on Asian reference standards, 97.5% of participants had a normal bone mass for age (TBBMD Z-scores > -1 SD); 2.5% were identified as at risk for low BMD and none had BMD below -2 SD. Despite having higher body weights, participants had lower TBBMD than those reported in other Asian datasets. While there was no significant sex-based difference in total body MBU, girls exhibited slightly higher MBU in arm, leg, and android regions. Boys had significantly higher LBM (22.50 ± 5.40 kg) compared to girls (21.00 ± 5.07 kg, $p = 0.026$). BTMs also varied by sex, with boys showing significantly lower levels of OC, P1NP, and iPTH than girls. **Conclusion:** This study provides valuable population-based reference data on bone mass, BTMs, and MBU in healthy Malaysian preadolescents, supporting more accurate skeletal assessment in this population.

U-2004 Relationship between parent and peer influence, digital addiction and body image among UCSI University students

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Introduction: Body image affects the mental and physical well-being of young adults. Among university students, body image dissatisfaction is an increasing concern, influenced by social factors and digital devices usage. This study examines the relationship between digital addiction, parent and peer influence and body image among UCSI University students. **Methods:** A cross-sectional study was conducted using a self-administered online questionnaire comprising the Multidimensional Body–Self Relations Questionnaire - Appearance Scales (MBSRQ-AS), Parent and Peer Influence Scale and Digital Addiction Scale. Descriptive statistics, Spearman's correlation and multiple linear regression were used for data analysis. **Results:** 180 students were recruited. The mean age was 21.26 ± 1.53 years and majority were female (61.1%) and Chinese (87.8%). Students reported high level of digital addiction (60.80 ± 13.22) and had slightly stronger peer influence than parental influence (63.64 ± 11.48). The MBSRQ-AS subscale scores reflected a neutral to slightly positive body image with moderate concern about weight and appearance. Correlation analyses showed that digital addiction and peer influence were significantly correlated with body image dimensions ($p < 0.05$). Regression analysis showed that peer influence ($\beta = 0.267$, $p < 0.001$), digital addiction ($\beta = 0.147$, $p = 0.045$) and female gender ($\beta = 0.177$, $p = 0.012$) significantly predicted appearance orientation. Overweight preoccupation was predicted by peer influence ($\beta = 0.251$, $p = 0.001$) and female gender ($\beta = 0.236$, $p = 0.001$). Self-classified weight was predicted by digital addiction ($\beta = 0.165$, $p = 0.027$) and Chinese ethnicity ($\beta = 0.185$, $p = 0.011$). **Conclusion:** Digital addiction and peer influence impact body image of university students. Findings highlight the need to promote digital well-being and peer support to foster positive body image, which encourages healthier eating habits.

U-2008 A survey on availability, nutrition labelling and consumer awareness of tempeh-based snack products

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Introduction: Tempeh is a fermented soybean product, an excellent plant-based protein source. However, the short shelf-life of raw tempeh and being a traditional food has limited its appeal to the younger generations. To address this, this study surveyed the variety of tempeh-based snack products available in the market. A survey on customer's awareness and preferences on these products was also carried out. **Methods:** A cross-sectional approach which included market and consumer surveys were conducted. The market survey covered online platforms (Shopee, Lazada, Temu) and physical stores in Kuala Lumpur and Selangor. The survey on consumers was carried out with 179 respondents through online platforms. **Results:** A total of 98 tempeh-based snack products were identified and tempeh chips dominated the market (88.8%), with Shopee being the leading sales platform (65.3%). Majority (52%) of tempeh-based snack products did not have ingredients listed and 72.4% of the products did not have any nutritional labelling. Most of these products were sold at affordable prices (<RM 4.99). However, 58.1% of consumers felt information on tempeh snacks was limited. The most preferred characteristics of tempeh-based snacks were

dry and crispy texture, large size, spicy flavour and round in shape. Most (91.1%) were aware of tempeh's health benefits and 87.7% had tried tempeh snacks. **Conclusion:** Tempeh chips are the most popular products with Shopee being the leading platform for selling tempeh-based snacks. However, many of these products lack ingredient lists and nutritional labels on their packaging. Production of healthier and innovative products based on tempeh should be encouraged to promote tempeh as a local functional food.

U-2010 Healthy diet and active lifestyle module development for urban poor adult community in Klang Valley

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Introduction: Non-communicable diseases and malnutrition have emerged as major public health concerns in Malaysia urban areas. Poor eating habits and sedentary lifestyles, especially among low-income people, worsen these problems. This paper describes the development and validation of a healthy diet and active lifestyle module targeted at improving the nutritional status and physical activity levels of the urban poor adult communities in Klang Valley. **Methods:** This cross-sectional study was implemented in three phases: Phase I – development of the module based on literature review, Phase II – content and face validation of the module by 6 experts, and Phase III – face validation of the module by 46 target users (12 nutritionists (26%) and 34 community residents (74%)). A content validity index (CVI) was used to assess content validity, with a CVI greater than 0.79 deemed appropriate. Face validity was assessed based on the level of agreement. **Results:** The final module was developed based on Social Cognitive Theory and consists of 8 topics – 5 for healthy diet and 3 for active lifestyle. The module demonstrated good content validity (S-CVI/Ave = 0.99). Face validity attained a level of agreement greater than the required minimum to be valid (75%), indicating an excellent level of agreement among experts and target users. Expert recommendations were integrated into the final module to increase both its content quality and overall effectiveness. **Conclusion:** The developed module demonstrated good content and face validity, making it a reliable tool for nutritionists to increase nutritional and physical activity knowledge among urban poor community.

U-2011 The effects of fruit and vegetable intake on changes in oxidative stress and blood lactate levels among physically active Malaysian youths

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Introduction: Antioxidants reduce oxidative stress, but their role in blood lactate regulation during exercise remains unclear. The correlation between oxidative stress and blood lactate is also not well understood. This study used fruit and vegetable intake as a proxy for antioxidant consumption. **Methods:** Seventy-six physically active participants were recruited online. Fruit and vegetable intake was assessed using a self-administered food frequency questionnaire (FFQ), with intake frequencies converted to daily values. Participants completed a modified Wingate-inspired cycling protocol (3-minute warm-up, 30-second sprint, 2-minute cool down) while their heart rate was continuously monitored. Blood lactate was measured before and after exercise via finger-prick sampling. Saliva samples were collected pre- and post-exercise using the

spit method to assess oxidative stress using the DPPH radical scavenging assay, with Trolox as the standard and methanol as the solvent. **Results:** The response rate was 89.5%. Mean vegetable intake was 362.97 g/day, and median fruit intake was 150.91 g/day. Differences in intake were also observed across BMI and physical activity levels. A Wilcoxon Signed-Rank Test showed a significant increase in blood lactate after exercise ($p < 0.001$). However, oxidative stress levels could not be assessed due to negative DPPH values in saliva. No significant correlation was found between antioxidant intake and blood lactate changes. **Conclusion:** Most participants did not meet recommended fruit and vegetable intakes. Although exercise increased blood lactate, no correlation was observed with antioxidant intake. The short exercise duration may have limited the antioxidant response. Future studies should use more intense protocols and improved dietary assessment methods.

U-2016 Food safety knowledge, attitudes and practices of food handlers on food safety in Indian and Indian-Muslim food premises in Klang Valley

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Introduction: Foodborne illnesses are a significant public health issue in Malaysia, with over 13.5 million cases reported each year and many due to improper food handling practices. This study investigated the association between sociodemographic factors and food safety knowledge, attitudes, and practices (KAP) among food handlers at Indian and Indian-Muslim food premises in Klang Valley. **Methods:** A cross-sectional survey was conducted among 72 food handlers using convenient sampling. Data was collected through face-to-face interviews using structured questionnaires and an observational checklist. Descriptive statistics and Pearson or Spearman's correlation coefficient was used to test the associations between KAP and sociodemographic factors. **Results:** Sociodemographic factors, such as education level ($p < 0.001$) and participation in food handler training ($p < 0.001$), were significantly associated with better knowledge and practices. The correlation analysis revealed a significant association between knowledge and attitude ($p < 0.001$), stating that those with better knowledge have better attitudes towards food safety. The correlation based on the KAP and observation checklist showed a significant association between food safety knowledge and personal hygiene practices ($p = 0.027$), along with another significant association between food safety practices and personal unhygienic behaviour of food handlers ($p = 0.012$). These results highlight potential gaps between knowledge and practices. **Conclusion:** While respondents have strong knowledge and positive attitudes, these do not consistently translate into safe food handling practices. Observational data revealed gaps between reported and actual practices, which highlight the need for continuous training.

U-2024 Association of sociodemographic background, lifestyle and psychological factors with body mass index (BMI) among undergraduate students in Universiti Putra Malaysia, Serdang, Selangor

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Introduction: Young adulthood (ages 18 – 25 years) is a critical stage for establishing long-term health behaviours. The increasing prevalence of overweight and obesity among young adults is a growing public health concern, particularly in university settings. This study examined the associations between sociodemographic background, lifestyle factors, and psychological factors with BMI among undergraduate students at Universiti Putra Malaysia (UPM). **Methods:** A cross-sectional study was conducted among 287 students from undergraduate programmes. Data were collected through self-administered questionnaires and interviews, covering anthropometric measurements (weight, height, BMI), sociodemographic data (age, sex, ethnicity, family income, and monthly allowance), lifestyle factors (physical activity, sedentary behaviour, smoking status, dietary intake), and psychological factors (stress, depression, anxiety symptoms). Data were analysed using IBM SPSS Statistics Version 29 with a significance level set at $p < 0.05$. **Results:** Results showed that 26.5% of participants were overweight or obese and 11.9% were underweight. Age, sex, ethnicity, monthly allowance, dietary intake, physical activity, and smoking status for cigarettes and e-cigarettes were significantly associated with BMI status. **Conclusion:** These findings reflect the double burden of malnutrition among young adults, highlighting the coexistence of undernutrition and overnutrition. These findings also emphasize the need for targeted health awareness and intervention programmes to promote healthier lifestyles and prevent obesity-related health issues among university students. Addressing these risk factors is crucial in mitigating the increasing prevalence of overweight and obesity within this population.

U-2025 Factors associated with emotional eating among secondary school students in Hulu Langat, Selangor

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Introduction: Emotional eating is the tendency to eat in response to emotions rather than hunger. It often leads to unhealthy eating habits and weight issues. Adolescence is a crucial developmental stage characterised by rapid growth and psychological changes, where eating behaviours are formed and may persist into adulthood. This cross-sectional study aimed to determine the associations of personal, psychological and behavioural factors with emotional eating among secondary school students in Hulu Langat, Selangor. **Methods:** A total of 305 secondary school students aged 13 to 16 years participated in the study. They completed a self-administered questionnaire on socio-demographic background, emotional eating, weight stigma, body image perception, emotion regulation, sleep duration, chronotype, and dietary behaviours. Height and weight data were obtained from Ujian SEGAK records. **Results:** The prevalence of emotional eating was 50.5%. Emotional eating was significantly associated with gender ($x^2 = 15.80$, $p < 0.001$), weekly allowance ($x^2 = 0.168$, $p = 0.003$), weight stigma ($r = 0.449$, $p < 0.001$), body image perception ($r = 0.404$, $p < 0.001$), emotion regulation ($r = 0.173$, $p = 0.002$), chronotype ($x^2 = 9.32$, $p = 0.009$), snacking behaviour ($x^2 = 1.04$, $p = 0.049$), and BMI-for-age z-score ($x^2 = 3.49$, $p = 0.049$). However, age, ethnicity, sleep duration, meal skipping, and height-for-age z-score showed no significant association with emotional eating. **Conclusion:** Interventions to address emotional eating should target weight stigma, body image, emotion regulation, chronotype, snacking habits, and BMI.

