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Supplement

Nutri Symposium 2025
Precision Nutrition in Practice: A Team-Based Approach from Critical Care to Community Well-being

This supplement is a selection of paper presented at the Nutri Symposium 2025 on 26 – 27 July 2025.

Supplementary Paper:

Speaker presentation :

- **Role of artificial intelligence in critical care medicine**
- **The role of nutrition in the prevention of iron deficiency anemia**
- **Innovative ways to screen for iron deficiency anemia (IDA)**
- **Nutrition and cancer prevention: how well are we doing?**
- **Anemia among women of reproductive age in the Philippines and its implications in community**
- **The role of microbiome and metabolomics in personalized ICU nutrition**

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Oral presentation Highlight :

- **Diet quality and ultra-processed food consumption among adolescent girls Aged 12-19 years old**
- **Recent advances in Moringa oleifera supplementation for maternal anemia and infant nutrition: A systematic review**
- **The relationship between subcutaneous fat thickness and menstrual cycle on obese women**
- **Effectiveness of Nutrition Education and Local Food-Based Supplementary Feeding to Improve Maternal Nutritional Status During Pregnancy**
- **The Association Between Nutrition Knowledge and Attitude Towards Dietary Intake Among Competitive Elite Athletes in DKI Jakarta**
- **Investigating associations between nutritional status, body composition, eating behavior, and somatotype with physical fitness among urban adult women**

Many More

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World Nutrition Journal (abbreviated: W Nutr J) is an international, English language, peer-reviewed, and open access journal upholding recent evidence related to nutrition sciences. The journal accepts manuscripts in terms of original paper, case report, editorial, and letter to editor.

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World Nutrition Journal was founded in 2016 as the official journal of Indonesian Nutrition Association. It aims to publish high quality articles in the field of community, clinical, and critical care aspects of nutrition sciences

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Supplementary Paper : Oral presentation

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SUPPLEMENT

Role of artificial intelligence in critical care medicine

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Abstract

The integration of artificial intelligence (AI) into critical care medicine represents one of the most transformative developments of the modern era, particularly in the domain of nutritional support. Nutrition in critically ill patients is a complex, dynamic, and individualized component of care, intimately linked with outcomes such as morbidity, mortality, length of stay, and recovery trajectories. Historically, the approach to nutritional management in intensive care units (ICUs) has been guided by static protocols, clinician experience, and limited data-driven personalization. However, the advent of AI has heralded a new paradigm—one where algorithms are capable of synthesizing massive volumes of patient-specific and population-level data to optimize nutritional strategies in real-time. This abstract explores the evolving role of AI in the nutritional management of critically ill patients, elucidating its current capabilities, transformative potential, and the nuanced challenges inherent in its implementation.

Critical care nutrition is a field characterized by its high variability and dependence on timely, precise decisions. The metabolic demands of critically ill patients can shift rapidly, influenced by inflammatory responses, organ dysfunction, sepsis, pharmacologic interventions, and mechanical ventilation. Traditional methods of assessing nutritional needs—such as weight-based calculations, indirect calorimetry, and clinical scoring systems—are limited by their infrequency, lack of real-time adaptability, and inter-observer variability. In contrast, AI systems are uniquely positioned to overcome these limitations by integrating continuous streams of data from electronic medical records, laboratory values, ventilator parameters, hemodynamic monitoring, and imaging studies. Through machine learning (ML) and deep learning (DL) techniques, AI models can identify complex patterns, predict nutritional deficits, recommend caloric and macronutrient targets, and even suggest timing and route of administration with unprecedented precision.

One of the most promising applications of AI in critical care nutrition is predictive analytics. ML algorithms can analyze historical data from thousands of ICU admissions to identify predictive markers of malnutrition, feeding intolerance, and metabolic derangements. These models can alert clinicians to patients at high risk for underfeeding or overfeeding before traditional signs manifest, enabling preemptive nutritional adjustments. Furthermore, AI systems can incorporate patient-specific factors such as age, comorbidities, inflammatory biomarkers, and genetic polymorphisms to individualize nutritional interventions. This represents a departure from "one-size-fits-all" protocols toward precision nutrition–a concept long theorized but now achievable through computational intelligence.

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Another critical application is the real-time optimization of energy expenditure estimation. Although indirect calorimetry remains the gold standard for assessing resting energy expenditure, it is not universally available and is often underutilized due to cost, complexity, and staffing limitations. AI models trained on large datasets of calorimetry readings can now estimate energy expenditure with high accuracy using routinely collected clinical parameters, offering a feasible and scalable alternative. These AI-driven estimations can be recalibrated continuously as patient physiology evolves, thus ensuring that caloric goals remain aligned with metabolic demands throughout the ICU stay.

AI also facilitates dynamic decision support for enteral and parenteral nutrition. Feeding protocols traditionally rely on fixed progression plans and clinician judgment, often resulting in variability and delays. AI-enhanced decision support systems can suggest initiation times, adjust rates, anticipate complications such as refeeding syndrome, and even recommend specific formulas based on gastrointestinal function, fluid balance, and micronutrient levels. Importantly, these recommendations can be delivered in real time, embedded within the clinical workflow, and accompanied by probabilistic confidence intervals, thus augmenting clinical judgment without replacing it.

Furthermore, the integration of natural language processing (NLP) within AI systems allows for the extraction of valuable nutritional information from unstructured clinical notes, dietary logs, and progress reports. This capability is particularly relevant in capturing qualitative aspects of nutrition management that may not be documented in structured formats, such as feeding tolerance, patient preferences, and interdisciplinary consultations. By transforming these qualitative narratives into quantifiable data points, NLP expands the informational base upon which nutritional decisions are made, promoting a more holistic and patient-centered approach.

The implementation of AI in critical care nutrition is not without challenges. One major concern is data quality and interoperability. The accuracy of AI predictions is contingent upon the completeness, consistency, and timeliness of input data, which can vary widely across institutions and electronic health record systems. Moreover, algorithmic transparency and interpretability remain areas of ongoing research. Clinicians are understandably cautious about adopting black-box models whose internal logic is opaque, especially when clinical stakes are high. Efforts to develop explainable AI (XAI) frameworks are therefore essential to bridge the trust gap and ensure that recommendations are both intelligible and actionable.

Ethical considerations also come to the fore. AI systems must be trained on diverse datasets to prevent biases that could disproportionately affect vulnerable patient populations. Additionally, issues of accountability, data privacy, and informed consent require robust governance frameworks. While AI can support decision-making, ultimate responsibility for clinical care remains with human providers, necessitating a careful balance between automation and human oversight.

