



PD001 / #350

STATION 01 - E-POSTER DISCUSSIONS 01: NEONATAL & PREMATURITY / INFANCY

THE RELATIONSHIP BETWEEN NEONATAL ANTHROPOMETRIC MEASUREMENTS AND BODY COMPOSITION IN TERM INFANTS

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Background and Aims: Evaluating infant body composition is important to assess growth quality and health. Air displacement plethysmography (PEAPOD) is the gold-standard for measuring body composition but is often cost-prohibitive. Mid-upper arm (MUAC), lower chest (LCC), and mid-thigh (MTC) circumferences have been proposed as cost-effective measures of infant growth, but little is known about their correlation with body composition.

Methods: An IRB-approved study enrolled 34 term infants at the time of delivery. Birth weight, length, and head circumference were collected from medical records and z-scores were calculated using the 2006 WHO growth standards. MUAC (n=24), LCC (n=24), and MTC (n=20) were measured within the first week of life. Percent body fat was measured by PEAPOD. Spearman correlations and linear regressions evaluated the relationship between anthropometric measurements and percent body fat.

Results: Median birth gestational age was 39.3 weeks (IQR 38.3-40.1) and 47.1% of infants were male. Percent body fat was positively correlated with birth weight-for-length z-score ($r_s=0.38$, $p=0.03$). However, weight-for-length z-score did not predict percent body fat in a linear regression model adjusted for gestational age and infant sex ($\beta=0.10$, $p=0.74$). Additionally, there was no correlation between percent body fat and birth weight ($p=0.07$), length ($p=0.65$), or head circumference ($p=0.19$) z-score. Similarly, there was no correlation between percent body fat and MUAC ($p=0.40$), LCC ($p=0.14$), or MTC ($p=0.08$).

Conclusions: Infant percent body fat was not correlated with MUAC, LCC, or MTC, suggesting that these anthropometric measurements are not representative of infant body composition. Further research should explore other potential measures of infant body composition.



PD002 / #407

STATION 01 - E-POSTER DISCUSSIONS 01: NEONATAL & PREMATURITY / INFANCY

THE MOSA STUDY: INVESTIGATING ASSOCIATIONS BETWEEN MATERNAL DIET AND HUMAN MILK PROTEIN CONTENT AND COMPOSITION IN DUTCH LACTATING WOMEN

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Background and Aims: Breast milk serves as the optimal nutrition for infants, playing a crucial role in their growth, development, and long-term health. However, the dynamic composition of breast milk warrants further investigation to fully understand its determinants. We investigate daily variations in protein content and composition within mature breast milk, and show the potential impact of maternal diet on these variations in healthy Dutch lactating women.

Methods: Twenty-one exclusively breastfeeding women (2-6 months postpartum) collected breast milk samples and recorded food intake for five consecutive days. Protein content and composition in milk were analysed using the DUMAS method and reverse phase-high pressure liquid chromatography. Daily variation across the five sampling days was assessed with ANOVA, Pearson correlations, and Intra Class Correlations (ICC). Maternal diet and protein composition were analysed using linear mixed models.

Results: Preliminary data of 13 women show a mean human milk protein content of 1.1g/100g and whey-casein ratio of 58:42. Protein composition does not significantly vary over sampling days, with ICC values ranging from 0.84 to 0.88. Moreover, data suggest various significant – but modest - associations between maternal protein intake and protein composition. Full analyses will be finalized in the coming months.

Conclusions: Our data show that 1-2 milk samples out of 5 consecutive days suffice to obtain reliable estimates of mature human milk protein content and composition in exclusively breastfeeding women between 2-6 months postpartum. Additionally, data suggest that maternal protein intake is linked to human milk protein composition, yet the modest effect size implies limited clinical relevance.



PD003 / #562

STATION 01 - E-POSTER DISCUSSIONS 01: NEONATAL & PREMATURITY / INFANCY

ADVANCING HUMAN MILK RESEARCH WITH DRIED MILK SPOT SAMPLING

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Background and Aims: Human milk serves as the optimal nutrition for infants, playing a vital role in their growth, development, and lifelong well-being. However, the ever-changing composition of human milk demands further research to comprehensively understand its determinants and impact on infant health. Existing milk sampling methods pose challenges for both participants and researchers due to special conditions during collection, storage, and transportation, often limiting sample quantity. To address these limitations, we explored the potential of a dried milk spot (DMS) method as a novel sampling approach.

Methods: We assessed commercial papers for milk collection as dried milk spots (DMS) and found them unsuitable for protein storage and recovery. Subsequently, we developed a wax-coated paper for human milk collection as DMS and assessed it for protein composition.

Results: We detected a consistent β -casein to α -lactalbumin ratio, the two most abundant proteins, over four weeks of storage. Analysing mature milk samples from 12 different mothers subsequently showed varying ratios despite similar total protein content, emphasizing the need to study individual protein composition variations rather than just total protein content. Next steps include 1) assessing DMS applicability for less abundant proteins, fatty acids, and oligosaccharides; 2) investigating within-feed and day-to-day variations; and 3) evaluating DMS method usability for end-users.