U-2026 Factors associated with food bank use among students in Universiti Putra Malaysia

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Introduction: Food insecurity is common among university students, yet few studies explore factors influencing food bank use, particularly in Malaysia. Global findings vary on student awareness. If food-insecure students face barriers to accessing food banks, students may remain unsupported, causing continued food insecurity. This cross-sectional study aimed to determine factors associated with food bank use among university students in UPM. **Methods:** 484 unmarried foundation, undergraduate and postgraduate local UPM students from five randomly selected colleges completed physical or online questionnaires on sociodemographics, food insecurity, awareness, perception, barriers and food bank usage. **Results:** Findings revealed that more than half (59.1%) of respondents experienced food insecurity. Although 68.6% were aware of their college food bank and 66.1% held positive perceptions towards the food banks, key barriers included embarrassment, shame, and self-identity or the feeling that the food bank was not for them. Significant associations were found between food bank use and year of study, level of study, household income group, food security status, awareness of food banks, perception of food banks, and whether students experienced or perceived at least one barrier to using the food bank ($p < 0.05$). **Conclusion:** This study highlights the important role of food banks in addressing student food insecurity while also emphasising the need to tackle barriers that hinder the purpose of food banks. Improving awareness and reducing psychological barriers such as embarrassment and self-identity could enhance the effectiveness of food banks in supporting food insecure students in UPM.

U-2029 Factors associated with health-related quality of life (HRQoL) among postpartum mothers in Klang Valley, Malaysia

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Introduction: The postpartum period is a time when women experience significant physical, physiological, and social changes, which may affect their health-related quality of life (HRQoL). This study aimed to determine the factors associated with HRQoL among postpartum mothers in Klang Valley, Malaysia. **Methods:** A cross-sectional study was conducted among 224 postpartum mothers from three government health clinics in Klang Valley. A self-administered questionnaire was used to collect information on socio-demographic background, HRQoL, dietary diversity, confinement dietary practices, use of complementary and alternative medicine (CAM), breastfeeding difficulties, infant temperament, coping strategies, sense of mastery over maternal role, social support, and sleep quality. Pearson's correlation and independent t-tests were used to analyse the association. **Results:** The mean HRQoL score was moderate (70.33 ± 12.48), with the lowest scores reported in physical and psychological domains. HRQoL was negatively associated with breastfeeding difficulties, poor sleep quality, difficult infant temperament, and use of emotion-focused and avoidant coping strategies ($p < 0.001$). Positive associations were observed between HRQoL and sense of mastery over maternal role, partner, parent, parent-in-law, and other social support ($p < 0.001$). No significant associations were found between HRQoL with other factors. A significant difference in HRQoL was observed between CAM users and non-users,

with non-users reporting higher HRQoL scores (t = 2.66, p = 0.008). **Conclusion:** These findings highlight the need for holistic postpartum care that includes breastfeeding support, sleep management, strategies for coping and role adaptation, and strong social support systems to enhance the well-being of postpartum mothers.

U-2032 Factors associated with the diet quality among undergraduate students in the private universities in Selangor

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Introduction: With an increasing number of young adults facing dietary-related health issues, it is crucial to understand the socio-demographic, psychological, food insecurity and nutritional factors that influence their diet. This cross-sectional study aimed to determine the diet quality and the factors influencing it among undergraduate students in private universities in Selangor, Malaysia. **Methods:** A total of 330 undergraduate students with a mean age of 21.04 ± 1.71 years completed a self-administered questionnaire on sociodemographic background, diet quality, stress, depression, anxiety, food insecurity, nutrition knowledge and dietary habits. Height and weight were measured to obtain the body mass index of participants. **Results:** The diet quality score was 9.40 ± 2.36, which is slightly below the ideal score of 10 as indicated by the Global Diet Quality Project. Ethnicity, stress (r = –0.113, p = 0.040), anxiety (r = –0.123, p = 0.026), frequency of breakfast (r = 0.188, p < 0.001), lunch (r = 0.147, p = 0.008), and afternoon tea consumption (r = 0.111, p = 0.044), and dining out at fast-food restaurant (r = –0.130, p = 0.018), and fast-food consumption (r = –0.123, p = 0.025) were found to have significant associations with diet quality in this study. **Conclusion:** These findings highlight the crucial role university authorities play in promoting healthy eating by ensuring that food options on campus are easily accessible and prioritise nutritious choices, alongside supporting mental health programs.

U-2034 Factors associated with nutrition knowledge during pregnancy among antenatal mothers in Hospital Sultan Abdul Aziz Shah (HSAAS), Selangor

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Introduction: Pregnancy is one of the most critical events in every woman's life. Maternal nutrition is essential for mothers and babies because it is required for an ideal pregnancy outcome. Therefore, nutrition knowledge during pregnancy is important to ensure that pregnant women obtain essential nutrition and maintain good health. **Methods:** This cross-sectional study aimed to determine the factors associated with nutrition knowledge during pregnancy among antenatal mothers in Hospital Sultan Abdul Aziz Shah (HSAAS), Selangor. 148 antenatal mothers who had antenatal check-ups in the Obstetrics and Gynaecology clinic HSAAS were selected based on the inclusion and exclusion criteria. The sampling method used was purposive sampling. Data collection was carried out through the self-administered questionnaire. The information collected includes sociodemographic background, obstetrics data, and nutritional information. The pre-pregnancy weight, height, and gestational weight were collected using the Pink Book. **Results:** The majority of participants (67.6%) had good nutrition knowledge during pregnancy. Most of the participants were Malay (93.6%), had a tertiary education level (95.9%), were employed (89.9%), and were from the B40 income group (52.7%). None of the independent variables were significantly associated with nutrition knowledge during pregnancy (p>0.05). **Conclusion:** High pre-pregnancy BMI (overweight and obese) and excessive gestational weight

gain, which do not follow the recommended guidelines, were reported in this study. Therefore, it is important to address this issue in the future to ensure that antenatal mothers have a normal pre-pregnancy BMI and gain weight within the recommended range.

U-2035 Development and assessment of the understandability and actionability of cancer prevention recommendations through electronic flipbooks for Malaysian young adults

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Introduction: Despite the increasing incidence of cancer, Malaysian young adults showed low awareness and knowledge towards cancer risk factors. This study aimed to develop and assess understandability and actionability of cancer prevention electronic flipbook among young adults aged 18 to 25 years in Selangor and Kuala Lumpur. **Methods:** A 44-page cancer prevention electronic flipbook was developed based on WCRF/AICR Cancer Prevention Recommendations. Readability was assessed using Khadijah Rohani's Readability Formula, and content validation was done using Suitability Assessment of Materials (SAM) tool among experts (n=8) in nutrition, oncology, and psychology. The Malay version of the Patient Education Materials Assessment Tool for Printable Materials, PEMAT-P(M), was used to assess understandability and actionability among young adults (n=111). **Results:** An electronic flipbook, "Preventing Cancer with a Healthy Lifestyle – Diet, Nutritional Status, Physical Activity" in Malay language, was developed. It received a superior rating with an average SAM score of 92.2%, and readability was at a fifth-grade level. Average scores for understandability (96.6%) and actionability (98.7%) indicated electronic flipbook was both understandable and actionable. Sociodemographic factors, such as ethnicity (p=0.032) and household income (p=0.031), showed significant differences in understandability. The understandability was higher among Malays compared to Chinese and those from M40 households compared to T20 households. For actionability, ethnicity showed significant differences (p=0.035). The actionability was higher among Malays compared to Chinese. **Conclusion:** The developed electronic flipbook has demonstrated high understandability and actionability among young adults. It can be used for online learning and adapted into videos or animations, engaging young adults in cancer prevention.

U-2039 What foods are Malaysian influencers promoting and what are the marketing strategies used to promote these products? A case study on 'food and cooking' influencers on Instagram

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Introduction: Obesity is a global health challenge, driven by unhealthy lifestyles and food environments. Social media further intensifies this issue, as influencers often promote high-fat,

salt, and sugar (HFSS) food to broad audiences. This study analysed types of food and beverages (F&B), and marketing strategies used by Malaysian influencers on Instagram. **Methods:** 20 influencers were selected via HypeAuditor.com. Inclusion criteria included having ≥100,000 followers and F&B contents in Malay or English. Data were collected from April to September 2024. Products were classified as 'permitted' or 'not permitted' using WHO Nutrient Profile Model (NPM) for the Western Pacific Region. F&B products and strategies were categorised by product status, marketing context, description, presentation, and techniques based on previous studies. **Results:** 2220 F&B products were recorded; 60.9% were not permitted based on NPM criteria. Most promoted items: 'ready-made and convenience foods and composite dishes' (14.8%), followed by 'sauces, dips, and dressing' (10.6%) and 'wine, alcohol, beer, or whiskey' (10.2%). Indirect marketing (44.1%) was the most used technique based on descriptive analysis. A significant relationship was found between these marketing strategies used by influencers (positive messages (69%), avoided showing consumption (80.7%), and preferred 'event-based contexts' (38.4%)) in promoting non-permitted foods ($p<0.05$). **Conclusion:** Most F&B promoted by influencers were unhealthy and marketed using appealing strategies. Given influencer marketing's potential to influence purchasing decisions, there is a risk of followers adopting unhealthy diets. Stricter regulations and increased awareness are needed to protect vulnerable groups, especially children and adolescents, from unhealthy food marketing on Instagram.

U-2040 Association of online food delivery platform usage with diet quality and anthropometric parameters among university students in Kota Kinabalu, Sabah

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Introduction: Online food delivery (OFD) service is gaining popularity among university students. However, concerns have been raised about the nutritional quality of food and beverages available on the OFD platform, which may negatively impact overall diet quality and contribute to unhealthy weight gain. This study aimed to examine the relationship of OFD usage with diet quality and anthropometric parameters among university students. **Methods:** This cross-sectional study included students aged 18 to 25 from four universities in Kota Kinabalu via convenience sampling. OFD usage was assessed using a self-administered questionnaire and the Global Dietary Recommendation scoring was used to determine the diet quality. A bioelectrical impedance analyser was used to assess body composition. **Results:** A total of 420 participants with a mean age of 21.0 ±1.79 years completed the study. Most of them were female (60.2%), living in university hostels (38.8%), had used OFD platforms at least once in the past three months (64.3%), and had a poor diet quality (58.6%). Asian food (60.5%) and fast food (53.1%) were the most ordered items on OFD platforms. Factors associated with OFD usage included being female (OR=0.50; 95% CI: 0.32–0.78; p=0.002), Chinese (OR=2.47; 95% CI: 1.06–5.74; p=0.036), and studying at private universities (OR=0.37; 95% CI: 0.21–0.68; p=0.001). There was no significant association between OFD use with diet quality and body fat mass. **Conclusion:** OFD usage was not associated with diet quality or body fat mass, but overall poor diet quality among university students highlights the need for nutrition interventions.

U-2045 Development of a doping risk classification database for sport supplements available in the Malaysian market

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Introduction: Doping in sports refers to the use of banned substances or methods to enhance performance, which can negatively affect an athlete's health. Taking sports supplements can inadvertently lead to a positive doping test. While many athletes use supplements, they often lack knowledge and rely on poor sources of information for supplement choices. This study aims to develop a sports supplement database with doping risk classification to guide athletes on the safe choice of supplements. **Methods:** A supplement label survey was conducted across seven pharmacies and supplement premises around Kuala Lumpur and Selangor. A total of 801 supplement label data were collected using total sampling method. All collected data were recorded and analysed using Microsoft Excel and IBM SPSS Statistics. **Results:** Most of the supplements are medical supplements (88.3%, n=707), followed by sports food (6.5%, n=52) and ergogenic aids (5.2%, n=42). None of the supplements contained banned substances listed in WADA's 2024 Prohibited List. The supplements were also grouped using the Australian Institute of Sports (AIS) Sport Supplement Framework 2021, with Group A supplements being those supported for use (41.6%, n=333), Group B supplements comprising of those with emerging evidence (23.2%, n=186), Group C supplements being those that lacked sufficient evidence for use (33.6%, n=269) and Group D supplements comprising of those that are banned or at high risk of causing positive doping result (1.6%, n=13). Based on labelling, the study also ranked supplements into three doping risk levels: low (4.7%, n=38), moderate (77.2%, n=618), and high (18.1%, n=145). **Conclusion:** A database comprising 801 supplements with doping risk classifications was developed. This resource can be continuously updated and used as a reference by researchers, policymakers and the industry to support safer and more informed supplement use.

