



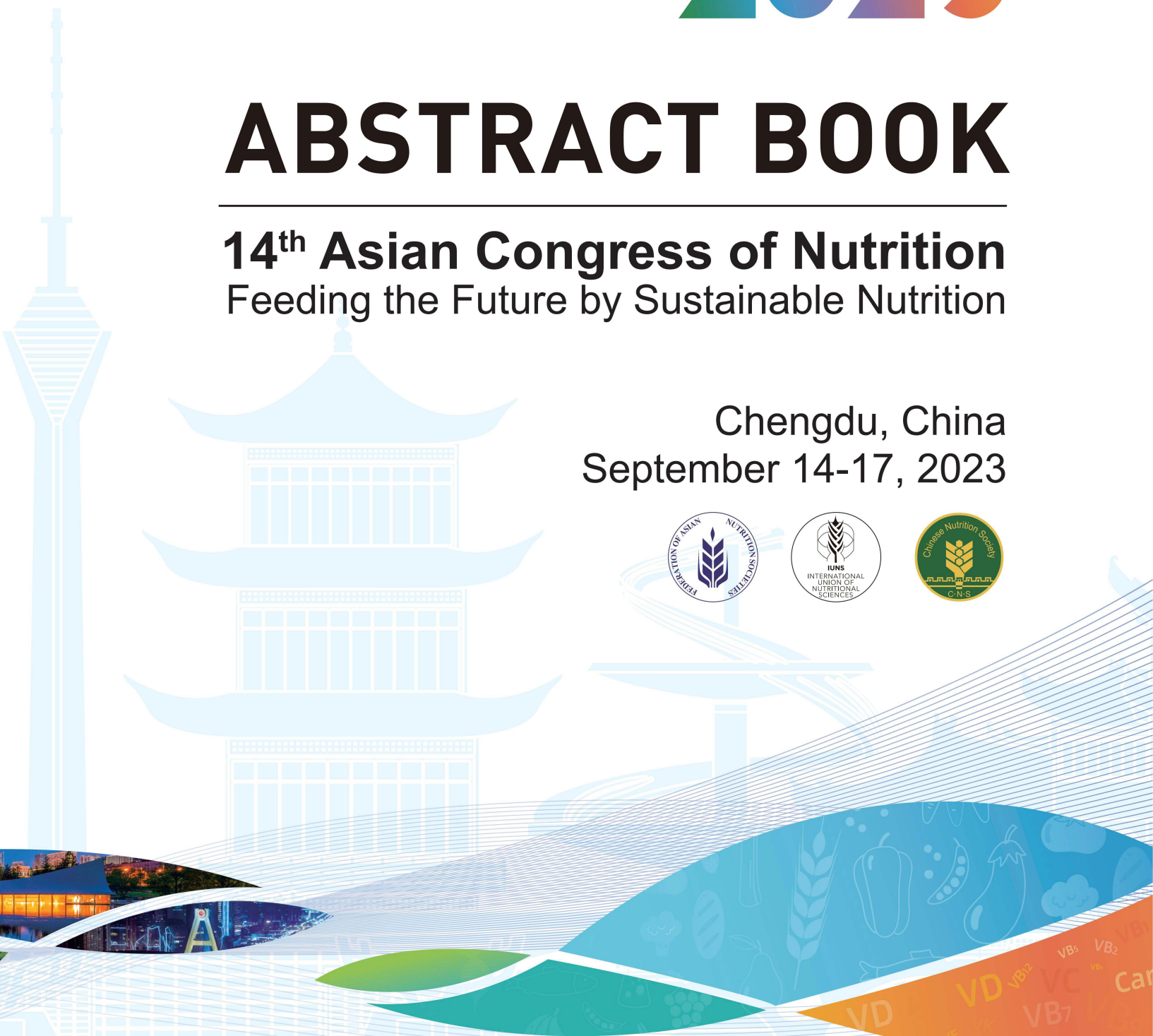
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ABSTRACT BOOK

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Category: Nutrition Education

How did the elementary students' perceptions of food change through learning activities about sustainable agriculture?

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Background and Objectives: BISTRO GESUIDO, a sustainable agriculture system which uses resources from municipal wastewater to produce food, has been implemented as a pioneer project since 2016 in Tsuruoka city, Yamagata prefecture, Japan. However, it is still difficult to obtain consumer acceptance of foods produced by BISTRO GESUIDO. Food education would be significant, especially for children, to promote not only their own health but also sustainable food systems in our society. The objective of this study is to investigate the effects of learning about sustainable agriculture and its effect on students' perceptions of food.

Methods and Study Design: Sixty-nine 6th graders in elementary school attended our learning program in 2022. They visited a local wastewater plant on a school trip. They received a lecture about BISTRO GESUIDO from the staff, then they watched how *Ayu*, "Sweetfish", were reared in the pool filled with filtered wastewater. They ate vegetables produced by BISTRO GESUIDO. We implemented a questionnaire and the image mapping method before and after our program.

Results: Before the program, under 20% of students knew about the wastewater. After the program, over 75% of them understood it, and it suggested the positive effects of our program. The majority of students (45%) wrote "dirty" as the first word in their image maps on wastewater before learning. However, the percentage decreased to half after the program. Also, new words such as "wastewater plant" and "producing nutrients" were added to the maps. These changes might have been as a result of practical activities such as visiting and watching the actual system of BISTRO GESUIDO.