Despite these challenges, early studies and pilot implementations have demonstrated the feasibility and efficacy of AI-driven nutrition platforms in critical care settings. These systems have been shown to improve nutritional adequacy, reduce incidence of feeding-related complications, and streamline care coordination. Importantly, AI does not displace the role of the clinician but rather empowers the healthcare team with tools that enhance situational awareness, reduce cognitive burden, and support evidence-based decisions in a data-rich, time-sensitive environment.

In conclusion, artificial intelligence is poised to revolutionize the practice of nutrition in critical care medicine. By enabling personalized, adaptive, and predictive approaches to nutritional management, AI addresses longstanding limitations in traditional care models. Its integration into the ICU promises to enhance patient outcomes, reduce complications, and contribute to a more efficient and responsive healthcare system. As we move toward broader adoption, interdisciplinary collaboration between intensivists, nutritionists, data scientists, and ethicists will be critical to ensure that AI is implemented in a manner that is safe, equitable, and clinically meaningful. The journey from innovation to integration is well underway, and nutrition stands at the forefront of this transformative movement in critical care medicine.

Keywords: critical care medicine, artificial intelligence

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SUPPLEMENT

The role of nutrition in the prevention of iron deficiency anemia

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Abstract

Background: The prevalence of iron deficiency anemia (IDA) among children under five is approximately 25%. IDA is characterized with low hemoglobin levels and depleted iron stores, commonly due to inadequate intake, increase requirement, malabsorption, or chronic blood loss. IDA has significant implications for growth, cognitive development, and immunity.

Method: This presentation reviewed the importance of incorporating iron rich food into complementary feeding. Iron can be obtained from animal and plant-based protein. Animal-based is superior due to presence of porphyrin ring, which protect from iron chelation and enhance bioavailability. To improve iron absorption from plant-based, the addition of ascorbic acid or vitamin C is recommended. Another strategy included fortified growing-up milk (GUM) to increase iron intake. A study involved 177 children aged 1–3 years in Jakarta, where the intervention group received iron and vitamin C- fortified GUM along with nutritional education, while the control group received nutritional education alone.

Result: Children in intervention group showed a significant increase in hemoglobin level and weight after 4 months compared to control. The fortified GUM served as a bioavailable source of iron, with vitamin C enhancing absorption, addressing common deficiencies in this age group. This approach demonstrated both hematological and growth benefits.

Conclusion: Enhancing iron intake from food source along with vitamin C is essential during complementary feeding, especially in children under five. The use of GUM fortified with iron and vitamin C could be viable strategy to prevent IDA. Incorporating such strategies into public health nutrition programs is essential to combat childhood anemia and support optimal development, particularly in resource-limited settings.

Keywords: iron, vitamin C, growing-up milk

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SUPPLEMENT

Innovative ways to screen for iron deficiency anemia (IDA)

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Abstract

Iron deficiency anemia (IDA) poses a significant public health challenge in Indonesia, contributing to 75% of anemia cases among pregnant women and 42% among children under five years. Clinical diagnosis typically relies on biomarker evaluation, including hemoglobin levels, serum iron concentration, and transferrin saturation. While diagnostic protocols emphasize specificity, population-level screening efforts prioritize sensitivity to effectively identify at-risk individuals.

International and national guidelines advocate ferritin-based screening, often integrated with complete blood counts, particularly during pregnancy. Strategies encompass minimally and non-invasive methods was preferred by the community, each presenting trade-offs regarding diagnostic accuracy, feasibility, and resource allocation. Accurate identification is critical, as misdiagnosis may result in either untreated anemia or unwarranted interventions.

Recent innovations in IDA screening incorporate machine learning and digital assessment tools aimed at recognizing hematological patterns and evaluating dietary and clinical risk factors. Among these, the *Kalkulator Zat Besi* represents a context-specific, questionnaire-based tool designed for children, pregnant women, and breastfeeding mothers. By translating intake and health history into actionable risk assessments, this tool fosters early detection and nutritional awareness. Despite the limitations of subjective screening methods, combining such digital tools with objective laboratory diagnostics holds promise for strengthening anemia management strategies at both clinical and population levels

Keywords: anemia, innovation tools, iron deficiency, screening

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SUPPLEMENT

Nutrition and cancer prevention: how well are we doing?

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Abstract

Southeast Asia faces a dual burden of malnutrition and rising noncommunicable diseases, including cancer, many of which are influenced by diet and lifestyle. This review examines how well countries in Southeast Asia are aligning with nutritional practices known to reduce cancer risk, focusing on dietary trends, public health policies, and community awareness. Despite growing recognition of the link between nutrition and cancer prevention, the region continues to experience challenges such as increasing consumption of fast foods, low intake of fruits and vegetables, and a surge in obesity and diabetes-factors contributing to cancer risk. Public health efforts vary widely across the region, with some countries implementing national nutrition plans and awareness campaigns, while others lag due to economic, infrastructural, or cultural barriers. Overall, Southeast Asia has made progress in acknowledging the role of nutrition in cancer prevention, but significant gaps remain in implementation, education, and access to healthy food. Strengthened regional cooperation and context-specific interventions are essential to improve outcomes and reduce cancer burden through better nutrition.

Keywords: nutrition, cancer prevention, southeast asia

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SUPPLEMENT

Anemia among women of reproductive age in the Philippines and its implications in community

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Abstract

Anemia is a persistent global problem and it affects all segments of the population from infancy, young and school children, adolescents, adults, pregnant and lactating women, and the elderly. It is more prevalent in impoverished countries. Globally, WHO estimated that in 2019, 40% of all children aged 6359 months, 37% of pregnant women and 30% of women 15349 years of age were affected by anemia. The South-East Asia Region is one of the most affected regions.

In the Philippines, anemia prevalence among non-pregnant women of reproductive age has declined from 23% to 12% from 2008 to 2018. The significant change was driven by three key factors: direct, and indirect nutrition services by health sector; and the non - health sectors. The interventions for direct nutrition interventions are micronutrient supplementation, and ante - natal services. Indirect nutrition service is family planning; while interventions from non-health sectors are large scale food fortification, dietary diversification, poverty alleviation, and WaSH improvements.