U-2048 Likes, shares and 'calories': User engagement and marketing strategies used by food and beverage brands in Malaysia

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Introduction: Intense food marketing has been identified as one of the contributing factors to the rising prevalence of obesity in Malaysia. With a growing reliance on social media, food companies increasingly leverage these platforms to promote their products and brands to consumers. This study aimed to analyse the marketing content of food and beverage brand accounts on Instagram in Malaysia. **Methods:** A total of 25 brands from top five food and beverage categories were identified by market share via Euromonitor International. Brand account fulfilling inclusion criteria such as having a verified (blue tick) Malaysian account and active in the past 12 months were selected. Data collection was done from April to September 2025. All brands' post engagement levels and marketing strategies were analysed using SPSS version 29.0. **Results:** A total of 11 brands were chosen and 1532 posts were analysed. Starbucks' account had the

highest number of followers (n=707000) and recorded the highest median [IQR] values for likes (554[801]) and shares (43[264]), while McDonald's account posted the most (n=429). Mamee's account recorded the highest median value for comments (4[23]) and KitKat account had the highest median for views (2356[3839]). Kruskal-Wallis testing indicated significant ($p<0.001$) interaction levels across all brand accounts in terms of likes, comments, views and shares. Branding was the most used strategy (97%), identified in posts featuring brand logos, colours, trademarks or slogans, and Instagram posts utilizing celebrity or influencer strategy yielded higher median [IQR] value for likes (219[605]), comments (1[11]), views (3623[82250]) and shares (20[161]) compared to post without such strategy ($p<0.05$). **Conclusion:** This study highlighted active user engagement and strategic use of marketing strategies by unhealthy food and beverage brands on Instagram. Given the rising obesity rates, regulatory control of the advertising of unhealthy food and beverage products on social media platforms is called for in Malaysia.

Group C: Clinical Nutrition / Intervention Trials

P-1009 Effect of nutrition and physical activity on postpartum depression and psychosocial well-being among mothers with preterm infants: a pilot randomised controlled trial

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Introduction: Mothers of preterm infants are at heightened risk of postpartum depression and reduced psychosocial well-being. Lifestyle interventions involving nutrition and physical activity may offer supportive benefits during the postpartum period. **Methods:** A pilot randomised controlled trial was carried out involving 32 postpartum mothers of preterm infants admitted to Neonatal Intensive Care Units (NICUs) in government hospitals in Selangor, Malaysia. Participants were randomly allocated to either an intervention group (n=16) or a control group (n=16). The intervention group participated in an 8-week programme that provided guidance on nutrition and physical activity tailored for postpartum mothers. Postpartum depression and psychosocial well-being were assessed using the Edinburgh Postnatal Depression Scale (EPDS) and the Positive Affect Balance Scale (PABS), respectively. Repeated measures ANOVA was used to assess time, group, and interaction effects. **Results:** In the intention-to-treat analysis, EPDS scores showed a significant time effect ($p=0.014$, $\eta p2= 0.138$), with a greater reduction in depressive symptoms in the intervention group. No significant group or interaction effects were observed. PABS scores showed positive trends in the intervention group but were not statistically significant across time, group, or interaction effects. **Conclusion:** An 8-week nutrition and physical activity intervention may reduce symptoms of postpartum depression in mothers with preterm infants. While improvements in psychosocial well-being were observed, they were not statistically significant. These findings support the feasibility of the intervention and indicate the need for larger trials to confirm its effectiveness.

P-1014 Nutrition education module development: a sugar-sweetened beverage approach for diabetes prevention

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Introduction: The high prevalence of diabetes in Malaysia is largely driven by unhealthy dietary habits, particularly the excessive intake of sugar-sweetened beverages (SSBs). Malaysian adults are at particularly high risk of developing type 2 diabetes mellitus. However, the condition can potentially be prevented or delayed through targeted health education. To address this, a structured educational module was developed to improve knowledge, attitudes, and practices (KAP) related to SSB consumption and diabetes prevention. **Methods:** This digital health intervention, named "MyDRINK," was designed based on current scientific literature, national dietary guidelines, and the constructs of the Health Belief Model (HBM). While the overall module addresses five core topics, special emphasis is placed on the impact of SSB consumption on blood glucose regulation and diabetes risk. **Results:** A total of five modules were developed: (1) Overview of diabetes mellitus, including causes, symptoms, and complications; (2) Prevention through healthy weight, diet and lifestyle; (3) Understanding nutrition information panels for better beverage choices; (4) How to identify sugar-sweetened beverages and alternative sugar names; and (5) The role of physical activity in blood glucose management. Each module integrates infographics and educational videos designed to be visually engaging and easy to understand. **Conclusion:** This HBM-based module focuses on reducing SSB intake, aims to raise awareness and encourage healthier beverage choices among healthy Malaysian adults. The next steps include expert review and pilot implementation to evaluate its effectiveness in improving diabetes-related KAP and promoting preventive behaviours.

P-1017 A genetic approach to examine the relationship between vitamin D metabolism related genes and obesity in Middle Eastern populations: a literature review

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Introduction: Vitamin D deficiency and obesity are widespread in the Middle East and frequently co-occur, heightening metabolic and inflammatory-disease risk. Several groups have turned to genetics to clarify the link because classical observational studies are confounded. This review therefore assesses associations between vitamin-D-related single-nucleotide polymorphisms (SNPs) and obesity in Middle Eastern adults. **Methods:** A PRISMA-2020 search of PubMed, Scopus and Web of Science yielded 311 records; 198 remained after deduplication and 10 met inclusion criteria. Studies that were conducted in Saudi Arabia (3), the United Arab Emirates (3), Egypt (2), Iran (1), Jordan (1) and Bahrain (1) were selected for the review. **Results:** VDR FokI SNP (rs2228570) showed consistent association with higher BMI and obesity risk in cohorts from Egypt, Jordan and Saudi Arabia. VDR ApaI SNP (rs7975232) was associated with increased obesity risk in studies from Jordan, Iran and Saudi Arabia. Evidence for BsmI (rs1544410) and TaqI (rs731236) were mixed: two Saudi/UAE studies reported significant associations, whereas three UAE/Egypt studies failed to find significant findings. A Bahraini study identified association of GC SNPs (rs7041, rs4588) with increased BMI, particularly among women. There were no studies from Qatar, Kuwait, Oman, Lebanon and Iraq, underscoring notable regional gaps. **Conclusion:** Among Middle Eastern populations, FokI and ApaI polymorphisms have shown consistent associations with obesity, while findings for BsmI and TaqI remain

inconclusive. The limited geographic spread and modest number of studies highlight the need for larger, well-designed genetic investigations across under-represented Middle Eastern countries to refine understanding of gene–obesity relationship and support precision-health strategies in the region.

U-1003 Association between dietary intake and anthropometric indicators among paediatric cancer patients at Tunku Azizah Hospital, Kuala Lumpur

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Introduction: Paediatric cancer patients often face nutritional challenges due to treatment-related side effects, such as nausea, appetite loss, and altered taste perception, leading to malnutrition. This study aimed to assess dietary intake and its association with anthropometric indicators among newly diagnosed paediatric cancer patients. **Methods:** A cross-sectional study was conducted with 55 patients aged 2 to 15.9 years at Tunku Azizah Hospital, Kuala Lumpur, comprising 34 with haematologic cancers and 21 with solid tumours. Sociodemographic information and anthropometric measurements, including weight, height, body circumference, and skinfold thickness, were collected. Dietary intake was assessed using a 3-day diet record and analysed with Nutritionist Pro software, which utilises the Malaysian Food Composition and USDA databases, and the results were compared with Malaysian Recommended Nutrient Intake (RNI 2017). **Results:** Patients with haematologic cancers had significantly higher intakes of energy (1389 ± 689 kcal), carbohydrates (186.5 ± 108.5 g), protein (56.0 ± 30.7 g), fat 39.1 (25.6) g, vitamin A (578.6 ± 328.3 µg), and calcium (561.1 ± 290.6 mg) compared to those with solid tumours ($p < 0.05$). Vitamin D and calcium intakes were below recommended levels, with average intakes of 3.4 ± 3.8 µg and 499.2 ± 291.7 mg, respectively. Low intakes of both nutrients were associated with lower height-for-age (HAZ) and BMI-for-age (BAZ) Z-scores. Positive correlations were found between vitamin D and HAZ, and calcium intake and BAZ. **Conclusion:** These findings indicate that dietary intake was significantly associated with anthropometric indicators in paediatric cancer patients, highlighting the need for regular nutritional assessment and individualised dietary support in paediatric oncology care.

U-1009 Complementary and alternative medicine usage and its association with health information seeking behaviour and health literacy among adults with chronic kidney disease

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Introduction: Complementary and alternative medicine (CAM) is widely used among individuals with chronic kidney disease (CKD). However, the relationship between CAM usage, health information-seeking behaviour (HISB) and health literacy (HL) among CKD population remains unexplored. This study aimed to examine the CAM usage and its associations with HISB and HL level among adults with CKD. **Methods:** A cross-sectional study was conducted at a nephrology clinic and five dialysis centres in Kota Kinabalu, Sabah from May to October 2024, involving patients with pre-dialysis CKD and receiving haemodialysis. An interviewer-administered questionnaire was used to collect data on CAM usage, HISB, and HL. **Results:** Out of 420 patients, 32.6% reported CAM usage, with nutritional approaches (78.4%) being the most reported. Family members (43.8%) and internet sources (41.6%) were the primary sources of CAM information, while pharmacies (61.3%) and retail stores or markets (58.4%) were the predominant suppliers. CAM usage was higher among Chinese (OR: 3.95, 95%CI: 1.56–10.00, p=0.004), those with higher income (RM2001 to RM3000: OR: 2.67, 95%CI: 1.07–16.64, p=0.035; >RM3000: OR: 3.30, 95%CI: 1.31–8.32, p=0.012), and obese population (OR: 2.10, 95%CI: 1.06–4.16, p=0.035). Individuals obtaining CKD information from pharmacies or retail stores (OR: 4.89, 95%CI: 1.13–20.90, p=0.033) or those who expressed a greater interest in alternative treatments (OR: 2.31, 95%CI: 1.30–4.11, p=0.005) were more likely to use CAM. **Conclusion:** CAM usage was associated with sociodemographic factors and HISB patterns, but not HL. Healthcare providers should employ effective communication to mitigate potential harm of CAM.

PX-2018 The use of sacha inchi oil cured severe allergies and prevented autoimmune attacks

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Introduction: Sacha inchi oil is a plant oil extracted from the seeds of *Plukenetia volubilis*. It has high contents of both the top omega-3 and omega-6 essential fatty acids. This paper reports the excellent effects of sacha inchi oil in treating chronic allergies caused by low-quality cooking oil. **Methods:** This is a case study mainly involving a male aged 56 years who suffered from chronic food allergy for six months. Manifestation of allergic symptoms began as small weals and mild rashes, then progressed to a variation of atopic dermatitis or systemic eczema including urticaria, finally aggravated to angioedema and onset of asthma. Diet elimination and medication including anti-histamines failed to terminate the inflammatory and allergic conditions, which have been ascribed to autoimmune attacks. By about six months, trial treatment with daily consumption of 3-6 ml sacha inchi oil was attempted. **Results:** Oral consumption of sacha inchi oil has alleviated the severe allergy symptoms within three days, and all dermatitis symptoms ceased within two weeks. In follow-up monitoring, an improved formulation and skincare product composed of mainly sacha inchi oil have been developed and found to have effectively prevented recurrence of the chronic allergy for more than six years. **Conclusion:** Sacha inchi oil containing a greater proportion of alpha-linolenic acid than linoleic acid, with an approximate ratio of 1.3:1, provides the essential omega-3 and omega-6 nutrients for good health, it can be used as a folk remedy to cure chronic inflammatory dermatitis and severe allergy.