Conclusions: BISTRO GESUIDO could be a good topic for elementary students to learn about sustainable eating. In addition, their perceptions of food could be improved by practical learning activities at school.

Key words wastewater, sustainable agriculture, food education, elementary school students

Category: Nutrition Education

护士与药师在肠内营养管饲的实践情况调研

A survey of enteral feeding tube practice between nurses and pharmacists

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Background and Objectives: The enteral nutrition and medication administration with an enteral feeding tube is complex and prone to errors. Data on adherence to the standard protocols on tube feeding remain scanty. To assess nurses' and pharmacists' knowledge of enteral nutrition procedures and medication preparation and administration through enteral feeding tube.

Methods and Study Design: In this study, a 22-item online questionnaire was developed. Questions reflected key aspects of guidelines recommendations on enteral nutrition procedures and medication administration via enteral feeding tube. Average scores of knowledge and practice questions as well as the proportion of answering correctly to the individual questions were compared between nurses and pharmacists. The relationship between the scores and the different conditions of the participants was studied.

Results: A total of 393 valid questionnaires were completed by nurses and pharmacists. The average score of nurses, CSPEN-member and non-CSPEN-member hospitals' pharmacists were 28.3, 30.4 and 22.8. Nurses had significantly better knowledge on the prevention of regurgitation and aspiration and the tube flushing. The accuracy of pharmacists from CSPEN-member hospitals was higher than those from non-CSPEN-member hospitals of each question. The CSPEN-member hospitals' pharmacists scored better than nurses in the aspect of drug-drug, drug-nutrient interactions and selection and preparation of drugs even if there were no statistical differences found.

Conclusion: Our findings demonstrate that nurses' and pharmacists' knowledge of enteral nutrition procedures, medication preparation, and administration through enteral feeding tube was poor. It is suggested that routine in-servicetraining should be conducted immediately and the standard operating procedure and clinical-practice guidelines should be standardized developed. Enteral tube feeding is complex and prone to errors, which requires the collaborative efforts of doctors, nurses and pharmacists, with the aim of reducing operating errors of enteral tube feeding and improving patient care in hospitals.

Key words Enteral feeding tube, Questionnaire, Nurses, Pharmacists

Category: Nutrition Education

Mindful eating, satisfaction and portion size applied to snacking - how all can influence eating behaviour?

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Snacking (eating between the traditional main meals), per se, is not unfavorably associated with health-related outcomes. This is a food habit which has become very popular worldwide. It accounts for significant amounts of nutrients and energy, as snacking contributes between 5% and 33% of daily energy intake. Portion size, and especially oversizing lead to overconsumption without compensation at next meals. This has been well demonstrated in children and in adults. Many high energy dense foods are usually highly liked and may easily be overconsumed if presented in large portions. Downsizing showed interesting reduction in energy intake, especially in lab conditions. To successfully reduce portion size, food satisfaction, based on three complementary dimensions (sensory properties of foods, physical sensations of the subject as satiation, satiety, quantity of energy provided) may contribute to a successful strategy of downsizing. Snacking practices are known to be susceptible to environment and emotional influences, which makes snacking both a potential challenge for energy balance and diet quality and an opportunity to apply the principles of mindful eating. This concept draws on the wisdom of both the mind and the body by helping individuals cultivate greater awareness of the distinctions between physical and psychological sources of hunger, taste and satiety/ fullness. Applying mindful eating concepts to snacking occasions by paying attention to the present moment and avoiding multitasking and distraction seems beneficial by lowering energy intake at snacking moment, but also at the following eating occasion, and possibly impacting food intake over the whole day.

To conclude, the combination of prepacked portions of pleasurable foods defined to reach a high satisfaction when eating in a context of mindfulness could help populations to control better their daily food intakes.

Key words food behaviour, mindful eating, satisfaction, portion size

Category: Nutrition Education

從腎病前期到血液透析階段的營養教育
Nutrition Education through the Pre-Renal disease to Hemodialysis stages.

Biling Yu*
HK Baptist Hospital

My Abstract topic: Nutrition Education through the Pre-Renal disease to Hemodialysis period.

Our Team member: Nephrologist(s), Renal center nurse(s), Dietitian (s), volunteer(s), Renal patient(s) and their carer(s).

Education period: August 2022 to March 2023 (8 months)

Education method: Talks, Cooking Demonstration, Interactive discussion, Q&A sessions. Videos and online links to elderly center and nephrologist clinics

Objectives: Our team aims to increase awareness of Renal health to elderly group, at the same time to encourage the participation of Renal disease patients' group to increase knowledge, nutrition, and cooking skills for their daily life.

Key words Pre-Renal, Hamodialysis, Cooking demonstration, Recipes

Category: Nutrition Education

Teachers' Insights in Achieving Better School Food Literacy Education and School Food Environment: A Qualitative Study

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Background and Objectives: Teachers are a main stakeholder group for food literacy education who are involved directly in the teaching-learning process. This study examined teachers' insights in relation to food literacy education in Sri Lankan schools from grades 6 to 11.