Major health reforms were implemented between 1995 and 2018 through strengthening of health service delivery, regulation, and financing.
In 1995, the passage of the National Health Insurance Program (NHIP) under the Republic Act No. 7875 have established the Philippine Health Insurance Corporation (PhilHealth) as the national health insurance corporation mandated to provide financial risk protection for the Filipino people, giving priority to those who cannot afford such services. In 1999, the Health Sector Reform Agenda was launched as a major policy framework to improve the health care delivery, regulation, management, and financing. This was complemented by the FOURmula One for Health in 2005 which served as the major operational framework, encompassing four major strategic components: health financing, health regulation, health service delivery, and governance. Between 2010 and 2018, the Philippine Government initiated the most recent major health reforms, enhancing the past efforts along with addressing the limitations and challenges in the previous health reforms that were implemented.

In this context, all these on-going commitments of the Government resulted to improve the social protection,particularly among the poor and near poor resulted not only in the DOH budget but also to the expansion of thePhilHealth coverage.

Keywords: reproductive age, anemia, Philippines, thePhilHealth coverage

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SUPPLEMENT

The role of microbiome and metabolomics in personalized ICU nutrition

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Abstract

Introduction

Emerging research highlights the essential influence of the gut microbiome and metabolic profiling in managing critically ill patients. In contemporary intensive care units, nutritional support transcends traditional caloric and protein matching; it demands a responsive, multifactorial approach that acknowledges microbial ecology and dynamic metabolic states. These scientific advancements hold promise for redefining nutritional protocols and enhancing patient outcomes in critical care.

The gut microbiome, often termed "the forgotten organ," significantly impacts immune function, energy metabolism, and mucosal health. Similarly, metabolomics—the study of small molecular byproducts of cellular processes—provides real-time insight into patient physiology. Combined, these tools are propelling a revolution in personalized nutritional interventions in the ICU.

Dysbiosis in Critical Illness

Critical illnesses disrupt numerous physiological systems, including the gut microbiota. In stable health, the intestinal microbiota maintains homeostasis, but this balance is severely compromised in ICU patients due to systemic inflammation, medication exposure, nutritional deprivation, and physiological stress.

Common features of ICU-associated dysbiosis include diminished microbial diversity, depletion of beneficial organisms such as Lactobacillus and Bifidobacterium, and overgrowth of opportunistic pathogens. These alterations contribute to impaired nutrient absorption, compromised gut barrier function, and heightened systemic inflammation. Consequently, dysbiosis exacerbates the progression to organ dysfunction and sepsis.

Addressing gut microbiota health is thus increasingly recognized as a critical component of comprehensive ICU care, particularly through nutritional strategies aimed at mitigating dysbiosis-induced complications.

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Metabolomics: Mapping the Biochemical Landscape

Metabolomics provides clinicians with a snapshot of the metabolic environment within critically ill Specific metabolomic signatures, such as elevated lactate or altered branched-chain amino acid levels, indicate underlying issues like tissue hypoxia or Utilizing metabolomic profiles, healthcare providers can tailor nutrition plans that address identified metabolic deficiencies, thereby promoting more efficient recovery and reducing the risk of metabolic complications.

Microbiome-Metabolome Interactions

There is a dynamic relationship between gut microbes and host metabolism. Gut bacteria ferment dietary substrates, generating metabolites such as short-chain fatty acids (SCFAs) that play key roles in modulating inflammation and supporting epithelial health.

Conversely, host factors—including bile acids and immune mediators—influence the composition and function of the microbiota. In critically ill patients, disruptions to this bidirectional interaction impair nutrient utilization, compromise gut integrity, and enhance systemic inflammatory responses.

Metabolomics enables the detection of these disruptions by identifying changes in concentrations of microbial

metabolites, offering targets for nutritional and therapeutic interventions aimed at restoring homeostasis.

Nutritional Strategies Based on Microbiome and Metabolomics

Personalizing nutrition in the ICU can benefit from interventions informed by microbiome and metabolomic data:

1. Prebiotics and Fibers: Supplementation with fermentable fibers supports beneficial bacteria, fostering SCFA production and promoting gut barrier resilience.
2. Probiotics: Administering selected strains may enhance immune regulation, reduce infection rates, and support gut homeostasis, though careful patient selection is vital.
3. Postbiotics: Delivering microbial metabolites directly offers a promising strategy for modulating host responses without introducing live organisms.
4. Amino Acid Supplementation: Adjusting amino acid delivery based on observed metabolic needs, particularly concerning patients. Analyzing biological fluids allows for the identification of disruptions in pathways related to energy production, protein turnover, and immune response.

accelerated muscle breakdown. Variations in the tryptophan-kynurenine axis, for instance, reveal shifts in immune system activation and tolerance.

pathways like the kynurenine-tryptophan axis, may optimize immune and metabolic balance.

5. Tailored Macronutrient Formulations: Real-time metabolic data can guide adjustments to energy, carbohydrate, and lipid provision, minimizing risks associated with metabolic instability.

Clinical Applications

Examples of personalized interventions based on these insights include:

1. Sepsis Management: Supporting gut barrier function with fibers and SCFA supplementation, while moderating glucose loads to avoid immune suppression.
2. Acute Respiratory Distress Syndrome (ARDS): Providing anti-inflammatory nutrients and high-protein support to preserve lean body mass and pulmonary function.
3. Renal Dysfunction: Modulating protein intake and enhancing fiber delivery to mitigate toxin accumulation and support gut-derived nitrogen disposal.

Challenges and Future Directions

The integration of microbiome and metabolomic information into ICU nutrition faces several challenges:

1. Technical Limitations: High-throughput sequencing and mass spectrometry require specialized resources and expertise.
2. Lack of Standardization: Variability in methodologies complicates data comparison and generalization.
3. Need for Validation: Large-scale, multicenter trials are necessary to establish the clinical efficacy of these personalized approaches.
4. Economic Considerations: Ensuring cost-effective and accessible technologies is vital for widespread adoption. Future prospects include developing artificial intelligence platforms that synthesize multi-omic data to generate actionable nutrition plans and integrating point-of-care testing into ICU workflows.

Conclusion

Personalized ICU nutrition based on microbiome integrity and metabolic profiling represents a significant advancement in critical care. Recognizing the interconnectedness of microbial health, systemic metabolism, and nutritional needs allows for more nuanced and effective therapeutic strategies. As technologies advance and become more accessible, incorporating microbiome and metabolomic analyses into everyday ICU practice has the potential to transform patient outcomes, shifting the paradigm toward truly individualized metabolic support and recovery.

Keywords : critical care nutrition, dysbiosis, gut microbiome, metabolomics, personalized nutrition

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SUPPLEMENT

ICU nutrition in the UK : How we do it?

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Abstract

Optimal nutritional support has a fundamental role in the management of critically ill patients.

It has a significant impact on morbidity, mortality and patient outcomes. In the United Kingdom nutritional protocols are in alignment with the National and International guidelines for nutrition.