PX-2028 Red palm olein supplementation enhances antioxidant status and reduces oxidized LDL in centrally obese adults: a randomized controlled trial

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Introduction: Red palm olein, rich in antioxidants especially tocotrienols and carotenoids, may offer cardiovascular benefits by modulating inflammation, endothelial function, and lipid profiles. This study evaluated its effects in abdominally obese adults at elevated cardiovascular risk. **Methods:** In a randomized crossover trial, 53 free-living, centrally obese participants consumed a supervised isocaloric 2100 kcal diet (30% energy from fat) with two-thirds of fat (45 g/day) from either red palm olein or palm olein (control) for 6 weeks each. We assessed pro-inflammatory markers (IL-6, TNF-β, IL-1β, hsCRP), endothelial function markers (sICAM, sVCAM), oxidized LDL, lipid profile, and plasma antioxidant levels. **Results:** Red palm olein significantly increased plasma alpha-tocopherol ($P < 0.0002$), alpha-carotene ($P < 0.0001$), and beta-carotene ($P < 0.0001$) and reduced oxidized LDL ($P < 0.0386$) compared to palm olein. However, no significant changes were observed for inflammatory cytokines, endothelial function and lipid profile. **Conclusion:** Red palm olein did not improve subclinical inflammation and endothelial function despite profound increase in antioxidant levels. The positive improvement in oxidised LDL merits further attention in this group of subjects at risk of developing cardiovascular disease.

PX-2032 Insights from gut microbiota profiles in Malaysian adults with type-2 diabetes: implications for dietary interventions

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Introduction: The gut microbiota plays an important role in metabolic health, yet its composition among Malaysians with type 2 diabetes mellitus (T2DM) remains underexplored. Understanding microbial alterations in T2DM may offer valuable context for planning dietary interventions. In this presentation, we aim to share gut microbiota-related observations from a Malaysian T2DM study and highlight points that may be considered in future dietary interventions. **Methods:** Faecal samples from 45 T2DM patients and 45 non-diabetic controls (matched by Malay,

Chinese, and Indian ethnicity) were analysed via 16S rRNA sequencing. Dietary intake, clinical parameters, and gut microbial diversity and composition were compared. Multivariate analysis was conducted, adjusting for age, BMI, and macronutrient intake. **Results:** T2DM participants exhibited lower alpha diversity, increased pro-inflammatory bacteria (Proteobacteria, Escherichia–Shigella and Klebsiella), and reduced short-chain fatty acid (SCFA)-producers (Anaerostipes and Romboutsia). These microbial shifts correlated with higher BMI, fasting plasma glucose, and triglyceride levels. Notably, dietary fibre and protein intake were significantly lower in T2DM patients. While several bacterial taxa differed significantly between groups, their variable prevalence across individuals suggests that functional profiling may enhance taxonomic markers in guiding personalised dietary interventions. **Conclusion:** Gut microbiota differences in Malaysian T2DM patients highlight key considerations for dietary interventions: the need to address fibre deficiencies, promote SCFA-producing bacteria, and account for individual variation and confounders such as age, BMI, and medication use. Functional outcomes, alongside taxonomic analysis, may offer more promising targets for intervention success.

Group D: Nutrients & Other Components in Foods / Products

P-1013 Formulation and preliminary evaluation of a Dabai-based functional food bar for stunted children aged 4 – 6 years

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Introduction: Ready-to-eat food bars offer a practical solution for preschool-aged children (4 – 6 years) who often face reduced dietary supervision and food quality. This study aimed to develop a novel Dabai-based food bar using locally sourced ingredients as an alternative to oral nutrition supplements to complement preschool children's daily diet. **Methods:** In collaboration with Sarawak Fruit Enterprise, the food bar was formulated to provide at least 25% of the daily energy requirement and 24g of protein per 1000 kcal, following guidelines from the Institute of Medicine (IOM), World Health Organization (WHO), Malaysia's Recommended Nutrient Intake (RNI) 2017, and previous successful food-based interventions for stunted children. Nutritional composition and safety assessments were conducted using standard international protocols, including in-house, ISO, and FDA methods. Pesticide residues (51 compounds) were analysed by an accredited laboratory. **Results:** Each 100g food bar provided 363 kcal, 6.7g protein, 11.8g total fat, 57.4g carbohydrate, 27.2g total sugar (8.4g fructose, 7.9g glucose, <0.01g maltose, 10.9g glucose), 78.4mg sodium, and 6.1g dietary fibre, qualifying it as a "source of protein" and "high in dietary fibre" under the Malaysian Food Regulations 1985. Microbiological analyses showed total coliforms, *E. coli*, and total plate counts below 10 CFU/g, yeast and mould counts below 100 CFU/g. Pathogen screening confirmed absence of *Salmonella spp.* and *Listeria monocytogenes*, with *Staphylococcus aureus* below 10 CFU/g. Pesticide residues were negligible. **Conclusion:** The Dabai-based food bar is a safe, nutritionally valuable product with strong potential as an intervention for stunted children. Future sensory and consumer evaluations are recommended to support pre-commercialization and home use.

P-1028 Breast milk microRNAs: potential relationships with breast milk hormones and infant outcomes

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Introduction: Bioactive compounds in human breast milk, including microRNAs (miRNAs) play crucial roles in various biological processes, potentially influencing infant growth, immune development, and behaviour. This study aimed to investigate the miRNAs levels in breast milk and their associations with breast milk hormones and infant characteristics. **Methods:** This longitudinal study utilized data and milk samples from the Mother-Offspring-Milk Study in Selangor, Malaysia. Mothers recorded infant behaviour at weeks 2 – 3 and 6 – 8 postnatally using a 3-day Infant Behaviour Diary. Infant anthropometry was measured from birth to 12 – 14 weeks, and body composition was estimated using a stable isotope method. Thirteen milk samples were collected during the first 2 to 4 months postpartum and stored at -80°C. Levels of growth-related miRNAs (miR-29a, miR-148a, and miR-152) were quantified using real-time PCR, while milk cortisol concentrations were measured using ELISA. Correlations between miRNAs, hormones, and infant characteristics were analysed, with $p < 0.05$ considered statistically significant and p-values between 0.05 and 0.1 reported as trends. **Results:** The miRNAs miR-29a, miR-148a, and miR-152 were present in all milk samples (1.11±0.12, 2.91±4.32, and 0.36±0.70 Log10 $2 - \Delta\Delta Ct$, respectively). Significant negative correlations were observed between miR-29a and hindmilk cortisol ($r = -0.604$, $p = 0.029$), and miR-152 and cortisol ($r = -0.650$, $p = 0.016$). MiR-148a and miR-152 were positively associated with ghrelin levels ($r = 0.846$, $p < 0.001$ and $r = 0.741$, $p = 0.004$, respectively). Trends were observed between miR-152 and infant distress, sleep duration, fat mass, and fat-free mass. **Conclusion:** The selected miRNAs were present in breast milk and significantly associated with infant growth, body composition, and breast milk hormones. Further research should explore the implications of miRNAs in breast milk for maternal and infant health, with a larger sample size needed.

P-1029 Unlabelled caffeine in ready-to-drink beverages: ergogenic implications for athletes

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Introduction: Caffeine is widely used as a performance-enhancing substance among athletes and individuals with active lifestyle, valued for its ergogenic effects during sports training, competition and recreational activities. However, the absence of caffeine labelling on ready-to-drink beverages may lead to its uncertain level of intake and consequently to its

excessive consumption and potential adverse effects. This study aimed to determine the caffeine content in unlabelled ready-to-drink (RTD) canned coffee and energy drinks commonly consumed by athletes and to compare those levels with the recommended serving limits set by the Indonesian Standard Agency (ISA) and the U.S. Food and Drug Administration (FDA). **Methods:** A descriptive, laboratory-based quantitative study was conducted. Using purposive sampling, 24 beverages (12 canned coffees and 12 energy drinks) were selected. Caffeine content was analysed using High-Performance Liquid Chromatography (HPLC). Mean caffeine levels were assessed using descriptive statistics and one-sample t-test. **Results:** Pokka© Real Brewed Premium Rich Coffee contained the highest caffeine level per serving (122.38 mg) while Wonda© Mocha Premium Coffee had the lowest (53.40 mg). The caffeine content in canned coffee drinks was significantly higher ($p<0.001$) than the ISA limit, though still below the FDA limit. Energy drinks showed significantly lower caffeine content compared to both standards ($p < 0.05$). **Conclusion:** HPLC analysis revealed considerable variability in caffeine content among unlabelled RTD beverages. Many canned coffee drinks exceeded ISA recommendation. These findings highlight the need for mandatory caffeine labelling to ensure safe ergogenic use. Future studies should investigate the performance impact of cumulative caffeine exposure from multiple unlabelled sources, especially in high-intensity training settings.

U-1010 Nutritional and physicochemical qualities of fibre-enriched keropok lekor incorporated with split gill mushroom, *Schizophyllum commune*

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Introduction: *Schizophyllum commune* is a local mushroom rich in dietary fibre, protein and minerals. Despite the benefits of dietary fibre, many individuals struggle to meet the recommended intake. This study aims to develop a fibre-enriched keropok lekor as a healthier snack option. The objective was to determine the nutritional and physicochemical qualities of keropok lekor incorporated with *S. commune*. **Methods:** A completely randomised design (CRD) with five formulations containing varying *S. commune* contents, i.e., 0% (F0), 5% (F1), 10% (F2), 15% (F3), 20% (F4), was used. Nutritional qualities (dietary fibre, proximate composition, mineral content, and caloric value) and physicochemical properties (colour, texture, pH, and water activity) were assessed. **Results:** F2, F3, and F4 had significantly higher dietary fibre than F0. F3 and F4 also showed different crude protein, crude fibre, and caloric values compared to F0. The carbohydrate, ash, crude fat and mineral content across all formulations were not significantly different. Darker and bluer hue was observed with increasing *S. commune* content. Texture analysis revealed that *S. commune* affected adhesiveness, gumminess and cohesiveness, indicating a limit to *S. commune* incorporation. The pH value was significantly affected by *S. commune* incorporation, but water activity remained unchanged. F3 had caloric values of 242.07±8.06 kcal/100g, which is higher than other studies on keropok lekor. **Conclusion:** F3 exhibited a significant increase in dietary fibre and protein without compromising textural qualities, offering a potential solution to improve fibre intake through traditional Malaysian snacks.

U-1013 Effects of hot water blanching temperature and time on ascorbic acid and total phenolic contents in dried star fruit (*Averrhoa carambola l.*)

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Introduction: Star fruit (*Averrhoa carambola L.*) is a tropical fruit in Malaysia known for its sweet-sour taste and unique star shape. However, its high moisture content leads to rapid spoilage, making drying a common preservation method. While hot water blanching is a widely used pretreatment in the food industry before drying, its impact on bioactive compounds of dried products remains debated. Therefore, this study aimed to investigate the effects of blanching temperature and time on ascorbic acid (AA) and total phenolic content (TPC) in dried star fruit. **Methods:** Ten dried star fruit samples were prepared: the control (unblanched), and samples blanched at 50°C, 70°C and 90°C for 1, 3, and 5 minutes. AA content of dried star fruits was analysed using high-performance liquid chromatography, while TPC was determined via the Fast Blue BB method. **Results:** Blanching at 90°C for 5 minutes significantly increased the AA (0.17±0.01 mg LAA/g extract) and TPC (30.42±2.01 mg GAE/g extract) in dried star fruits compared to the control (0.07±0.00 mg LAA/g extract and 2.07±0.18 mg GAE/g extract, respectively, $p < 0.05$). Conversely, blanching at 70°C for 3 minutes resulted in a significant reduction in AA (0.02±0.00 mg LAA/g extract, $p < 0.05$). A strong and positive correlation was observed between AA and TPC ($r = 0.916$, $p < 0.001$), while blanching temperature showed significant correlations with AA ($r = 0.490$, $p < 0.001$) and TPC ($r = 0.638$, $p < 0.001$). **Conclusion:** Blanching at 90°C for 5 minutes before drying can be an effective strategy for the food manufacturers to improve the nutritional quality of dried star fruits. Future studies should include sensory evaluation to allow the production of dried star fruits that are nutritious and appealing.