Methods: This qualitative study was conducted with eleven participants as key informants representing different types of government schools in six provinces in Sri Lanka. Teachers who teach Home Economics, Agriculture, Practical and Technical Skills, and Science were interviewed. The average duration of the interviews was sixteen minutes. The interviews were conducted until data saturation was reached. All the interviews were conducted in local languages and they were recorded, transcribed, and translated to English. Data were analyzed using NVivo (Version 11) software following the Thematic Analysis Technique.

Results: The findings revealed that the present curricula are exam-oriented, and the practical component is insufficient to improve the skills or the interest of the students in food literacy. Furthermore, the teachers suggested that the school food environment needs some improvements to support food literacy education, including making all school communities food literate, and establishing healthy school canteens as directed by government circular. Uneven distribution and limited resources among schools, undervaluing of food literacy-related subjects, and inadequate professional development for teachers to update knowledge were identified as the main obstacles to food literacy education. The support provided by parents, other school communities, and education administrators for food literacy education was the main plus point reported by the teachers.

Conclusion: The Sri Lankan school food literacy curriculum does not sufficiently address the food skills of school children, and school food environments need improvement to support food literacy education.

Key words Food literacy education, Key informant interviews, Qualitative analysis, Sri Lanka, Thematic analysis

Category: Nutrition Education

Plant-Based Nutrition Education Program for Healthcare Professionals

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Global food production is the cause of one third of the world's greenhouse gas emissions. Livestock for meat and dairy production alone accounts for 18% of greenhouse gases, more than all of earth's cars, trains and planes put together. High consumption of resource intensive meat, dairy, fat and sugar has taken its toll on global health. It is estimated that 1.3 billion people in the world are living with obesity. In the 2016 ADA paper, researchers updated the 2009 ADA position paper on vegetarian diets and concluded that not only are vegetarian and vegan diets appropriate for all stages of the life cycle (pregnancy, infancy, childhood, etc.), but they also help reduce the risk for heart disease, high blood pressure, type 2 diabetes, stroke, obesity, and some types of cancer. The updated position paper also presents a section on environmental issues which concludes plant based diets are more sustainable and less damaging to the environment.

The Physicians Association for Nutrition (PAN) is an international NGO established in 2018 on a mission to eliminate diet-related deaths globally by making nutrition a core part of healthcare and by engaging health professionals in efforts towards healthy and sustainable food environments. Currently, PAN International has established partnership with HKU SPACE to promote healthy food education among physicians and health professionals in the greater China region. A short certificate course has been designed by PAN International to kick-start this endeavour focusing on whole foods plant-based nutrition and impact on health and chronic diseases, climate change and pandemic risks and the connections between food and individual and planetary health.

This course is designed to equip physicians and healthcare professionals on the latest research on plant-based nutrition and understand the immense power of plant-based nutrition to prevent and treat disease, as well as to mitigate climate change.

Key words Plant-based nutrition, education, healthcare

Category: Nutrition Education

Positive feedback of PUTRA Community Nutrition Ambassador Programme (PUTRACNAP) among Malaysian mother-child pairs living in low-cost flats in Kuala Lumpur

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Background: The PUTRA Community Nutrition Ambassador Programme (PUTRACNAP) is developed to address food and nutrition insecurity among Malaysian urban-poor households living in low-cost flats. The programme integrates nutrition education and urban gardening activities, providing a healthier and more sustainable diet for the intervention respondents while creating a supportive environment to improve food security. This study aims to report the feedback of the intervention respondents, who are mothers as the primary caregivers and their children who act as supporters for their mothers in PUTRACNAP. **Methods:** The PUTRACNAP is a cluster randomized-controlled trial (c-RCT), whereby the intervention group consists of 33 pairs of mothers and their children (age: 7 to 12 years old) who participated in the PUTRACNAP for 3 months, while another 31 counterparts were in the control group. Both groups completed the questionnaires at baseline, while the intervention group completed the programme feedback questionnaires after the programme. **Results:** Nearly two in five (39.5%) of the intervention groups experienced food insecurity and three in five (58.0%) in the control group. All mother-child pairs (100%) reported that they were satisfied with PUTRACNAP interactive education workshops on nutrition and urban gardening, respectively. All mothers (100%) indicated that they would share their learnings and knowledge with their families and friends, and apply it to their daily lifestyle. **Conclusions:** This programme is feasible to conduct at household levels and can be an alternative to improve their food and nutrition security. However, further reports on the effectiveness of the programme are required to be considered.

Key words food and nutrition security; mother-child pairs; low-income; integrated approach

Category: Nutrition Education

Garden-based Nutrition Intervention Increased Knowledge, Self-Efficacy, and Vegetable Intake of the Urban Poor Children: “GrowEat” A Cluster Randomised Control Trial

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Background and objectives: School gardening programme has shown improvement on children’s vegetable intake. However, it is not known if gardening programme in urban poor home setting would show similar results. This study was conducted to evaluate the effectiveness of “GrowEat”, a garden-based nutrition intervention for improving psychosocial factors (knowledge, attitude, practice, and self-efficacy) of vegetable intake of the urban poor children.