Early identification of nutritional needs and initiation of nutrition is vital. Multidisciplinary collaboration including dieticians, pharmacists, nurses and doctors is needed.

In this talk we will discuss about practices in my critical care unit in my hospital.

Keywords: ICU, nutrition, UK

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SUPPLEMENT

The future of personalized medical nutrition; a focus on protein

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Abstract

Dietary protein is essential for preserving muscle mass and preventing adverse outcomes in a wide range of patient populations. However, achieving sufficient protein intake remains a major challenge, particularly in disease states where requirements are elevated—often double the normal needs—while intake is impaired. As a result, many patients experience a significant protein gap, frequently as high as 50%. Although protein supplementation has been shown to effectively maintain muscle mass and quality, long-term compliance remains limited due to issues such as taste, tolerance, and regimen complexity. This presentation will explore the role of protein in personalized clinical nutrition, examine the causes and consequences of the protein gap, and highlight emerging innovations aimed at improving adherence and tailoring protein intake to individual patient needs.

Keywords: dietary, protein, muscle mass, clinical nutrition

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SUPPLEMENT

Advancing child health through safe hydration

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Abstract

Diarrhea is One in five children in Indonesia does not drink enough water, but that's not the only problem regarding child health and water consumption. The prevalence of Diarrhea in Indonesian children is one in four children under 5 years old. The high prevalence is closely linked to poor sanitation and unsafe drinking water.

Water comprises 75% body weight in infants to 55% in the elderly, and plays very crucial role in cellular hemostasis and life. Therefore, the optimal functioning of our body requires a good hydration level from safe drinking water. The Indonesian Health Profile survey found that 70% households still consume contaminated drinking water, and only 11.9% homes have access to safe drinking water. Ten out of thirty-four provinces in Indonesia have a bad water quality index, with relatively high E.coli contamination. Contaminated drinking water leads to numerous health issues, such as diarrhea from bacterial contamination and the risk of low birth weight from Nitrate and lead contamination in the drinking water of pregnant women.

A recent study found an association between the composition of the gut microbiota and the incidence of stunting in children in the Jakarta slum area. Stunted children have higher pathogenic microbiota, while non- stunted children have higher good microbiota. Differences in the composition of this microbiota are influenced by sources of drinking water, sources of water for other activities, and the habit of hand washing before eating. Subjects with sources of drinking water that come from branded gallons have an abundance of good bacteria that are more abundant than subjects with drinking water sources that come from refill water or wells. This suggests that when there is a change in habitual behavior, it is possible for improvements to occur in the composition of the gut microbiota. This result supports the health issue of unhealthy drinking habits, i.e, non- communicable disease, preterm babies, cancer, and stunting.

Safe drinking water means safe from pathogens and physical contaminants, safe from chemicals, and safe amounts of minerals, including less sodium (maximum of 20 mg/L). Children are more vulnerable than adults to the harmful effects of contaminated water due to their developing immune systems and smaller body size. Ensuring access to safe, clean, and properly treated drinking water is critical to protect children's health, support their growth, and secure their future well-being

Keywords: children, safe drinking water, health

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SUPPLEMENT

The role of MTHFR polymorphism on hyperhomocysteinemia and folic acid and vitamin B metabolism

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Abstract

Non-communicable diseases (NCDs) remain a leading global health concern, with hyperhomocysteinemia recognized as a contributing metabolic disorder linked to cardiovascular disease, neurodegenerative conditions, and developmental anomalies. This presentation explores the pivotal role of methylenetetrahydrofolate reductase (MTHFR) polymorphisms—particularly C677T and A1298C variants—in disrupting homocysteine metabolism through impaired folate and vitamin B pathways. These genetic alterations can reduce enzymatic activity and thermolability of MTHFR, resulting in elevated homocysteine levels and disturbed methylation processes central to the one-carbon cycle. A deficiency in critical B vitamins (B6, B9, and B12), whether dietary or genetically influenced, further exacerbates metabolic imbalance, with implications for DNA synthesis, epigenetic regulation, and oxidative stress. Understanding the biochemical and genetic landscape of MTHFR polymorphisms provides insight into targeted nutritional and clinical strategies for managing NCD risk and improving metabolic health

Keywords: NCD, Hyperhomocysteinemia, MTHFR Variant genotyping, vitamin B6, B9, and B12, Folic Acid Metabolism

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SUPPLEMENT

Diet quality and ultra-processed food consumption among adolescent girls Aged 12-19 years old

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Abstract

Background: Healthy dietary patterns during adolescence are essential for achieving optimal nutrition, reducing the risk of obesity, and preventing non-communicable diseases (NCDs) in adulthood. However, the abundant availability and frequent consumption of ultra-processed foods (UPFs) and foods that are high in sugars, saturated fats, salt, and poor in essential nutrients contribute to poor diet quality, which may increase the risk of obesity and NCDs. Assessing adolescent diet quality is essential to support evidence-based public health interventions.
Objectives: To investigate the association between GDQS and UPF consumption among school-going adolescent girls aged 12-19 years.
Methods: The study was a cross-sectional survey among adolescent girls aged 12-19 years conducted in West Java and Banten Province (n=600), using multi-stage stratified random sampling. Dietary data were collected using one-day 24-hour dietary recall. Global Diet Quality Score (GDQS) and Nova UPF score, as recommended by Healthy Diets Monitoring Initiative (FAO, UNICEF, and WHO) were calculated.
Results: Over one-third (38.6%) of respondents had poor diet quality (GDQS<15) and only 6.2% of respondents achieved a good diet quality (GDQS≥23). According to GDQS, over 70% of respondents had low intake of vegetables, fruits, and nuts, yet consumed sweets and sugar- sweetened beverages in high amounts. Only 8% of respondents consumed ≥5 UPF food group. The most consumed UPF were instant noodles (33.0%), biscuits (24.0%), and packaged snacks (23.5%). An inverse correlation was found between the GDQS and UPF consumption (rho= –0.25; 95%CI: –0.32,–0.18; $p < 0.001$).
Conclusions: Most adolescent girls consumed diet with poor diet quality score. Despite a low proportion of consuming ≥5 food groups, several types of UPF were commonly consumed. These findings suggest that improving healthy diet quality requires reducing UPF consumption and selecting healthier substitutes.