U-1025 Sensory evaluation and nutrient analysis of keropok lekor containing okara

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Introduction: *Keropok lekor* is a popular Malaysian snack with a low fibre content. Okara is a soy by-product from the production of soy milk and tofu, and is often discarded as food waste. However, okara is rich in nutrients, containing 55% fibre, 30% protein, 10% fat and other bioactive components. Reusing okara as an alternative ingredient in the production of *keropok lekor* can help to increase the nutritional content and reduce the environmental impact. This study aimed to evaluate the sensory and nutritional properties of okara-containing *keropok lekor*. **Methods:** The moisture content of okara was determined by air drying in an oven. Out of 16 formulations, 5 formulations, including the control, were selected for sensory evaluation: control, formulation 1 (2.7% okara), formulation 2 (5.4% okara), formulation 3 (6.7% okara) and formulation 4 (8.1% okara). The control and formulation 1 were selected for nutrient analysis.

Results: Moisture analysis revealed that okara had a moisture content of 84%, with oven drying at 80°C for 6 hours being the optimum drying method. Sensory evaluation revealed that formulation 1 received the highest sensory scores for aroma, colour and appearance and was within the acceptable range for all of these attributes, including overall acceptance. Formulation 1 showed no significant differences in colour, appearance, taste, texture and overall acceptability compared to the control. Nutritional analysis showed that the fibre content of formulation 1 was significantly higher compared to the control. **Conclusion:** *Keropok lekor*, which contains up to 2.7% okara, has acceptable sensory properties, suggesting that okara can be used in food development to increase fibre content.

U-1032 Analysis of proximate and fatty acid profile of dishes offered at nasi kandar restaurants in Kuala Lumpur

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Introduction: Nasi kandar, a popular Malaysian meal, is frequently consumed away from home and often associated with higher calorie and fat intake. This study was conducted to determine the proximate and fatty acid composition of 11 dishes from three nasi kandar restaurants in Kuala Lumpur. **Methods:** A preliminary survey using convenience sampling was conducted across 10 nasi kandar restaurants to identify popular dishes. Eleven dishes were then selected and obtained from three of these restaurants in Kuala Lumpur. Proximate analysis was conducted using the methods outlined in the Association of Official Analytical Chemists International Official Methods of Analysis (AOAC 1997), while the fatty acid profile was analysed using Gas Chromatography (GC-FID). **Results:** The analysis showed considerable variation in nutritional content across the dishes. The mackerel curry had the highest moisture content (77.25±0.03 g/100g), onion chicken recorded the highest total ash (3.44±0.14 g/100g) and monounsaturated fatty acid contents (5.33±0.05 g/100g), fried mackerel contained the highest crude protein (28.50±0.58 g/100g), saturated fatty acids (5.24±0.01 g/100g), and n-3 polyunsaturated fatty acids (0.50±0.00 g/100g), fried chicken had the highest crude fat (13.38±0.45 g/100g) and n-6 polyunsaturated fatty acid contents (1.49±0.03 g/100g), while honey chicken had the highest total carbohydrate content (23.85±0.49 g/100g). Notably, trans fatty acids were not detected in any of the food samples. Overall, the dishes offered in nasi kandar restaurants are predominantly high in fat, protein and saturated fatty acids. **Conclusion:** These findings highlight the dense nutritional profile of nasi kandar dishes, particularly their high fat and protein content, which may contribute to excess energy intake if consumed frequently. These findings also contribute valuable information about the nutritional composition of nasi kandar dishes, providing a critical update to the Malaysian Food Composition Database (MyFCD) for reference.

U-1042 Nutritional quality, labelling, and price disparities between private and branded packaged foods and beverages in Malaysia

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Introduction: Private label packaged foods and beverages (PLp) gain popularity as affordable alternatives to branded label products (BLp), but questions remain about their nutritional quality and labelling. This study aims to compare and correlate the nutrient contents and the presence of the Healthier Choice Logo (HCL) with the price of BLp and PLp in grocery stores in Malaysia. **Methods:** This study assessed 404 packaged food and beverage items in Lotus and 7-Eleven, which were further categorised into nine food groups. Nutrient contents (energy, carbohydrate, protein, fat, sugar, sodium), price per 100g, and presence of HCL were recorded using a food audit checklist. All data were analysed using SPSS. **Results:** HCL appeared on 11 BLp but was absent on all PLp. BLp showed significantly higher energy (instant coffee, p=0.049; noodles, p=0.013; snacks, p=0.012), fat (snacks, p=0.028), protein (noodles, p=0.008), sodium (non-dairy beverages, p=0.043; noodles, p=0.014), and price (milk, p=0.014; cereals, p=0.039; tuna, p=0.005, etc.), while PLp had higher sugar (non-dairy beverages, p=0.016; jam, p=0.015; snacks, p=0.003; tortilla and wrap, p=0.003; instant malted drink, p=0.030; grain-based products, p=0.020) and carbohydrates (jam, p=0.015; salad dressing, p=0.014). Positive correlations were found between price and energy, carbohydrate, protein, fat, and sodium in BLp (energy: r=0.592, p<0.001; carbohydrate: r=0.256, p<0.001; protein: r=0.273, p<0.001; fat: r=0.542, p<0.001; sodium: r=0.134, p=0.026). Similarly, in PLp, price was positively correlated to energy, carbohydrate, protein and fat (energy: r=0.564, p<0.001; carbohydrate: r=0.180, p=0.042; protein: r=0.215, p=0.015; fat: r=0.462, p<0.001). **Conclusion:** PLp offers affordability and better nutrient quality, yet there is a critical need for improved front-of-pack labelling standards to support informed, healthier consumer decisions.

U-1043 The nutritional composition, texture, colour, and sensory evaluation of chocolate bar formulated with brown seaweed (*Kappaphycus alvarezii*) using response surface methodology (RSM)

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Introduction: Consumers often perceive eating chocolate as unhealthy because most of the chocolates on the market are high in sugar and fat but very low in dietary fibre. The purpose of this study is to compare the chocolate bar formulated with brown seaweed (*K. alvarezii*) and salt in terms of its nutritional composition, texture, colour, and sensory evaluation using RSM. This study also used overripe banana powder (OBP) as an alternative natural sweetener. **Methods:** This study involves a control sample and 13 experimental samples according to Central Composited Design (CCD) of RSM. The optimized samples from CCD and control samples were analysed in terms of their nutritional composition, texture, and colour, then proceeded with the sensory evaluation that involved students from USMKK (n=30) using a 7-point hedonic scale. **Results:** Experiments 1 (seaweed 2%, salt 1%) and 9 (seaweed 2%, salt 0.5%), were the two

optimal formulations that aimed at minimizing the hardness and maximizing the crude fibre of the chocolate. The addition of 2% seaweed and 0.5% salt to the formulation increased the moisture (2.54%), protein (0.65%), fat (0.65%), and ash (2.30%), while the composition of fat (46.37%) and carbohydrate (46.64%) were slightly reduced. In the sensory evaluation, Experiment 9 showed the highest appearance, colour, aroma, and aftertaste compared to the control and Experiment 1. **Conclusion:** This study shows that the addition of 2% seaweed and 0.5% salt could be an effective way to produce fibre-enriched chocolate without jeopardizing the desirable sensory properties.

PX-2013 Fatty acid analysis in fish using gas chromatography with flame ionization (GC-FID): method validation

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Introduction: Gas chromatography with flame ionization detection (GC-FID) is commonly used for quantification of fatty acids in food, due to high sensitivity and precision. This study aimed to validate a fatty acid analysis method for fish samples by optimizing extraction parameters and assessing validation criteria. **Methods:** Crude fat was extracted from 4 g of freeze-dried fish using a Soxtec™ 2050 system. Different solvent types, extraction temperatures, and durations were tested for optimum extraction. C19 was used as an internal standard. Analysis performed using Trace 1300 GC-FID equipped with SP-2560 column (100 m × 0.25 mm × 0.20 µm). The oven programme was set at 100 °C (5 min), to 180 °C at 18 °C/min, to 210 °C at 4 °C/min (10 min), and to 250 °C at 20 °C/min (10 min). Total run time was 47.75 minutes. Helium as the carrier gas (1.65 mL/min). 1 µL injection at 20:1 split ratio. Method validation was conducted based on selectivity, linearity, detection limits, accuracy, and precision, following ICH guidelines. **Results:** Optimal fat extraction was achieved using petroleum benzine at 135 °C for 1 hour, yielding the highest fat content in the shortest duration ($p < 0.05$). The GC-FID method demonstrated good selectivity (resolution ≥ 1.0), linearity ($R^2 > 0.990$), high recovery rates (≥ 95%), and precision (RSD < 2%). **Conclusion:** The validated GC-FID method proved to be reliable, sensitive, and accurate for the quantification of fatty acids in fish samples. It is well-suited for routine FAME profiling in nutritional studies and food quality assessments.

PX-2034 Antioxidant and anti-inflammatory activity of green juices

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Introduction: Green juice, a nutrient-rich beverage, has gained popularity in the health and wellness community due to its purported health benefits. Despite its widespread consumption, scientific evidence supporting these claims remains limited. Therefore, this study aimed to evaluate the antioxidant and anti-inflammatory activities of selected green juice formulations. **Methods:** Four types of green juices were prepared: apple–celery juice, cucumber–lemon juice, apple–cucumber juice, and a blended juice comprising apple, celery, cucumber, lemon, and ginger. Antioxidant activity was assessed using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical

scavenging and ferric reducing antioxidant power (FRAP) assays. Anti-inflammatory activity was measured via the bovine serum albumin (BSA) denaturation assay. **Results:** The blended juice containing apple, celery, cucumber, lemon, and ginger exhibited the highest antioxidant and anti-inflammatory activity, with a DPPH scavenging ability of 77.1 ± 0.9%, FRAP value of 48.40 ± 8.95 mmol TE/mL, and protein denaturation inhibition of 54.3 ± 2.1%. Pearson correlation analysis revealed a strong positive correlation between antioxidant and anti-inflammatory activities, as shown by DPPH (r = 0.956) and FRAP (r = 0.877) results. These findings suggest that the observed anti-inflammatory activity is strongly associated with antioxidant capacity, likely attributed to a higher total phenolic content (TPC). **Conclusion:** The blended green juice of apple, celery, cucumber, lemon, and ginger demonstrated superior antioxidant and anti-inflammatory properties, supporting its potential health-promoting benefits.

U-2027 Postnatal breast milk cortisol: Temporal patterns and differences by infant birth characteristics

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Introduction: Breast milk contains cortisol, a stress-related hormone that may influence infant development. This study examined differences in infant characteristics and changes in breast milk cortisol levels over the postnatal period. **Methods:** This longitudinal observational study involved 64 mothers from Klang Valley, Malaysia. Breast milk samples were collected at Weeks 2 and 14 postpartum. Mothers completed questionnaires on birth and infant characteristics, and cortisol levels in the milk were quantified using ELISA assays. **Results:** Cortisol levels were significantly higher in foremilk than hindmilk at both Week 2 (foremilk: M = 0.215 µg/dL, SD = 0.204; hindmilk: M = 0.177 µg/dL, SD = 0.154; p = 0.040) and Week 14 (foremilk: M = 0.407 µg/dL, SD = 0.372; hindmilk: M = 0.231 µg/dL, SD = 0.158; p < 0.001). Foremilk cortisol increased significantly from Week 2 to Week 14 (p < 0.001), while hindmilk cortisol remained relatively stable (p = 0.013). At Week 14, mothers of female infants had significantly higher cortisol levels in breast milk than those of male infants (p < 0.05). At Week 2, mothers who had planned Caesarean deliveries showed higher cortisol in both foremilk (p < 0.001) and overall breast milk (p = 0.010) compared to those with vaginal births. Skin-to-skin contact was associated with lower foremilk cortisol at Week 2 (p = 0.016), while length of hospital stay had no significant effect (p > 0.05). **Conclusion:** In conclusion, breast milk cortisol is dynamic and influenced by both temporal changes and infant-related factors such as sex, delivery mode, and skin-to-skin contact. Foremilk consistently showed higher cortisol levels than hindmilk and increased significantly over time. These findings highlight the complex interplay of biological and caregiving factors that shape breast milk composition during early postpartum.