Methods: A cluster randomized controlled trial (cRCT) was conducted from September 2022 to November 2022 among 125 urban poor children aged 9–12 years in low-cost flats in Kuala Lumpur, Malaysia. The intervention group (IG; n=70) received a 12-weeks intervention programme which consisted of gardening, nutrition education and cooking sessions, while the control group (CG; n=55) received no intervention. Children’s psychosocial factors of vegetable intake were evaluated using questionnaires while vegetable intake was obtained using a 2-days 24-hour dietary recall at three timepoint (baseline, post and 3-months follow-up).

Results: After the 12-weeks intervention, knowledge towards vegetable intake of children from IG significantly improved from baseline to post intervention (Δ : +0.83 p <0.001) and at 3-months follow-up (Δ : +0.88, p <0.001). The IG was reported to eat more vegetables at post intervention (Δ : +0.77, p <0.001) and during follow-up (Δ : +0.41, p=0.004). Although the increased vegetable intake across timepoints was significant among the IG, the intake was still below the recommended level. The self-efficacy to eat vegetables of IG significantly improved from baseline to post intervention (Δ : +4.64, p=0.015). No significant mean differences were observed between these psychosocial factors on vegetable intake over time among the CG.

Conclusions: The study suggests that garden-based nutrition programme can improve knowledge and self-efficacy of vegetable intake, which in turn improved vegetable intake of the urban poor children. Future research on ways to scale and sustain gardening efforts in urban poor setting is warranted.

Key words gardening intervention, nutrition education, psychosocial factors, vegetable consumption, urban poor

Category: Nutrition Education

WhatsApp-based Education Intervention to Promote a Healthy Lifestyle in Indonesia

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3.

Tea flavonoids have been shown to reduce risks of Cardiovascular Disease (CVD), and tea consumption might help reducing the problem in the community. The aim of this research was to evaluate the effect of a WhatsApp-based education intervention “HaH (Heart at Home)” program in increasing the knowledge, attitude, and practices in a healthy lifestyle. Subjects were women/men who are married, members of IHF (Indonesia Heart Foundation), aged 25–50 years old, and had a smartphone. The intervention included videos/ picture posts and online discussion and was conducted for 2 months using Whatsapp platform. Wilcoxon and McNemmar tests were implemented to examine the differences of subjects’ KAP (knowledge, attitude, and practices) before and after the intervention. Most subjects were women (96.3%), aged 25–40 years (78.8%), and housewives (67.5%). The score of knowledge increased about 17.5% ($p < 0.05$). More than 10% of subjects increased their knowledge related to the risk of CVD. Almost all subjects already had a positive attitude at baseline (94%) and was slightly increased to 97.0% ($p < 0.05$). After the intervention, positive health practices such as exercises, consuming vegetables, relaxation, and sleep were increased, while negative practices such as smoking, stress symptoms, and consuming high-cholesterol food were decreased. The present study showed that an online program application such whatsapp quiet effective in improving subject’ s behaviour, although this can be maximized by having more interaction with subjects.

Key words CVD, online education, tea consumption

Low-income Filipino Mothers' Cultural Concepts of Healthy Mothers and Children Do Not Align with Standard Nutrition Definitions

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Background and objectives: The health of Filipino children has not improved in the past years, despite implementation of several nutrition programs. The study explored cultural concepts of health among low-income mothers, to serve as input for planning nutrition education programs that seek to achieve behavior change. The objectives were to: 1) describe the qualities of healthy mothers and children from mothers' point of view; 2) compare these cultural concepts with scientific nutrition recommendations; 3) identify concepts that need to be clarified or corrected. The information can be incorporated in nutrition education programs to improve mothers' child care and nutrition practices.

Methods: The qualitative study was based on grounded theory. In-depth interviews via Zoom (due to the pandemic) were conducted among 26 mothers from urban and rural areas in the country's major islands. A conversation guide was used to elicit mothers' concepts of a strong healthy child, strong healthy mother, and nutrition practices to achieve strong healthy children. Responses were transcribed verbatim. Thematic analysis was conducted on the resulting transcripts. An inductive approach was used wherein statements with common thoughts were coded and categorized into specific themes.

Results: Mothers believed 1) a strong healthy child is one who is physically active and highly engaged with his/her environment; 2) a strong healthy mother is one who is mentally strong in the face of problems; 3) while a healthy diet is important, the best way to promote child health is to provide daily vitamin and mineral supplements.

Conclusion: Filipino mothers possess cultural health concepts that are not necessarily consistent with standard nutrition definitions. These cultural concepts should be taken into account when planning nutrition education programs so that despite the presence of these beliefs, compliance with scientific nutrition recommendations to achieve optimal health can still be assured.

Key words health beliefs, culture, mothers, children, qualitative

Category: Nutrition Education

马来西亚校园营养推广活动 (MySNPP) : 新冠疫情的多样化策略 Malaysia School Nutrition Promotion Programme (MySNPP) : diversifying strategies during COVID-19 pandemic

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In view of the higher prevalence of overweight and obesity and thinness and stunting in Johore school-aged children, the Malaysia School Nutrition Promotion Programme (MySNPP) was initiated by Johore State Health Department and Nutrition Society of Malaysia. It aims to provide nutrition knowledge to the children and healthier school food environment in canteens. This presentation shares the programme concept, implementation approaches and experiences during COVID-19 pandemic in three districts in Johore.