Keywords: Global diet quality score, healthy foods, unhealthy foods, ultra-processed foods, adolescent girls

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SUPPLEMENT

Recent advances in *Moringa oleifera* supplementation for maternal anemia and infant nutrition: A systematic review

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Abstract

Background: *Moringa oleifera* (MO) is a plant-based food source that lasts during certain seasons, and some societies still consider it to be known as superfood. The use of MO has been linked up to its inconsistency and advances as a supplementation in resolving maternal anemia and stunted infants.
Objectives: This study aims to synthesize an updated efficacy and safety aspect of MO supplementation in pregnant women and infants.
Methods: A comprehensive literature search with boolean operators was conducted across multiple databases (PubMed, Wiley, Sage, Scholar, Cochrane) and filtered using PRISMA Protocol, with total screening for 121 studies, resulting in 13 included studies that tested for risk of bias using RevMan 5.4. Data extraction focused on MO serving type, frequency, duration, and adverse events.
Results: 11 out of 13 studies show a significant effect of MO in treating maternal anemia and stunted infants. The average effective time of MO administration ranges between >2 months and >4 months in pregnant women & infants with biscuit, leaf extract, and leaf soup serving type. The ineffectiveness of interventions occurs due to medical complications and demographic patterns while morbidity rates are influenced by sample immunity and MO content such as tannins and amino acids.
Conclusion: Variety serving type, frequency, and duration of MO supplementation is proven to be effective in resolving maternal anemia and infant nutrition problems which nevertheless still potentially cause side effects, likely digestive and respiratory symptoms.

Keywords: *Moringa oleifera*, pregnant women, infants, anemia, birth weight

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SUPPLEMENT

Effect of food-based and iron-folic acid (IFA) supplementation on nutrient intakes in pregnant women

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Abstract

Background: Nutrient deficiencies during pregnancy are worsened by poor intake and low adherence to supplementation. This study aimed to assess the impact of a food-based intervention using soy-hydrolysate and iron-folic acid (IFA) supplementation on the nutrient intake of pregnant women.

Objective: This study aimed to assess the impact of a food-based intervention using soy-hydrolysate and iron-folic acid (IFA) supplementation on the nutrient intake of pregnant women

Methods: An intervention study was conducted over 12-weeks among 99 pregnant women aged 19–29 years in their second trimester. Intervention group received soy-hydrolysate with IFA, and IFA only in control group. Each serving provided 4.3 mg elemental iron, 150 µg folate, 3.5 mg zinc, and 0.6 µg vitamin B12, as well as protein and other nutrients (approximately contribute to 2-38%RNI). Participants were assigned to an intervention group (n=51) and a control group (n=48). Dietary intake was measured at baseline and endline using a single 24-hour dietary recall. Wilcoxon test and Mann-Whitney U test were used to assess within- and between-group difference, respectively. Nutrient parameters included energy, protein, fat, carbohydrate, vitamin A, vitamin B12, vitamin C, calcium, zinc, folate and iron.

Results: Significant improvement were observed in the intervention group for vitamin A, B12, zinc, folate, and iron ($P<0.001$), with soy-hydrolysate contributing approximately 25–38% of the RNI for these nutrients per serving. Between-group comparisons at endline showed that the intervention group had significantly higher intake of energy, protein, fat, carbohydrate, vitamin B12, calcium, and folate and iron (without IFA) ($P<0.05$).

Conclusion: Soy-hydrolysate intervention improved nutrient intake in pregnant women, this findings support food-based strategies to complement existing supplementation programs.

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Keywords: iron-folic acid, nutrient intake, pregnancy, soy-hydroysate

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SUPPLEMENT

Association between household income and gestational weight gain among pregnant women in Palembang

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Abstract

Background: Palembang is the city with the highest incidence of anemia in 2023, a condition that linked to maternal malnutrition. Gestational weight gain (GWG) is one of the indicator of maternal nutritional status. One of the factor that may influence the nutritional status is household income because it determines how a person afford their own nutrition.

Methods: This study used a cross-sectional design and was conducted from August to October 2024. Data collection involved body weight measurement using the TANITA BC-601 and structured questionnaires. GWG was calculated as the difference between current body weight and pre-pregnancy weight, then the adequacy of GWG was assessed by comparing current weight with the ideal weight for gestational age. Eligible participants included singleton pregnant women without chronic illnesses who had completed the triple elimination program and received antenatal care at public health centers or private midwifery practices. Data analysis was performed with Chi Square analysis by using SPSS 27th version.

Results: Data from 35 respondents who met the criteria were analyzed. The majority of participants were aged 20–35 years, in their third trimester, employed, primiparous, had birth spacing of at least two years, and lived in households with incomes above the Regional Minimum Wage (RMW). Association between household income and gestational weight gain was not statistically significant (p-value = 0.782).

Conclusion: There was no significant relationship between household income and gestational weight gain among pregnant women in Palembang

Keywords: gestational weight gain, household income, pregnant woman, palembang

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SUPPLEMENT

Applying precision nutrition to university students: Insights into their diet quality

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Abstract

Background: Previous studies indicated a rising number of university students affected by malnutrition, primarily due to poor diet quality. Considering the growing emphasis on precision nutrition as a strategy to address diverse health needs

Objective: This study was conducted to assess the eating patterns, evaluate the quality of diets, and determine the association between diet quality and socioeconomic characteristics among students at Universiti Kebangsaan Malaysia (UKM).

Methods: This cross-sectional study included 261 UKM students as participants. Eating patterns were assessed using the Meal Pattern Questionnaire (MPQ), while diet quality was evaluated through the Food Frequency Questionnaire (FFQ) and the Malaysian Healthy Eating Index (MHEI). Socioeconomic data and body mass index (BMI) were also recorded.

Results: Results show that students predominantly consumed meals during lunchtime (46.0%), with the lowest intake during morning snack time (1.5%). Alarmingly, 84.3% of respondents exhibited poor diet quality, and 15.7% required dietary improvements. Poor diet quality was observed in 53.1% of female students and 46.8% of male students. Notably, none of the students achieved a high-quality diet score, highlighting a significant gap in nutritional well-being.

Conclusion: Despite these findings, no significant association was observed between diet quality and the socioeconomic variables studied. These insights highlight the need for tailored, team-based interventions involving educators, and public health professionals to address nutritional disparities at the community level.