U-2028 Comparison of total phenolic content, total flavonoid content and antioxidant activities in seeds, skins and pulps of red and black grapes

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Introduction: Grape (*Vitis vinifera*) is a highly demanded fruit in Malaysia. However, most consumers only choose to eat the pulp without seed and skin as they have insufficient knowledge about the nutritional value of these parts. Hence, this study aimed to determine and compare the

antioxidant contents and antioxidant activities of seed, skin and pulp in red and black grapes. **Methods:** The extracts of seed, skin and pulp from Red Globe grapes and Kyoho grapes were analysed using the Folin–Ciocalteu method, Aluminium Chloride Colorimetric method, DPPH assay and FRAP assay. **Results:** Findings revealed that Red Globe seed had the highest result value in all assays. These results were significantly different compared to other sample part extracts ($p<0.001$). Results also indicated that the phenolic content and flavonoid content in grape sample parts were strongly and significantly correlated ($p<0.001$) with antioxidant activity in FRAP (TPC: $r=0.983$, TFC: $r=0.890$). Additionally, grape sample parts also showed a significant moderate correlation ($p<0.05$) between phenolic content and antioxidant activity in DPPH ($r=–0.608$). However, the flavonoid content in samples was not significantly correlated with antioxidant activity in DPPH. **Conclusion:** Each cultivar has significant differences in antioxidant content and antioxidant activity, with Red Globe seed showing the highest readings among all sample parts. This study explores the underestimated parts of grapes such as seed and skin that can be utilised as sustainable resources for developing functional foods, nutraceuticals, and natural preservatives.

U-2033 Effects of incorporation of dried *Ziziphus jujuba* on proximate composition, iron, zinc and vitamin C content in mushroom-based meat alternatives

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Introduction: Plant-based meat alternatives are gaining popularity globally, with mushroom-based products among the most accepted. However, concerns remain over nutritional adequacy of plant-based meat, particularly with deficiencies in essential micronutrients. *Ziziphus jujuba* (Chinese red dates), known for its high vitamin C, iron and zinc content, is a potential fortifying ingredient. **Methods:** This study investigated the effects of incorporating dried Ziziphus jujuba (0%, 10%, 20%, 30%) into mushroom-based meat patties. Proximate composition was analysed using AOAC methods, vitamin C content via high-performance liquid chromatography (HPLC), and mineral content through inductively coupled plasma optical emission spectroscopy (ICP-OES). One-way ANOVA was used to compare means. **Results:** Statistically significant differences ($p<0.001$) were observed across the samples in a dose-dependent manner, with increasing levels of *Ziziphus jujuba* affecting moisture, ash, carbohydrates, fat, protein, vitamin C, iron and zinc content. Dietary fibre content also showed a significant difference ($p=0.002$) with increasing concentrations of *Ziziphus jujuba* incorporation. Positive correlations were found between dried *Ziziphus jujuba* concentration with ash, carbohydrates, vitamin C, zinc, and iron content, while protein and fat showed strong negative correlations. Moisture and fibre exhibited moderate negative correlations. **Conclusion:** *Ziziphus jujuba* enhanced the micronutrient profile of mushroom patties, particularly vitamin C, iron and zinc, but reduced protein, fat, moisture, and fibre. The 10% formulation was the best balance, retaining higher protein content ($18.80 \pm 0.98\%$) while improving vitamin C (37.82 ± 3.50 mg/100g), zinc (0.04 ± 0.00 mg/L), and iron (0.56 ± 0.08 mg/L). These findings supported *Ziziphus jujuba* as a fortifying ingredient in developing nutritionally enriched meat alternatives to increase micronutrient intake.

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

P-1023 Effects of a low protein diet on growth, body composition and bone health in weaning male and female rats

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Introduction: Protein malnutrition during early growth is a critical determinant of musculoskeletal development. This study aimed to evaluate the impact of a low protein diet (LPD) on body composition, bone mineral density (BMD), and bone strength in weaning male and female Sprague-Dawley rats. **Methods:** Twenty-four weaning Sprague-Dawley rats (n = 6/sex/group) were randomly assigned to receive either a normal protein diet (NPD: 20% casein) or low protein diet (LPD: 6% casein) for 3 weeks. Body weight, body mass index (BMI), and energy intake were monitored weekly. At endpoint, organ weights, bone metrics, femur mechanical strength, and serum IGF-1 levels were analysed. Whole body and femur BMC, BMD, and body fat percentage were assessed using DXA scanning. **Results:** Rats fed LPD exhibited significantly lower body weight gain and energy intake compared to NPD in both sexes. BMI increased significantly only in the NPD group. Most organ weights were significantly lower in male LPD rats; selected muscle and bone parameters were also significantly lower in female LPD group. Post-intervention, whole body BMC and BMD were significantly lower in the LPD group across both sexes. Femur BMC, BMD, length, width, and mechanical strength were all compromised in LPD rats. Femur calcium content and serum IGF-1 levels were unaffected. **Conclusion:** Short-term protein malnutrition impairs overall growth and musculoskeletal development in weaning rats, with more pronounced effects in males. These findings reinforce the importance of adequate protein intake during early phases to support optimal bone and growth development.

U-1019 Anthocyanin extracts from Sabah Tadong black rice attenuate obesity-related metabolic markers in rats fed with high fat diet

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Introduction: Natural compounds are increasingly recognised for their potential in managing obesity and its associated metabolic disturbance with minimal side effects. Sabah Tadong black rice (TBR), rich in anthocyanin, has emerged as a promising dietary intervention. This study investigates the efficacy of anthocyanin extract from TBR in modulating key metabolic markers in rats fed a high-fat diet (HFD). **Methods:** Twenty male Sprague-Dawley rats were randomly divided into four groups (n=5): the normal group (NG) was fed a standard diet; the positive control group

(PG) was fed HFD without treatment; the anthocyanin group (AG) was fed HFD with TBR anthocyanin extract (5.16 mg/kg body weight); and the orlistat group (OG) fed HFD with orlistat (10 mg/kg body weight). After 28 days, body weight, Lee Index, and blood metabolic markers were analysed, including total cholesterol (TC), non-high-density lipoprotein cholesterol (HDL-C), HDL-C, low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), tissue plasminogen activator (tPA), and lipopolysaccharide binding protein (LBP). **Results:** The AG group showed significantly lower body weight gain (14.38±3.46 g/week), Lee index (298.96±8.95), TC (2.60±0.16 mmol/L), non-HDL-C (1.36±0.27 mmol/L), LDL-C (1.09±0.27 mmol/L), TG (0.54±0.11 mmol/L), tPA levels (1.70±0.07 ng/mL), and LBP levels (13.40±0.66 ng/mL) compared to the PG group ($p<0.05$). **Conclusion:** TBR anthocyanin extract (5.16 mg/kg body weight) significantly improved multiple metabolic markers in rats fed with HFD. Translating this to human equivalent dosage suggests a recommended intake of approximately 0.83 mg/kg body weight for comparable benefits. These findings support the potential of TBR anthocyanin as a natural adjunct in managing metabolic disorders.

U-1034 Red rice anthocyanin supplementation mitigate obesity-related metabolic disturbance in rats fed with high-fat diet

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Introduction: There is a growing interest in natural bioactive compounds as safer alternatives for managing obesity and metabolic dysfunction. Red rice (RR), rich in anthocyanin, is gaining recognition as a natural approach to support metabolic health and combat obesity. This study evaluated the effects of anthocyanin extract from RR in mitigating metabolic disturbance in rats fed a high-fat diet (HFD). **Methods:** Twenty male Sprague-Dawley rats were randomly divided into four groups (n=5): the normal group (NG) was fed a standard diet; the positive control group (PG) was fed HFD without treatment; the anthocyanin group (AG) was fed HFD with RR anthocyanin extract (5.16 mg/kg body weight); and the orlistat group (OG) fed HFD with orlistat (10 mg/kg body weight). After 28 days, body weight, Lee Index, and blood metabolic markers were analysed, including total cholesterol (TC), non-high-density lipoprotein cholesterol (non-HDL-C), HDL-C, low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), tissue plasminogen activator (tPA), and lipopolysaccharide-binding protein (LBP). **Results:** The AG group showed significantly lower body weight gain (17.09 g/week), Lee index (294.49), TC (2.54 mmol/L), non-HDL-C (1.52 mmol/L), LDL-C (1.18 mmol/L), TG (0.76 mmol/L), tPA levels (0.62 ng/mL), and LBP levels (13.73 ng/mL) compared to the PG group ($p<0.05$). **Conclusion:** Red rice anthocyanin extract (5.16 mg/kg body weight) significantly improved metabolic parameters in rats fed with HFD. The corresponding human equivalent dose is approximately 0.83 mg/kg body weight, highlighting the potential of red rice as a functional food component for metabolic health.

PX-2033 Linking artificial sweetener intake to asthma via gut microbiome modulation: evidence from a mouse model

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Introduction: Asthma is a chronic inflammatory airway disease influenced by environmental and dietary factors. Recent attention has turned to non-nutritive sweeteners (NNS), such as aspartame, for their potential impact on asthma through gut microbiota modulation. This study investigates how aspartame alters gut microbiota composition and its implications for asthma pathogenesis via the gut–lung axis. **Methods:** Using a murine model, male Balb/c mice were assigned to five groups: control, house dust mite (HDM)-exposed, and HDM plus aspartame at 15, 30, or 60 mg/kg. Aspartame was administered orally for 10 weeks, while HDM sensitization and challenge were conducted intranasally during weeks 5–10. Microbiota was analyzed using PacBio long-read sequencing, and short-chain fatty acids (SCFAs) were quantified via gas chromatography-mass spectrometry. **Results:** Alpha diversity indices (ACE, Shannon, Observed) showed significant changes in microbial richness and evenness following aspartame treatment. Beta diversity analysis (PCoA-Bray-Curtis, Adonis $p = 0.001$, $R^2 = 0.438$) revealed distinct microbial community shifts between groups. LEfSe (Alloprevotella, Muribaculum, Enterorhabdus), volcano plot, and KEGG analyses identified specific taxa and metabolic pathways altered by aspartame. Notably, reduced SCFA levels and negative microbiota-SCFA correlations suggest that aspartame-induced dysbiosis may exacerbate airway inflammation. **Conclusion:** These findings indicate that aspartame significantly alters gut microbiota composition and function, potentially aggravating asthma through microbiome-mediated immune modulation. This study provides novel insights into the dietary impact of artificial sweeteners on respiratory health, emphasizing the relevance of gut microbial balance in asthma management.

U-2013 Evaluation of the antioxidant, enzyme inhibitory, and anti-adipogenic effects of palm-derived delta-tocotrienol on 3T3-L1 preadipocyte differentiation

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Introduction: Obesity is associated with lipid metabolism disorders and oxidative stress. Orlistat is administered as a first-line treatment, but at the expense of adverse side effects. Natural compounds such as delta-tocotrienol have shown promising effects as natural alternatives

through the suppression of adipogenesis and antioxidative activity against oxidative stress. This study aims to investigate the antioxidant capacity, enzyme inhibitory, and anti-adipogenic properties of delta-tocotrienol. **Methods:** Antioxidant activity was assessed using DPPH and ABTS assays, with Trolox as a standard. Pancreatic lipase inhibition was evaluated using a colorimetric assay with porcine lipase and p-nitrophenyl palmitate. 3T3-L1 preadipocytes were cultured in complete medium, differentiated, and matured with a differentiation medium and insulin medium, respectively. Cells were treated with delta-tocotrienol and Orlistat (positive control) during differentiation. Cell viability was determined using the CCK-8 assay. Lipid accumulation was assessed via Oil-Red O staining and spectrophotometric quantification. **Results:** Delta-tocotrienol exhibited dose-dependent antioxidant activity with IC50 values of 98.4µg/mL (DPPH) and 250µg/mL (ABTS), but its effects were less potent compared to Trolox. Delta-tocotrienol inhibited pancreatic lipase activity in a dose-response manner (IC50=58.7µg/mL), which was comparable to Orlistat (IC50=47.2µg/mL), though Orlistat was significantly more effective based on compound-concentration interactions. Delta-tocotrienol was not cytotoxic to 3T3-L1 preadipocytes across all concentrations. Delta-tocotrienol and Orlistat performed similarly in reducing lipid accumulation when treated with the same concentration (50µg/mL and 100µg/mL). **Conclusion:** Based on the findings, delta-tocotrienol demonstrates promising potential as a natural or adjunctive alternative to Orlistat in obesity management through its antioxidant, lipase-inhibiting, and anti-adipogenic effects on 3T3-L1 preadipocytes.