The MySNPP comprises two components: (1) delivery of nutrition education to the children using the “Good Nutrition Key to Health Children (GNKHC)” modules (2) provision of nutritious meal to the children during recess. When schools were closed during the COVID-19 pandemic outbreak (Year 2021 and 2022), the interactive activities of the GNKHC were modified to suit the virtual learning platform, and nutritionists conducted the modules online as holiday camps. Seven primary schools, involving children, 57 teachers and completed these online camps. When the children returned to schools, 196 children and 26 teachers from another three schools completed the on-ground nutrition education camps. Pre- and post-questionnaires indicated that the children made significant improvements in the nutrition knowledge, attitude, and practice scores ($p < 0.05$). Majority of the children, teachers and parents gave positive feedback to the programme.

Although various challenges were faced when conducting the online and on-ground nutrition education of the MySNPP, the co-operation and support given by the school authorities, parents, and children are the main reasons for the programme success. The nutritious meals provision component of the MySNPP was resumed when the school re-opened (Mac 2022), and 91.4% of the children who completed the nutrition education session consumed and enjoyed the meals. In view of the positive impact of MySNPP, it is highly recommended to be extended to all primary schools in Malaysia.

Key words school nutrition promotion programme; nutrition education; school canteen; knowledge, attitude, and practice on nutrition

Category: Nutrition Education

Sustainability of a Culinary Nutrition Education Intervention: Examining the Impact on Children's Dietary Practices and Variety

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Background and objectives: Culinary nutrition programs have received growing attention as a promising avenue to improve nutrition practices among children. However, these interventions must be further evaluated to determine the outcomes' sustainability, ideally among populations in developing nations given the limited evidence. The present study aimed to evaluate the sustainability of a culinary nutrition education program at a 3-month follow-up, in terms of children's dietary practices and variety.

Methods: This cluster randomized-controlled trial was conducted among Malaysian schoolchildren aged 10-11 years (n=83). The 12-week intervention included one introductory session with parents and five hands-on healthy meal preparation sessions. Children's dietary practices and variety were self-reported using a guided form adapted according to Malaysian Dietary Guidelines for Children and Adolescents, at baseline and three months after the intervention. Outcomes were analyzed using independent samples t-test and Mann-Whitney U test.

Results: Findings demonstrated that the intervention group sustained a significant increase in the consumption of healthful foods including whole grains (Δ mean= +1.11 times/day, $p<0.001$), vegetables (Δ mean= +1.37 times/day, $p<0.001$), and fruits (Δ mean= +1.15 times/day, $p=0.047$) in comparison with the control group, even after 3 months post-intervention. Similarly, the reduction of less healthful foods such as refined grains (Δ mean= -0.48 times/day, $p=0.001$), processed foods (Δ mean= -1.48 times/day, $p<0.001$), and sweetened beverages (Δ mean= -1.03 times/day, $p<0.001$) were observed in the intervention group. Further, children in the intervention group had good diet variety during dinnertime, compared to the controls ($p=0.017$).

Conclusions: The current study presented the sustainability of a culinary-focused intervention in improving dietary practices and variety. Findings highlighted the prospect of experiential culinary nutrition programs in advocating healthy eating behaviors and as such, similar programs deserve implementation in schools, ideally with stakeholders' support.

Key words culinary nutrition, dietary practice, diet variety, children, intervention

Category: Nutrition Education

Effectiveness of the “Carbohydrate Counting” Teaching Aid in Pediatric Diabetes

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Abstract

Introduction prevalence of diabetic in children and adolescents is increasing rapidly, reflecting inappropriate consumption which creates health problems and increases the risk of complications. In addition, diabetic in children and adolescents also means longer infliction compared to adults. Therefore, the research team chose Carbohydrate Counting teaching aid to provide targeted health education for young diabetic patients in combination with snacks nutritional modelling.

Objectives of this research is to ensure that young patients and their family are equipped with necessary skills to assess food that are appropriate for the disease. The study looked at the effectiveness of the Carbohydrate Counting.

Methodology teaching aid in 30 young diabetic patients who volunteered to be part of the study.

Each patient received individual nutritional counseling and was followed up over the period of 3 months.

Results the study found that patients receiving counseling using the Carbohydrate Counting teaching aid were able to control their blood sugar level better than before they received counseling. There was a significant increase of knowledge from a mean score of 6.333 and standard deviation of 1.709 during the pre-test to a mean score of 20.467 and standard deviation of 4.666 during the post-test. The increase is statistically significant at p-value < 0.001.

Conclusion in addition, each patient received a regular follow-up from a multidisciplinary team for a period of 3 to 6 months to review their knowledge and change their consumption habit under the pluralistic culture in a way that is appropriate for their treatment until the patients have sufficient skills to live happily in the society.