Keywords: diet quality, university students, eating patterns

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SUPPLEMENT

High prevalence of malnutrition among hospitalized patients at Kabupaten Bekasi general hospital: A critical need for early nutritional screening

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Abstract

Background: Malnutrition in hospitals is a critical concern that significantly impacts health outcomes, yet there is a lack of recent prevalence data in Indonesia.
Objective: This author initiated a study at Bekasi District Hospital, aiming to enhance awareness of malnutrition screening and assessment. Prompt nutritional interventions within the first 24 hours of hospitalization are crucial to prevent deterioration in nutritional status, reduce morbidity and mortality, shorten hospital stays, and lower healthcare costs.
Methods: A cross-sectional study was conducted involving 100 inpatients (20 children and 80 adults). Children were screened using the StrongKids tool and assessed with WHO growth charts. Adults underwent Nutritional Risk Screening (NRS) and were diagnosed based on GLIM criteria. Data included demographics, primary diagnoses, and Mid-Upper Arm Circumference (MUAC), all assessed within 24 hours of admission.
Results: The prevalence of malnutrition was 57.0% overall: 35.0% in children (5.0% severely malnourished, 30.0% undernourished) and 62.5% in adults (47.5% moderately malnourished, 15.0% severely malnourished). All children were at risk (65.0% moderate, 35.0% high), with 72.5% of adults at risk. Non-surgical patients showed higher malnutrition risk in both groups. Common diagnoses were infectious (35.0%) and gastrointestinal (25.0%) diseases in children, and neurological (28.75%) and gastrointestinal (22.5%) diseases in adults. Only 17.2% of at-risk adults had MUAC under 23 cm.
Conclusion: The significant prevalence of malnutrition, particularly in patients with infectious and neurological conditions, underscores the urgent need for routine nutritional screenings and a two-step assessment approach to enhance patient outcomes.

Keywords: GLIM, inpatient, Kabupaten Bekasi General Hospital, malnutrition, NRS, nutritional screening, StrongKids

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SUPPLEMENT

Investigating associations between nutritional status, body composition, eating behavior, and somatotype with physical fitness among urban adult women

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Abstract

Background: Reduced physical fitness increases the risk of non-communicable diseases (NCDs) such as obesity, hypertension, and type 2 diabetes. In urban Indonesia, this is particularly concerning, with over 33.9% of adult urban women classified as obese. Although nutritional status, body composition, eating behavior, and somatotype may affect fitness, few studies have explored these relationships within this population.

Objectives: This study aims to explore the associations between these factors and physical fitness among urban adult women.

Methods: A cross-sectional study was conducted involving 80 purposively selected adult women from five urban cities in West Java and Jakarta. Nutritional status was assessed through anthropometric measurements, and body composition was evaluated using the Omron BIA. Eating behavior was measured using the Dutch Eating Behavior Questionnaire (DEBQ), while somatotype was classified using the Heath-Carter method. Physical fitness was assessed through step tests (cardiorespiratory fitness), handgrip and sit-up tests (muscle strength), push-up and plank tests (muscular endurance), and the sit-and-reach test (flexibility). Pearson and Spearman correlation analyses were performed at a 95% confidence interval.

Results: Significant associations ($p<0.05$) were found between muscular strength and nutritional status, body composition (body fat, trunk muscles, fat mass index, and fat-free mass), and ectomorph somatotype. Muscular endurance was linked to body composition (total muscle mass, arm muscle, leg muscle, arm fat, and leg fat), eating behavior, and endomorph somatotype. However, cardiorespiratory fitness showed no significant correlation.

Conclusion: Targeted interventions addressing nutritional status, body composition, and somatotype-specific training may enhance physical fitness and reduce NCD risk among urban women.

Keywords: body composition, eating behavior, nutritional status, physical fitness, somatotype

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SUPPLEMENT

Relationship of fiber consumption with obesity and gut health in students of SMAN 3 Kupang City

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Abstract

Background: Fiber is a necessity that must be met to help maintain digestive health and prevent obesity. The easiest sources of fiber are vegetables and fruits.
Objective: This study aims to determine the correlation of fiber consumption with obesity and gut health in students of SMAN 3 Kupang City.
Subjects: The population consisted of all students who were active at SMAN 3 and the sample taken was 94 students (class 10 amounted to 32, class 11 amounted to 31 and class 12 amounted to 31), based on Probability sampling technique namely stratified random sampling.
Methods: This type of research is analytic observational with cross sectional design. The research instrument used a questionnaire, assessment of gut health using the bristol stool chart. The statistical analysis performed was univariate and bivariate using Spearman's rho test (p=0.05).
Results: The results showed obesity with a weak and opposite correlation with fiber consumption in students of SMAN 3 Kupang City (r = -0.055). There was a significant correlation between fiber consumption and gut health in students of SMAN 3 Kupang (r = -0.222).
Conclusion: It is important to increase knowledge about the importance of fiber-containing foods in meeting the recommended daily fiber needs, and not to consume fiber in excess because it will have a negative effect because the process of fiber fractionation in the intestine has a limit.

Keywords: fiber, gut-health, obesity

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SUPPLEMENT

The relationship between subcutaneous fat thickness and menstrual cycle on obese women

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Abstract

Background: Indonesian health survey shows an increase in obesity rates from 21.8% in 2018 to 23.4% in 2023. Obesity is a condition of excess fat accumulation that can be measured by the thickness of subcutaneous fat. Fat accumulation can disrupt the body's hormonal condition because it also works as an endocrine organ. It produced aromatase that can disrupt the female reproductive hormonal system and causing menstrual disorders. 80% of women experience menstrual cycle disorders based on WHO in 2017.
Objectives: To determine the relationship between the thickness of subcutaneous fat and menstrual cycle on obese women.
Methods: This study used analytic observational research methods with cross-sectional design. The samples used in this study were all obese women of reproductive age at PT. Sango Ceramics Indonesia and meets the inclusion criteria. The sampling technique in this study was consecutive sampling, and data was analyzed by the Gamma test.
Results: A significant relationship was found between the thickness of subcutaneous fat and menstrual cycle on obese women (p=0.026).
Conclusion: There is a significant relationship with weak strength between the thickness of subcutaneous fat and menstrual cycle on obese women in PT. Sango Ceramics Indonesia.

Keywords: obesity, subcutaneous fat thickness, menstrual cycle

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SUPPLEMENT

The role of early enteral nutrition in an adult patient with severe burn injury II-III degree, 28% TBSA, and inhalation injury: A case report

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Abstract

Background: Burn patients experience increased energy demands, muscle mass loss, and infection risk due to hypermetabolism. This case report highlights the benefits of initiating early enteral nutrition (EEN) within 24 hours post-burn.

Case report: A 55-year-old male with second- to third-degree burns covering 28% of TBSA and inhalation injury was hospitalized for 24 days at RSPP. He weighed 70 kg (BMI of 25.7 kg/m²). Within 24 hours, he received fluid resuscitation, wound excision, and tracheostomy. Calculated via the Curreri formula, his caloric requirement was 2,870 kcal/day, and protein needs were 105–140 g/day. Enteral nutrition was initiated within 24 hours and advanced gradually. Partial parenteral nutrition was also provided: 63 g carbohydrates, 25 g protein, and 19 g fat daily. The patient was also treated for hypoalbuminemia and received oral vitamin B complex, vitamin C, and iron.