U-2015 Investigation of antioxidant activity and anti-adipogenic effects of oil palm polyphenols on 3T3-L1 preadipocyte differentiation

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Introduction: Obesity is a global health crisis linked to non-communicable diseases, with current pharmacological treatments causing various adverse effects, therefore, alternatives are needed. This study aims to investigate the antioxidant and enzyme inhibitory properties of oil palm polyphenols (OPP) at different concentrations and their anti-adipogenic effect on 3T3-L1 preadipocyte differentiation. **Methods:** Antioxidant activity of OPP and Trolox (standard) was assessed using DPPH and ABTS assays. Pancreatic lipase inhibition was measured using a porcine pancreatic lipase and colorimetric assay with p-nitrophenyl palmitate as substrate. 3T3-L1 preadipocytes were cultured, differentiated, and matured, then treated with OPP and orlistat (standard). Cell viability was evaluated using the CCK-8 assay. Oil-Red O staining was conducted using mature 3T3-L1 preadipocytes, and lipid accumulation was then quantified to determine relative lipid content. **Results:** OPP exhibited a dose-dependent antioxidant activity in both DPPH and ABTS assays (IC50 of 1080.410 and 1189.791µg/mL, respectively). It demonstrated pancreatic lipase inhibitory properties in a dose-dependent manner (IC50 value of 435.020). It showed no cytotoxic effects, and Oil Red O staining demonstrated a dose-dependent reduction in lipid, with lipid accumulation in 3T3-L1 preadipocytes reduced across concentrations 100 to 1000µg/mL (IC50 of 435.020µg/mL). While Trolox and Orlistat, as the positive controls, showed higher efficacy at lower doses, this was expected given that OPP is a complex mixture of natural compounds. **Conclusion:** This research furthered the knowledge gaps for OPP on 3T3-L1 preadipocyte differentiation and showed the potential antioxidant, antiadipogenic, and lipase inhibitory effects of natural products as a safe alternative to treat obesity.

U-2044 Acute oral toxicity of natural senotherapeutic polyherbal extract product through biochemical and metabolomic analyses

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Introduction: This study is a preclinical toxicity study to evaluate the biological activity of the natural formulated senotherapeutic polyherbal extract product. This study aimed to assess the toxicity effects and the safety levels of the natural formulated senotherapeutic polyherbal extract product through biochemical and metabolomic analyses. **Methods:** This study involved 12 female Sprague-Dawley rats which were divided into control (n=6) and treatment (n=6) groups. 2000 mg/kg of the extract product which was dissolved in saline water was given to the treatment group while saline water was given to the control group as placebo. Serum samples were tested for biochemical and metabolomic analyses, while urine samples were tested for metabolomic analysis. **Results:** Biochemical analysis revealed no significant changes in alanine aminotransferase (ALT) and alkaline phosphate (ALP) levels between control group and treatment group. However, aspartate aminotransferase (AST) levels were significantly lower in the treatment group (128.98 ± 27.53 U/L) compared to the control group (269.76 ± 126.35 U/L) ($p=0.041$, <0.05). For kidney function tests, no significant differences were observed in urea and creatinine levels between control group and treatment group. For the metabolomic study, 14 out of 20 significant elevated changes were observed in the treatment group. However, there was no significant increase in metabolites related to toxicity such as creatinine, acetone, acetoacetate and 3-hydrocybutyrate in the urine. **Conclusion:** Overall, the biochemical and metabolomic analyses demonstrated a lack of toxicity biomarkers in the SD rats following the acute administration of natural senotherapeutic polyherbal extract product.

Group F: Food Science & Technology

P-1016 The effect of mHealth interventions on quality of life in HIV patients: a grade assessed systematic review and meta-analysis

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Introduction: Human immunodeficiency virus (HIV) remains a chronic condition with significant global health implications. As the disease trajectory extends, quality of life (QoL) has become a critical focus for researchers and healthcare providers. Mobile health (mHealth) interventions, characterized by their accessibility and cost-effectiveness, have emerged as promising tools for

enhancing QoL in HIV patients. This systematic review and meta-analysis aimed to assess the effects of mHealth interventions on various QoL domains among HIV patients. **Methods:** A comprehensive search of electronic databases (PubMed, Scopus, and Web of Science) was conducted up to April 2025 to identify relevant randomized controlled trials (RCTs). The Cochrane risk-of-bias tool was utilized to evaluate study quality, and the GRADE approach was employed to assess the certainty of evidence. Pooled weighted mean differences (WMDs) and 95% confidence intervals (CIs) were calculated using a random-effects model. **Results:** Nineteen RCTs were included, with twelve eligible for meta-analysis. The pooled estimates indicated that mHealth interventions significantly improved environmental health (WMD: 1.45, 95% CI 0.6 to 2.29, P=0.00), independence levels (WMD: 0.71, 95% CI 0.23 to 1.20, P=0.00), and spirituality (WMD: 1.05, 95% CI 0.18 to 1.92, P=0.01). However, no significant effects were observed on psychological health, social health, physical health, or overall QoL. **Conclusion:** While mHealth interventions demonstrated positive effects on specific QoL domains, particularly environmental health, independence, and spirituality, further high-quality studies are necessary to confirm these findings and investigate the long-term impacts in HIV populations.

P-1032 Nutrient composition of commercially available flavoured tempeh chips in Klang valley

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Introduction: Tempeh is a fermented soy product and valued for its high-quality protein content (Rizzo & Baroni 2018). Tempeh chips is a popular tempeh-based snack that has longer shelf life compared to fresh tempeh. However, data on the nutritional composition of tempeh chips of different flavour varieties are still limited. This study aimed to evaluate the proximate composition of five commonly available flavoured tempeh chips in Malaysia. **Methods:** Tempeh chips with five different flavours such as original, salty, spicy, spices, and sambal were selected based on a market survey. Three samples of each flavour were collected from three different shops (n = 15). Proximate analysis of moisture, ash, protein, fat and total carbohydrate content were analysed using the air oven, dry ashing, Kjeldahl, Soxhlet, calculation by difference methods respectively (AOAC 1997). Data were evaluated using one-way ANOVA with post-hoc Games-Howell test with significance set at $P < 0.05$. **Results:** The sambal tempeh chips (TC) recorded the highest moisture (7.94%), ash (2.97%), and total carbohydrate (42.85%) contents. Salty TC had the lowest moisture (1.51%) and carbohydrate (31.55%), while TC with spices had the lowest total ash content (1.70%). In terms of fat content, spicy TC was the highest (40.77%), while sambal TC was significantly ($P < 0.05$) lower than all other flavours. Salty TC contained significantly ($P < 0.05$) highest protein (27.88%), compared to the rest of the samples except the original TC. Spicy TC had the lowest protein content (13.96%). **Conclusion:** Flavoured tempeh chips exhibit significant nutritional variation. Sambal TC showed the highest values for moisture, ash, and carbohydrate, but the lowest for fat. Spicy TC had the highest fat and lowest protein contents, while salty TC offered the highest protein content. These findings provide useful insight into the nutritional diversity of tempeh chip products.

U-1021 A survey on sodium content, sources, and nutrition labelling of processed and ultra-processed meat products in the local supermarket

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Introduction: Salt and sodium-containing additives are widely used in processed and ultra-processed meat products, contributing to excessive sodium intake, a known risk factor for noncommunicable diseases (NCDs). This study aimed to assess the sodium content and sources in processed and ultra-processed meat products available in Malaysian supermarkets. **Methods:** A total of 322 meat products were surveyed from seven supermarkets in Selangor and Kuala Lumpur. Products were grouped into nine categories. Sodium content was obtained from nutrition labels, while sodium sources were identified from ingredient lists. **Results:** The majority of the surveyed products were classified as ultra-processed according to the NOVA classification system. The range of sodium content were from 300 – 700 mg for every 100 g sample, with highest sodium content in salami and sliced meats followed by sausages and frankfurters, meatballs, and ready-to-eat products, wingettes and drumettes, nuggets, canned meats, burger patties, and marinated meat. A total of 32 sodium-containing additives and four culinary sodium ingredients were identified. The most frequently used ingredient was salt, followed by monosodium glutamate and pentasodium triphosphate. Sodium labelling was present on 75.8% of products, while imported items made up to only 2.5%. **Conclusion:** These findings highlight the high sodium levels in ultra-processed meats, particularly salami, sausages, and meatballs, indicating the need for product reformulation. Further research on the health risks of specific sodium additives is needed to support public health efforts in reducing sodium intake.

U-1029 From waste to wealth: unlocking anti-oxidant and anti-glycation power of fruit peels through innovative drying

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Introduction: Given the impact of food waste on climate change, fruit by-products can be sustainably repurposed into functional nutraceutical ingredients through innovative drying. With this in mind, this study aimed to compare the potential of different drying methods in extracting bioactive compounds with antioxidant and anti-glycation effects from selected fruit peels. **Methods:** Peel samples from Persea americana, Musa acuminata, Hylocereus polyrhizus, Citrus limon, and Carica papaya were subjected to freeze-drying (FD), microwave-drying (MD), hot-air oven drying (HD), and microwave-assisted hot-air oven drying (MHD). The aqueous extracts of fresh and dried peel samples were compared for their phenolics, flavonoids, tannins, polysaccharides, vitamin C, total antioxidant, and anti-glycation activities. **Results:** Drying significantly ($p<0.05$) improved antioxidant (420.7%-833.1%) and anti-glycation (>34.3%) activities in the majority samples. Among the drying methods, FD and HD best preserved the phenolics, flavonoids, vitamin C, and tannin. The phenolic content and antioxidant activity in C. papaya were retained by MHD while MD enhanced both levels in H. polyrhizus. The strong positive correlation of phenolic, flavonoid, and tannin with antioxidant ($r = 0.8310–0.9952$) and anti-glycation ($r = 0.7869–0.8636$) activities implied the association of these compounds with the

antioxidant and anti-glycation capacity in fruit peels. Principal component analysis indicated that fruit variety and drying method contributed to 74.61% and 13.48% of bioactivity variation, respectively. **Conclusion:** Based on the overall antioxidant index, FD was ideal for P. americana, M. acuminata, C. limon, and C. papaya, while MD was preferred for H. polyrhizus to yield dried peel samples with optimal antioxidant and anti-glycation potential.

PX-2004 Development of anthocyanin-loaded bigel beads for enhanced encapsulation efficiency

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Introduction: Anthocyanins are potent antioxidants with promising therapeutic roles. However, their application is limited by poor stability and low bioavailability. Bigel-based encapsulation integrating hydrogel and oleogel systems offers a novel approach to enhance anthocyanin protection and controlled release. This study investigates the encapsulation performance of anthocyanin-loaded bigel beads, serving as a foundational step toward targeted delivery applications, particularly under gastrointestinal conditions related to metabolic and inflammatory disorders. **Methods:** Anthocyanin-rich bigel beads were prepared using sodium alginate and beeswax, with functional additives such as microcrystalline cellulose (MCC), pectin, and guar gum. Two anthocyanin concentrations (0.5 mg/mL and 2.0 mg/mL) were incorporated. The total anthocyanin content was quantified via the pH differential method. Encapsulation efficiency (EE) and loading capacity (LC) were calculated to assess formulation performance. **Results:** Results indicate that MCC-based bigels achieved the highest EE at 88.5% (2.0 mg/mL), followed by guar gum (85.3%) and pectin (82.4%). Plain bigels exhibited moderate EE (78.9%), while hydrogels showed significantly lower EE (61%), emphasising the role of oleogel integration. LC values ranged from 0.31 to 1.20 mg/g, with guar gum enhancing anthocyanin entrapment. Anthocyanin content remained stable across all formulations. **Conclusion:** These findings suggest that bigel matrices, particularly when enriched with tailored biopolymers such as MCC, pectin, or guar gum, can enhance anthocyanin encapsulation efficiency and stability. This optimised encapsulation performance provides a promising basis for future targeted-release studies under simulated gastrointestinal conditions.