Keywords Carbohydrate Counting

Conflict of interest -

Key words Carbohydrate Counting

Category: Nutrition Education

营养素养的研究现状及热点分析：一项文献计量学研究

Research status and hotspots of nutrition literacy: a bibliometric study

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Objective: To analyze the research status and hotspots of nutrition literacy, and to provide reference for the further development of nutrition literacy. Methods: Using "nutrition literacy" as the search term, the Web of Science database was searched from the establishment of the database to June 1, 2023. Citespace was used for bibliometric analysis. Results: A total of 1537 literatures were included, and the number of publications increased year by year, with the peak in 2022. The country with the most publications was the United States, and the countries with close cooperation with China were the United States and Australia. The journal with the most articles was nutrition. The high-frequency joint words included health literacy, obesity, education, knowledge, adolescents, intervention, behaviors, self-efficacy, determinants, etc. Conclusions: Scholars from all over the world have paid increasing attention to nutrition literacy, and the number of publications has increased rapidly since 2009, which may be related to the fact that scholars have paid more attention to the nutrition and health of the social population after the economic crisis. Most of the research focused on the fields of public health, nutrition, education and so on. The research mainly focused on the health literacy, nutrition and health, obesity, health education and its influencing factors of children and adolescents. With the improvement of global living standards, people pay more attention to the balance of nutritious diet, and scholars from various countries have carried out many studies in this field. China has also become the main research subject, but there is little cooperation with other countries, and there is still a big gap with the developed countries in the United States. In the future, interdisciplinary and multi-field cooperation can be carried out to strengthen international exchanges and promote the further development of nutrition literacy research in China

Key words Nutrition literacy; Bibliometrics; Research hotspots; Visualization;

Category: Nutrition Education

二十四节气背景下的幼儿园食育教育探索研究

Research On Kindergarten Nutrition Education Under The Background Of 24 Solar Terms

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Research On Kindergarten Nutrition Education
Under The Background Of 24 Solar Terms

Research background: Nutrition is closely related to children's life, and has important value for children's healthy growth. Through consulting relevant literature, it is found that nutrition is still in the embryonic stage in the preschool education stage, and there are few practical explorations and studies. At the same time, the 24 solar terms are excellent traditional Chinese culture, which needs to be passed on through education.

Purpose of research: Combining the 24 solar terms with nutrition education will be beneficial to cultivate children's nutrition awareness, healthy eating habits, carry forward the traditional food culture, and enhance children's cultural confidence.

Research design: Constructed the implementation path of "systematic promotion, segmented implementation, and multiple fusion", and innovated the 24+6+N nutrition education course model.

Research method: Comprehensively uses observation method and case analysis method.

Results and conclusions: Through the series of nutrition education activities in the kindergarten to cultivate children's love for traditional Chinese culture and national pride. Secondly, through nutrition activities, children can understand the relevant nutritional knowledge, and help children to change their dietary behavior, develop scientific and healthy eating habits, and internalize it into their own life attitude and healthy lifestyle.

Key words: school nutrition; nutrition education; nutrition under the 24 solar terms;

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Key words school nutrition; nutrition education; nutrition under the 24 solar terms;

基于可持续发展的营养科普模式探究——以 Z 世代为例

Exploration of the Nutrition Science Popularization Pattern Based on Sustainable Development – Taking Generation Z as an Example

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Background and objectives:

- Nutrition science popularization has gained higher attention.
- The influence of pseudo-science popularization has expanded.
- The content and methods of science popularization should be subdivided based on different groups of people.

This paper explores a nutrition science popularization pattern that can be adapted to the characteristics of different populations.

Methods: On the basis of Generation Z, literature investigation have been conducted with some actual industry successful projects and education models.

Results:

- Give full play to the advantages of professional strengths and consolidate the core of "Science and Speciality":

- 1) Utilize the authority of experts and scholars.
- 2) Draw support from authoritative organizations and institutional platforms.
- 3) Practices based on scientific research.

• Analyze the characteristics of population and innovative the patterns of dissemination:

i. Characteristics analysis of Generation Z: Generation Z presents the distinctive characteristics of "interest-oriented", "obsessed with the Internet", "concerned about socialization" on the tendency of behavior.

ii. Innovation for dissemination patterns targeting the characteristics of Generation Z:

1) Content innovation: Igniting the curiosity and inquisitiveness of Generation Z with new perspectives and viewpoints.

2) Form innovation: Instead of simple textual, the form of science popularization can be further innovated, for example, cartoon explanation and short video interpretation.

3) Scene innovation: Adding some properties of "interactive" and "current" to the nutrition science popularization scene.

4) Tool innovation: Providing professional inquiries and personalized nutritional supplementation schemes depending on digital tools.

Conclusions: Nutrition science popularization mode should consolidate the core of "Science and Speciality", and innovate the transmission pattern from four dimensions of content, form, scene and tool according to the characteristics of population.

Key words Nutrition science popularization; Pattern innovation; Population characteristics; Generation Z

Category: Nutrition Education

超重/肥胖妇女对肥胖和多囊卵巢综合征的认识、态度和实践 Knowledge, attitude and practice regarding obesity and polycystic ovary syndrome among overweight/obese women

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Abstract

Background and objective: Overweight and obesity in women of childbearing age are associated with an elevated risk of polycystic ovary syndrome (PCOS). This study aimed to investigate the knowledge, attitude, and practice (KAP) among overweight and obese women of childbearing age towards obesity and PCOS.

Methods: This cross-sectional study enrolled overweight and obese women of childbearing age in Hunan Provincial Maternal and Child Health Care Hospital between November 2022 and April 2023. Structural equation modeling (SEM) was used to analyze interrelationships among knowledge, attitude, and practice.