Results: Regular monitoring showed no signs of overfeeding, sepsis, or gastrointestinal complications. Laboratory values, including CBC, electrolytes, albumin, procalcitonin, renal function, and arterial blood gases, improved alongside clinical recovery. The patient was discharged on day 24. Although inhalation injuries and extensive burns may prompt clinicians to delay enteral nutrition, evidence supports early initiation within 24–48 hours when no contraindications exist. EEN helps preserves gut integrity, muscle mass, wound healing, and reduce ICU stay. Baik et al. reported increased gastrointestinal risk with EEN, therefore monitoring is necessary.

Conclusion: EEN within 24 to 48 hours is beneficial for severe burn patients, including those with inhalation injury. Individualized clinical assessment and careful monitoring are crucial to optimize outcome.

Keywords: early enteral nutrition, severe burn, inhalation injury, clinical outcome

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SUPPLEMENT

Effectiveness of Nutrition Education and Local Food-Based Supplementary Feeding to Improve Maternal Nutritional Status During Pregnancy

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Abstract

Background: Chronic Energy Deficiency (CED) among pregnant women remains a significant public health concern in Indonesia.
Objectives: This study aimed to evaluate the effectiveness of a 16-week nutrition intervention that integrated Behavior Change Communication (BCC)-based nutrition education with the provision of local food-based supplementary feeding (≥350 kcal/day) in improving the nutritional status of pregnant women.
Methods: A quasi-experimental pretest–posttest design was used involving 175 pregnant women in their first and second trimesters from Bogor, Serang, and Purbalingga. Anthropometric and hemoglobin data were collected before and after the intervention. Multiple linear regression analysis identified predictors of MUAC change.
Results: The intervention led to significant increases in weight (+5.8 kg), BMI (+1.5 kg/m2), MUAC (+0.9 cm), and hemoglobin (+0.8 g/dL) (all $p < 0.001$). The proportion of women at CED risk (MUAC <23.5 cm) declined by 27.4%. Regression analysis identified snack adherence ($\beta = 0.41$), baseline Hb, and initial MUAC as significant predictors of MUAC increase, with an Adjusted R2 = 0.17.
Conclusions: The integration of BCC-based education and local food supplementation effectively improved MUAC and hemoglobin, demonstrating potential for adoption in community-based antenatal services to reduce maternal undernutrition and stunting risk.

Keywords: chronic energy deficiency (CED), local food Indonesia, maternal nutrition, MUAC, nutrition education

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SUPPLEMENT

Relationship between age and vas appetite score among patients with post-tuberculosis lung disease at Persahabatan National Respiratory Referral Hospital, Jakarta

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Abstract

Background: Post-tuberculosis lung disease (PTLD) is a form of progressive lung tissue damage following tuberculosis (TB) infection. In addition to clinical symptoms, patients with PTLD often experience nutritional problems. Appetite plays a crucial role in determining adequate nutrient intake, which can affect nutritional status, the recovery process, and overall quality of life. One factor that may influence appetite is age. Although age is known to affect appetite, the relationship between the two has not been studied, particularly in patients with PTLD at Persahabatan Hospital, National Respiratory Centre.

Objective: To determine the relationship between age and appetite VAS appetite in patients with post-tuberculosis lung disease at Persahabatan National Respiratory Referral Hospital, Jakarta.

Methods: The study used a cross-sectional design. A total of 85 outpatients at Persahabatan Hospital were diagnosed with PTLD and selected based on medical record. Appetite was assessed using the Visual Analog Scale (VAS) for Appetite, and age were obtained from medical records. Correlations were analyzed using Spearman's test with the (SPSS) version 27.

Results: Among the 85 subjects, 78.8% were male, ranging in age from 33 to 84 years. The median VAS score for appetite was 70 mm. the study found a statistically significant negative correlation was observed between age and VAS appetite. ($p = 0.011$).

Conclusion: There was a significant negative correlation between age and appetite in patients with PTLD, it can be concluded that appetite decreases as age increases. In this regard, older adults constitute a population that requires special consideration for managing PTLD, particularly for nutritional assessment.

Keywords: aging, appetite, lung damage, malnutrition, tuberculosis

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SUPPLEMENT

How high-protein, high-fiber meal replacements influence dietary intake in overweight women during weight loss

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Abstract

Background and objectives: This study aims to evaluate the effects of high-protein, high-fiber dietary supplements on dietary intake among overweight women.

Methods: This experimental study utilized a randomized controlled trial (RCT). A total of 54 women were randomly assigned to a control group or an intervention group. The control group received nutritional counseling to follow a low-calorie diet, while the intervention group received the same counseling along with a daily meal replacement (Flimeal). Dietary intakes were measured using 3 days of dietary food recall before and after intervention.

Results: Participants in the intervention group experienced significantly greater weight loss (-3.4 ± 0.43 kg) compared to the control group (-2.4 ± 0.5 kg) ($p = 0.047$). Additionally, a higher proportion of participants in the intervention group (62%) achieved the 5% weight loss threshold compared to the control group (28%) (Chi-Square $p = 0.033$). In this study, we found that subjects in both groups had a significant reduction in total energy and overall micronutrient intake (all $p<0.05$). We found no significant difference in changes of energy intake between intervention and control groups ($p>0.05$) Energy corrected analysis was done to evaluate changes in macronutrients composition relative to total energy intake. Those in the intervention study had a greater reduction of fat (week 4, $p=0.013$; week 8, $p=0.030$) and greater increment in protein composition (week 4, $p=0.002$; week 8, $p=0.082$) asl well as fiber (all $p=0.026$).

Conclusion: We also showed that despite similar in energy deficit, those in the intervention group (received daily Flimeal product) had a better weight loss improvement of macronutrients compositions by reducing more fat, increasing more protein and fiber.

Keywords: meal replacement, overweight women, weight loss

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SUPPLEMENT

Nutrient Intake Profile Among Children Aged 6–24 Months in Indonesia: A Descriptive Analysis

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Abstract

Background: Adequate nutrient intake in early childhood is critical for growth, cognitive development, and immune function. The first two years of life are a sensitive period where nutritional deficiencies may lead to long-term consequences. However, many children in low- and middle-income countries fail to meet dietary needs due to limited diversity and poor feeding practices.