PX-2014 Buffalo milk vs cow milk in fermented dadih powder: a comparative evaluation of nutritional content and lactic acid bacteria

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Introduction: Dadih is a traditional fermented milk product rich in lactic acid bacteria (LAB), with potential as a functional probiotic food. Traditionally made from buffalo milk, its limited availability in several regions has driven innovation in using cow milk as an alternative raw material. This study aims to compare the nutritional composition and LAB viability in buffalo and cow milk-based dadih powders. **Methods:** LAB viability was evaluated via colony count (cfu/gram) in three testing sessions (26 November, 6 December, and 11 December 2024). Nutritional analysis (protein, fat, carbohydrate, moisture, and ash content) was conducted following the Indonesian National Standard method (SNI 01-2891-1992). **Results:** In the first test, LAB counts were 2.1×10^{9} cfu/gram (buffalo) and 5.8×10^{9} cfu/gram (cow). The second test

showed a decrease to 32×10^6 cfu/gram (buffalo) and 6×10^6 cfu/gram (cow). In the third test, LAB was no longer detectable in buffalo milk powder, while cow milk powder still contained 5×10^6 cfu/gram. Nutrient composition of buffalo milk dadih powder was protein 11.87%, carbohydrate 64.09%, fat 8.50%, moisture 3.71%, and ash 1.93 mg/kg. For cow milk dadih powder: protein 14.78%, carbohydrate 61.58%, fat 8.66%, moisture 2.31%, and ash 3.14 mg/kg. **Conclusion:** Cow milk dadih powder exhibited better LAB stability and higher protein content than buffalo milk. Considering the scarcity of buffalo milk, cow milk-based dadih powder presents a promising alternative for the development of functional probiotic food products.

PX-2022 Development a user-friendly AI-powered application to increase calorie awareness and promote healthy lifestyle behaviour

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Introduction: Non-communicable diseases (NCDs), including cardiovascular diseases, diabetes, and cancers, are a major global health concern, responsible for 74% of deaths worldwide in 2022 and 87.2% of deaths in Indonesia between 2017–2022. Despite the growing prevalence of NCDs, many individuals remain unaware of their daily caloric intake and lack the motivation to adopt a healthy lifestyle. A key underlying factor is the lack of accessible and engaging tools that support health-conscious behaviours. This study aimed to develop an AI-based digital solution that helps users monitor their caloric intake and build healthier lifestyle habits. **Methods:** A needs-based design analysis was conducted to identify behavioural gaps and technological barriers in daily health management. Insights were gathered through literature review and root-cause analysis, which highlighted the demand for a simple, enjoyable, and AI-integrated platform. The next stage was conceptualizing and developing a mobile application incorporating machine learning for food photo recognition and real-time calorie estimation. **Results:** The proposed application is designed to assist users in monitoring daily calorie intake through automated food photo analysis called "Calorify". By integrating nutrition databases and predictive AI models, this apps aims to deliver personalised feedback and goal-setting features to increase user engagement and awareness. The platform focuses on user experience and ease of use to encourage long-term adoption. The application has attracted over 400 active users and received more than 25 positive reviews. **Conclusion:** Calorify represents an innovative response to the global rise in NCDs by providing a practical, technology-based solution that promotes self-monitoring and healthier lifestyle choices. Future work will focus on system prototyping, user testing, and clinical validation.

PX-2031 Exploring mature okra as a sustainable, functional, and nutrient-rich ingredient in biscuit formulation

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Introduction: Often discarded for its fibrous texture, mature okra still retains valuable nutrients. Its use in food products can reduce post-harvest waste while supporting health and sustainability. This study evaluated the nutritional, functional, and sensory properties of biscuits

incorporated with mature okra flour (MOF). **Methods:** MOF, prepared from oven-dried mature okra, was incorporated into biscuits by replacing wheat flour at 5%, 10%, and 15% levels, with control biscuits containing no MOF. Analyses included proximate composition, antioxidant activity (DPPH, FRAP), total phenolic content (TPC), estimated glycaemic index (eGI), and sensory evaluation by 38 untrained panellists (JKEUPM-2023-653). **Results:** MOF incorporation from 5% to 15% significantly increased moisture (4.92 – 6.08%), ash (1.13 – 1.94%), and dietary fibre (2.08 – 10.36%), while reducing total available carbohydrates (75.87 – 63.04%) and energy (429.59 – 392.06 kcal). Antioxidant activity (DPPH: 48.62 – 83.60%; FRAP: 5.90 – 9.72 mM Fe^{2+}/g dry extract) and TPC (4.94 – 31.13 mg GAE/g dry extract) increased with higher MOF levels. Although all MOF-incorporated biscuits (MOFBs) had high eGI values (>70), a significant downward trend in eGI was observed with increased MOF substitution. Sensory evaluation showed no significant differences in texture, aroma, or taste compared to the control biscuits, though colour and overall acceptability were affected. All MOFBs still achieved an acceptability index of above 70%, indicating consumer viability. **Conclusion:** Up to 15% MOF incorporation enhances dietary fibre and antioxidant content without compromising sensory acceptability, highlighting its potential as a sustainable and functional ingredient from post-harvest wastes. Further recipe optimization is needed to improve overall acceptance and nutrition profiles.

UX-2001 Investigation of cholesterol lowering effects of different probiotic strains in pomegranate juice fermentation

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Introduction: Pomegranate is being called “super fruit” due to its bioactive compounds that contribute to cardiovascular protective effects by lowering cholesterol level. This study aimed to determine the changes in total phenolic content (TPC), total flavonoid content (TFC) and bile salt hydrolase (BSH) activity of pomegranate juice (PJ) after fermentation using different probiotic strains. **Methods:** Lactiplantibacillus plantarum TAR4 (L.plantarum), Lactobacillus acidophilus LA5 (L.acidophilus), Lacticaseibacillus casei ATCC393 (L.casei) and Lactobacillus delbrueckii subsp. lactis ATCC12315 (L.delbrueckii) were inoculated into pasteurised PJ respectively and incubated anaerobically for 72 hours at 37℃. Sampling was done at 0, 24, 48 and 72 hours and subjected to analyses including viability, pH, total soluble solid, TPC, TFC and BSH activity. **Results:** The viability of probiotics increased up to 48 hours across all strains. TPC decreased over time except L.delbrueckii fermented PJ increased throughout the fermentation process. TFC of fermented PJ increased to the highest level (ranging from 50.04 ± 0.51 to 58.71 ± 1.39 mg QE/L) among all strains after 48 hours. All strains showed positive BSH activity after fermentation except L.acidophilus. The growth of L.casei was the highest at 72 hours incubation (1.48 ± 0.08 x 109 cfu/mL) and there is a correlation between viability and TPC with BSH activity, $r=0.901$, $p<0.05$ and $r=-0.800$, $p<0.05$ respectively. **Conclusion:** L.casei showed positive BSH activity after fermentation with the highest viability among all strains.

UX-2002 Investigating the effect of guava leaf extract on anti-diabetic and anti-inflammatory properties in probiotic fermentation

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Introduction: Guava leaf is rich in polyphenolic compounds which are known for their antidiabetic and anti-inflammatory properties. This study aimed to determine the effects of different probiotic strains on antidiabetic activity and anti-inflammatory properties through fermentation of guava leaf extract (GLE). **Methods:** Lactobacillus acidophilus LA5 (L.acidophilus), Lactiplantibacillus plantarum TAR4 (L.plantarum), and Lacticaseibacillus casei ATCC393 (L.casei) were used to ferment GLE at various concentrations [10%(v/v), 25%(v/v), and 50%(v/v)] under anaerobic conditions for 24 hours. The samples were analysed for viable cell counts, α-amylase inhibition activity, albumin denaturation inhibition activity, total phenolic content (TPC) and total flavonoid content (TFC). **Results:** The results showed that L.casei fermented GLE at 50%(v/v) had the highest albumin denaturation inhibition (47.32±0.05%, $p<0.05$), while the activity decreased at lower concentrations. L.casei fermented GLE at 10%(v/v) showed the highest α-amylase inhibition activity (99.67±0.04%, $p<0.05$), which decreased at higher concentrations. L.plantarum and L.casei exhibited strong positive correlations between TPC and TFC with albumin denaturation inhibition activity, [r= 0.790 and 0.821 for L.plantarum, and 0.815 and 0.828 for L.casei, respectively ($p < 0.05$)]. For L.acidophilus, viable cell counts exhibited strong negative correlation in inhibition activity of α-amylase (r=-0.866) ($p<0.05$). **Conclusion:** L.casei at 10%(v/v) and 50%(v/v) showed its effectiveness in enhancing the bioactivities of GLE.

UX-2003 Evaluation of bioactive compounds and anti-inflammatory effects in fermented tomato juice using different probiotic strains

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Introduction: Tomato (Solanum lycopersicum) is a nutrient-rich fruit containing bioactive compounds like lycopene, flavonoids, and phenolic acids, known for their anti-inflammatory properties. This study explored the potential of tomato juice as a plant-based carrier for probiotic fermentation with Lacticaseibacillus casei ATCC 393, Lactiplantibacillus plantarum TAR4, and Lactobacillus acidophilus LA5. **Methods:** Microbial viability, pH, and total soluble solid (TSS) were monitored over 0, 24, 48, and 72 hours to assess fermentation, while changes in total phenolic content (TPC), total flavonoid content (TFC), total carotenoid content (TCC), lycopene content, and anti-inflammatory activity were measured to evaluate the enhancement of bioactive compounds. Simulated gastrointestinal digestion was also performed to determine bioaccessibility and functional properties of fermented tomato juice (FTJ) for selected species and fermentation period. **Results:** Among the tested strains, L. plantarum TAR4 resulted in a higher viability, which was 4.15×109±0.05 CFU/mL in FTJ at 72 hours, with significantly higher TPC at 267.41±1.30 mg GAE/L, TFC at 71.41±0.71 mg QE/L, and anti-inflammatory activity at 65.22±1.18 %. After simulated gastrointestinal digestion, FTJ with TAR4 also showed enhanced TPC, TFC, and anti-inflammatory effect in the intestinal phase, which were 292.46±2.09 mg GAE/L, 63.03±0.80 mg QE/L, and 83.67±0.63 % respectively. **Conclusion:** Fermentation with L. plantarum TAR4 effectively enhanced the bioactive and functional properties of tomato juice. These findings support the development of non-dairy, probiotic-rich beverages with potential health benefits, aligning with growing consumer demand for plant-based, wellness-oriented functional products.

UX-2004 Different probiotic fermentation on the chemical, antioxidant, and hypoglycaemic properties of beetroot (Beta vulgaris) juice

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Introduction: Beetroot (Beta vulgaris) is rich in bioactive compounds such as betalains, phenolics, and nitrates, which contribute to its antioxidant and potential hypoglycemic effects. Fermentation with probiotic bacteria has emerged as a method to enhance the functional qualities of plant-based beverages like beetroot juice (BJ). **Methods:** Lacticaseibacillus casei ATCC393 (L. casei), Lactobacillus delbrueckii subsp. lactis ATCC12315 (L. delbruekii), and Lactiplantibacillus plantarum TAR4 (L. plantarum) were respectively inoculated into pasteurised BJ and incubated for 24 hours at 37°C. Each fermented juice was analysed for microbial growth, pH, total soluble solids content, total phenolic content, nitrate and betalain levels, antioxidant capacity (DPPH, ABTS, FRAP), and alpha-amylase inhibitory activity. **Results:** L. casei showed the highest microbial growth and significantly enhanced DPPH radical scavenging activity, indicating improved antioxidant potential. L. delbruekii exhibited the strongest alpha-amylase inhibition, suggesting a greater hypoglycaemic effect. Fermentation with L. plantarum resulted in the highest increase in nitrate content. Each strain influenced different functional aspects of the juice, demonstrating strain-specific effects. **Conclusion:** The findings demonstrate that probiotic fermentation enhances the health benefits of BJ in a strain-dependent manner. L. casei, L. delbruekii, and L. plantarum each contribute uniquely, highlighting the importance of selecting appropriate strains to achieve specific functional outcomes. Further research involving multi-strain combinations, metabolite profiling, and in vivo studies is recommended to optimize the development of beetroot-based functional beverages.