Results: A total of 740 valid questionnaires were collected, with 51.08% of participants aged 18–30 years. The knowledge, attitude, and practice scores were 13.55 ± 5.06 (possible range: 0–24), 27.27 ± 2.19 (possible range: 8–40), and 50.14 ± 6.49 (possible range: 14–70), respectively. Pearson's correlation analysis indicated a significant positive correlation between knowledge and attitude scores ($r=0.313$, $P<0.001$), as well as between knowledge and practice scores ($r=0.454$, $P<0.001$). Furthermore, a positive correlation was observed between attitude and practice scores ($r=0.415$, $P<0.001$). Based on the SEM of KAP, knowledge had a direct and positive effect on both attitude ($\beta=0.13$, $P<0.001$) and practice ($\beta=0.46$, $P<0.001$). Additionally, attitude had a direct and positive association with practice ($\beta=0.90$, $P<0.001$). Knowledge had an indirect effect on practice through attitude ($\beta=0.12$, $P<0.001$).

Conclusion: Participants exhibited insufficient knowledge, neutral attitude, and suboptimal practice regarding obesity and PCOS. The SEM was suitable for explaining women's KAP regarding obesity and PCOS, in which knowledge had direct and positive effect on attitude and practice, while attitude also played a role as an indirect effect between knowledge and practice.

Key words Knowledge, Attitude, Practice, Overweight, Obesity, Polycystic ovary syndrome

Category: Nutrition Education

近现代中国营养观念的传播与普及

Transmission and Education of Yingyang as a Scientific Notion in Modern China

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My paper mainly deals with the transmission and education of such scientific notions as nutrition and nutrients in the social context of modern China, as their Chinese counterpart yingyang reconciled traditional cosmology with modern scientific discoveries and local knowledge with experimental research.

The first part centers on how Ding Fubao and his disciples enthusiastically embraced Western nutriology and integrated it in their theories on Chinese medicine. They claimed nutrients like carbohydrate and protein as the origin of pneuma (qi) and the driving force of blood circulation (xue), and categorized different types of nutritional (you yingyang) food according to their warm or cold nature. Furthermore, the vital role played by yingyang in gaining favor from the social public against the abolition of Chinese medicine in the 1920s will also be closely examined.

The second part investigates the emergence of the first generation of Chinese nutriologists, who paid most attention to the nutritional status of nursing mothers, babies and school children and suggested them to take in more proteins to enhance their health conditions. Given the impoverished state of China and a lack of high protein food, they examined the nutritional ingredients contained in everyday Chinese diet and proposed to eat bean products as substitutes, and promoted their proposal by engaging the prevailing discourse of nation building.

The third part explores the institutionalization of yingyang-related affairs at the state level, as the nationalist government formulated a set of guiding principles for Chinese people's daily intake of essential nutrients, established new administrative departments to regulate the production and processing of food, and officially encouraged scientists to breed high-yielding crops and develop food supplements. During the Anti-Japanese War, confronted with a severe shortage of military provisions, the issue of nutrition was directly associated with China's survival and eventually gained its legitimacy in society.

Key words Nutrition; Chinese Medicine; Public Health; Nation Building; Experimental Research; Food Supplements

Category: Nutrition Education

在校大学生营养健康教育探究

Nutrition education among college students

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Abstract Proper dietary nutrition is essential for maintaining normal physiological function, promoting health and preventing diseases. Nutrition education is an effective way to improve nutrition literacy and promote healthy eating behaviors. Studies have indicated that unhealthy food choices and imbalanced nutrient intake are widely existed among college students in China, such as insufficient energy supply from dietary carbohydrates, higher dietary fat intake compared to the recommended dietary guidelines, and inadequate intakes of vitamins, minerals and dietary fibers, which may then lead to obesity, cardiovascular diseases and other chronic health conditions, and this possibly due to the lack of nutrition knowledge. There are many effective ways to enhance the nutrition awareness of college students, develop healthy dietary habits and thus improve their health. Multimedia equipment could be used to enrich the nutrition education courses, the use of case studies and sitcom performance to innovate nutrition education mode, and the combination of new dietary survey methods such as computer software and cell phone applications to design dietary intervention programs, all of them could improve nutrition education of college students. Given that the current status of nutrition curriculum construction in colleges, it is important to develop appropriate nutrition teaching materials and corresponding curriculum training programs based on the nutrition status of college students in different grades, and to explore nutrition education approaches that suitable for the college students in China, therefore to further implement nutrition education initiatives and improve the nutrition literacy level for college students.

Key words College students; Nutrition education; Nutrition literacy

Category: Nutrition Education

基于微信小程序的中国成年人膳食纤维摄入模式评估工具可用性和可接受度研究

Usability and Acceptability of a Mobile WeChat Assessment Tool to Capture Dietary Fiber Intake Patterns in Chinese Adults

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Backgrounds and objectives:

In Chinese adult, dietary fiber intakes have decreased due to changing dietary habits in past decades. A mobile application with good usability to capture dietary characteristics may help individuals to make healthier dietary decision. This work aims to test the usability and acceptability of a mobile assessment tool based on WeChat Mini-Program to capture dietary fiber intake patterns in China.