Objectives: To describe the intake of energy, macronutrients, and key micronutrients among Indonesian children aged 6–24 months.

Methods: This descriptive cross-sectional study used secondary data from the South East Asian Nutrition Survey II (SEANUTS II) conducted in Indonesia (2019–2020), involving 1,154 children aged 6–24 months from 21 regencies. Dietary intake was assessed through a single 24-hour recall. Energy intake was compared with the Estimated Energy Requirement (EER), while macronutrients and micronutrients were compared with the Indonesian Recommended Dietary Allowance (RDA).

Results: The median energy intake was 740 kcal/day; 57.1% of children had inadequate intake. Carbohydrate and protein intakes were 97.4 g/day and 30.6 g/day, with inadequacy rates of 12.5% and 38.6%. Fat intake was 27.4 g/day, with 83.6% inadequacy. Median intakes of vitamin D, iron, calcium, and zinc were 2.5 µg/day, 5.2 mg/day, 365.9 mg/day, and 4.1 mg/day, with inadequacy rates of 91.6%, 71.1%, 57.5%, and 24.3%, respectively. Crosstab analysis showed that iron inadequacy was more prevalent among children aged 6–11 months (82.9% vs 64.5%), while energy, calcium, and zinc inadequacies were higher among those aged 12–24 months. These differences were statistically significant ($p < 0.001$).

Conclusions: Most Indonesian children aged 6–24 months did not meet recommended intake levels for energy and several essential nutrients. Targeted interventions are needed to improve complementary feeding practices and access to nutrient-rich foods.

Keywords: nutrient intake, nutrient adequacy, children aged 6–24 months, complementary feeding

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SUPPLEMENT

The association between animal source food intake and growth among preschool children in Jakarta

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Abstract

Background: Animal-source foods (ASF) are a source of high-quality protein and bioavailable micronutrients such as iron and zinc, which are important for the growth of preschool children. However, despite high ASF intake, malnutrition in Jakarta is above the national prevalence. The types of ASF consumed may have contributed to this.

Objective: This study aims to investigate the association between ASF intake and height-for-age Z-scores (HAZ) among preschool children aged 4–6 years in Jakarta.

Methods: This study used a cross-sectional design involving 189 pairs of parents and their children aged 4–6 years, recruited purposively in 27 daycares and early childhood education centres in Jakarta. Sociodemographic data were collected using a structured questionnaire. The ASF intake was collected using a past-week FFQ and the multi-pass 24-hour dietary recall to estimate the frequency and intake of different ASFs, including eggs, milk, and flesh foods (i.e., meat, poultry, fish, and organ meat). Height was measured by a trained enumerator and converted to HAZ using WHO Anthro-Plus. Data analysis was performed using Spearman's correlation test.

Results: HAZ was positively associated with intakes of protein ($r=0.196$, $p=0.008$), protein from ASF ($r=0.185$, $p=0.012$), milk ($r=268$, $p<0.001$), and flesh foods ($r=0.448$, $p<0.001$). Egg intake was not significantly associated with HAZ.

Conclusion: ASF, particularly in the form of flesh foods, is important for the optimal growth of preschool children and should therefore be promoted to ensure their intake is sufficient.

Keywords: animal-source foods intake, growth, HAZ, preschool children

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SUPPLEMENT

The association between nutrition knowledge and attitude towards dietary intake among competitive elite athletes in DKI Jakarta

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Abstract

Background: Good nutritional knowledge is important for athletes to develop positive attitude and proper dietary practices, especially supporting training, competition, and peak performance. Lack of knowledge can lead to energy and nutrient imbalances, which can disrupt physiological adaptation, recovery, and athletic performance. Unlike previous studies on knowledge, attitude, and practice (KAP), which generally only assess questionnaire scores on eating practices without directly analyzing dietary intake, this study takes a different approach by directly analyzing dietary intake and considering differences between rest days and training days.

Objectives: To analyze the association between nutritional knowledge and attitudes towards dietary intake among competitive elite athletes in DKI Jakarta.

Methods: A cross-sectional study was conducted on 188 athletes KONI DKI Jakarta (martial arts and stop-and-go sport) who met the criteria through proportional random sampling. A valid and reliable questionnaire (Cronbach's Alpha: 0.850 for knowledge, 0.722 for attitude) was used. Dietary intake was evaluated using the 24-hour recall method on rest days and training days. Dietary intake was analyzed based on energy, protein, fat, and carbohydrate adequacy. Data were analyzed using the chi-square test.

Results: Most athletes have low nutritional knowledge (84.6%), and more than half show a positive attitude (54.8%). However, no significant association ($p>0.05$) was found between nutritional knowledge and attitude towards adequate intake of energy, protein, fat, and carbohydrates, either on rest days or training days.

Conclusions: Nutrition knowledge and attitudes are not significantly related to dietary intake. Further research is needed to explore other factors that influence nutritional behaviour in athletes.

Keywords: nutritional knowledge, attitude, dietary intake, sport, athletes

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SUPPLEMENT

The role of vitamin D and fish oil supplementation in a critically ill myasthenia crisis patient: A case report

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Abstract

Background and objectives: Myasthenia gravis (MG) is a rare, chronic autoimmune disease with an incidence of 1.7-28 cases per 1,000,000 person-years. It can progress to myasthenic crisis (MC), a life-threatening complication characterized by respiratory failure. Most MC patients require mechanical ventilation (MV) and often have trouble during MV weaning. This case report aims to describe the potential role of vitamin D and fish oil supplementation in facilitating MV weaning in a patient with MC in the intensive care unit (ICU).

Case report: We present the case of a 22-year-old man with MC and respiratory distress, admitted to the ICU requiring MV. The patient had normal nutritional status with initial body mass index (BMI) 20.32 kg/m². He failed three MV weaning attempts. He subsequently underwent tracheostomy and received vitamin D and fish oil supplementation.

Results: During 22 days in the ICU, his energy intake ranged from 13-32 kcal/kg body weight/day, and his protein intake ranged from 0.4-1.6 g/kg body weight/day. Vitamin D supplementation was initiated on day 5, followed by fish oil on day 6. Fish oil, which contains eicosapentaenoic acid (EPA), may help preserve diaphragm strength with reduce calpain activation, while vitamin D supports muscle function and immune response, potentially enhancing diaphragm performance. The patient was successfully weaned from MV and discharged from the ICU on day 23.

Conclusion: Vitamin D and fish oil supplementation may support the MV weaning process in critically ill patients with MC.

Keywords: vitamin D, fish oil supplementation, myasthenia crisis, critically ill, mechanical ventilation weaning

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