Methods:

A WeChat Mini-Program was developed to characterize dietary fiber intake patterns. The food survey was designed based on 4.9 million self-reported food records from 1.6 million Chinese users through a dietary app from 2018 - 2019 and contained 55 food items from high fiber-contributing food groups: grains (n = 9), vegetables (n = 23), legumes (n = 7), tubers (n = 4), fungus (n = 3), and fruits (n = 7). In June 2022, usability measured by the System Usability Scale (SUS, scoring between 0-100) was tested in 1000 participants. Completion rate and time were recorded through WeChat system function. Based on usability test results, the user-interface was revised before a pilot launch. Informed consents were gained from all users.

Results:

For the usability test, a total of 741 participants logged on to the WeChat Mini-Program and 571 completed the food survey (completion rate = 77%) with average 199 seconds. Average SUS score was 60.27 (n=331), close to 68 as the acceptability threshold. To enhance usability, the number of screens was reduced by re-organizing food items from food group to frequency. The updated version achieved an improved performance in the pilot launch: 712 out of 800 users opened and completed the food survey (completion rate = 89%) with average 48s.

Conclusions:

Our results showed usability test could help enhance completion rate with shorten completion time for a WeChat assessment tool to capture dietary fiber intake patterns in China.

Key words Digital Nutrition, Dietary Fiber Intake Patterns, Food Survey, Usability Test

Category: Nutrition Education

女子攀岩运动员营养评价及膳食干预效果研究

Nutritional Evaluation and Effectiveness of Dietary Intervention for Female Rock Climbers

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Objective: Each sport has completely different body composition requirements, as excess fat mass, or even muscle mass, can be a burden for female rock climbers. Athletes need scientific guidance in their nutritional management and training.

This study investigated the nutritional knowledge, nutritional attitudes, dietary behaviours, dietary intake and body composition of female rock climbers in Hubei Province before and after a nutritional intervention through the Knowledge, Attitudes and Behaviour Questionnaire (KAP), dietary surveys and body composition tests, and to evaluate the effects of the nutritional intervention.

Method: The body composition of the athletes was measured using the Inbody720 body composition tester and the athletes' blood parameters were measured. The athletes were given a dietary nutrition intervention by means of nutrition education.

Results: (1) The mean scores on the KAP nutrition questionnaire before the intervention were: general nutrition knowledge 9.13 ± 1.63 , sports nutrition knowledge 6.13 ± 1.38 , nutritional attitude 12.63 ± 3.13 , nutritional behaviour 26.38 ± 3.13 and the athletes' total score 54.25 ± 4.56 . (2) After the intervention, the athletes scored 13.75 ± 0.375 on general nutrition knowledge, sports nutrition knowledge 9.50 ± 0.50 on nutrition knowledge, 19.88 ± 2.88 on nutrition attitudes, 39.25 ± 6.00 on nutrition behaviours and 82.38 ± 8.63 on the total KAP questionnaire. there were significant differences ($p < 0.05$) in the scores on each section of the KAP nutrition questionnaire and the total score compared to the pre-intervention period. (4) The total energy score of the athletes after the intervention was 82.38 ± 8.63 .

Conclusion: The study concluded that the 12-week nutrition education intervention significantly improved the nutritional knowledge of rock climbing mobilisers and improved their nutritional attitudes and behaviours. Regular monthly body composition testing, combined with the nutrition education intervention, optimised the body composition of the climbers, increased muscle mass and significantly reduced body fat and body fat percentage, and the nutrition education intervention increased the athletes' ferritin levels and haemoglobin levels.

Key words Athlete nutrition; Dietary interventions; rock climber; Nutrition KAP questionnaire

Category: Nutrition Education

河南省居民平衡膳食知识知晓率状况分析

Analysis on the awareness rate of balanced diet knowledge among residents in Henan province

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Abstract : [background] The Healthy China Action (2019–2030) clearly states that “balanced diet is the basis of health”. Four of the six core recommendations in the “Chinese Dietary Guidelines 2016” are related to balanced diet. [objective] To assess the awareness rate of residents in Henan Province on the balanced diet knowledge based the Chinese DG 2016, and to provide a data support for the future education of dietary guidelines in Henan Province. [Method] adult people were surveyed with a standard questionnaire (household inquiry) in 14 survey sites in September, 2021. The full score is 30 points. If the score is more than or equal to 22.5, it will be determined as “knowing”, and if the score is less than 22.5, it will be determined as “not knowing”. [Result] Most of the 4735 respondents had correct understanding of the intake of eight kinds of food, namely, vegetables, fruits, lean meat of fish and poultry, eggs, processed meat products and sugary food or beverages. However, only 23.5% and 23.8% of the respondents knew that milk and soybean food should be “eaten more”, respectively. About the salt, cooking oil and added sugar, more than half of the respondents were not clear about the scientific intake amount. 87.1% of the people know that “vegetables for every meal”, 82.9% of the people know that “eat more dark vegetables, account for at least half of the total intake of vegetables”, 66.5% of the people know that “fruits every day”. Only 25.5% of respondents knew that “eat more than 12 kinds of food every day and more than 25 kinds of food every week”. [Conclusion] The overall awareness rate of balanced diet knowledge was 4.79% among Henan Province adult residents, more propagate should carried about soybean products, dairy products, oil, salt and added sugar.

Key words awareness rate/ balanced diet knowledge/ Chinese Dietary Guidelines 2016/ adult residents/ Henan Province