Conclusions: Our data demonstrates that the DMS sample collection method may offer a versatile and cost-effective solution for convenient milk sample collection, transportation, and storage. When fully developed, this method can enhance sample collection from various locations, thereby improving the analysis of human milk composition in epidemiological studies.



PD004 / #233

STATION 01 - E-POSTER DISCUSSIONS 01: NEONATAL & PREMATURITY / INFANCY

MATERNAL PLASMA CONCENTRATIONS OF OMEGA-6 FATTY ACID METABOLITES ARE DIFFERENTIALLY CORRELATED WITH BIRTH ANTHROPOMETRICS ACROSS MATERNAL HYPERTENSION CATEGORIES

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Background and Aims: Excessive intake of omega-6 fatty acids (n-6 FAs) is associated with adverse pregnancy outcome, but there is a gap in knowledge regarding the mechanism. To address this gap, we investigated the relationship between metabolites of n-6 FAs and infant birth anthropometrics in the setting of maternal hypertension.

Methods: Maternal plasma collected at the time of delivery (n=164) was analyzed for metabolites of arachidonic acid (AA) and linoleic acid (LA) using LC-MS/MS. Mothers were grouped into hypertension categories according to ACC/AHA guidelines. Birth anthropometrics were collected from medical records. Spearman's correlation coefficients were used to assess the relationship between maternal n-6 plasma concentrations and birth anthropometrics.

Results: Among normotensive mothers (n=93, 56.7%), maternal plasma concentrations of multiple AA and LA metabolites were negatively correlated with birth weight and head circumference percentiles. For women with gestational hypertension (n=28, 17.1%), multiple maternal AA metabolites were negatively correlated with gestational age and birth head circumference percentile. Among women with preeclampsia (n=22, 13.4%), multiple LA metabolites were negatively correlated with infant birth weight percentile. In contrast, the LA metabolite 12,13-DiHOME was positively correlated with infant birth weight percentile ($r_s=0.48$, $p=0.03$) and head circumference percentile ($r_s=0.51$, $p=0.02$) among women with chronic hypertension (n=21, 12.8%).

Conclusions: Maternal metabolism of n-6 FAs may have a unique impact on infant birth anthropometrics across hypertensive categories. More research is needed to understand how intrinsic and environmental factors, including genetics and diet, modulate maternal n-6 FA metabolism to ultimately impact maternal hypertensive status and fetal growth.



PD005 / #234

STATION 01 - E-POSTER DISCUSSIONS 01: NEONATAL & PREMATURITY / INFANCY

MATERNAL PLASMA CONCENTRATIONS OF DOCOSAHEXAENOIC ACID METABOLITES ARE DIFFERENTIALLY CORRELATED WITH BIRTH ANTHROPOMETRICS ACROSS MATERNAL HYPERTENSION CATEGORIES

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Background and Aims: Dietary intake of docosahexaenoic acid (DHA) is associated with improved pregnancy outcomes, neonatal brain development, and fetal growth. However, the mechanism of action is unclear. To address this gap in knowledge, we investigated how bioactive metabolites of DHA impact birth anthropometrics in the setting of maternal hypertension.

Methods: Maternal plasma was collected at the time of delivery (n=164) and analyzed for DHA metabolites using LC-MS/MS. Mothers were grouped into hypertension categories according to ACC/AHA guidelines. Birth anthropometrics were collected from medical records. Spearman's correlation coefficients assessed the relationship between maternal DHA metabolite plasma concentrations and birth anthropometrics.

Results: Among normotensive mothers (n=93, 56.7%), maternal 19,20-DiHDPA plasma concentrations were negatively correlated with infant birth weight percentile ($r_s=-0.28$, $p=0.01$) and gestational age ($r_s=-0.23$, $p=0.03$). Among mothers with gestational hypertension (n=28, 17.1%), maternal plasma concentrations of 19,20-DiHDPA and 7-HDHA were negatively correlated with birth head circumference percentile ($r_s=-0.44$, $p=0.02$) and gestational age ($r_s=-0.57$, $p=0.001$), respectively. In contrast, for mothers with pre-eclampsia (n=22, 13.4%), 16,17-EpDPA was positively correlated with infant birth length percentile ($r_s=0.47$, $p=0.04$). Maternal DHA metabolites were not correlated with birth anthropometrics for mothers with chronic hypertension (n=21, 12.8%).

Conclusions: Surprisingly, maternal metabolites of DHA were negatively correlated with birth anthropometrics in women with normotension and gestational hypertension. More research is needed to understand how different metabolites of DHA impact fetal growth and whether modulating maternal DHA metabolism using a precision nutrition approach could improve infant health outcomes.



PD006 / #451

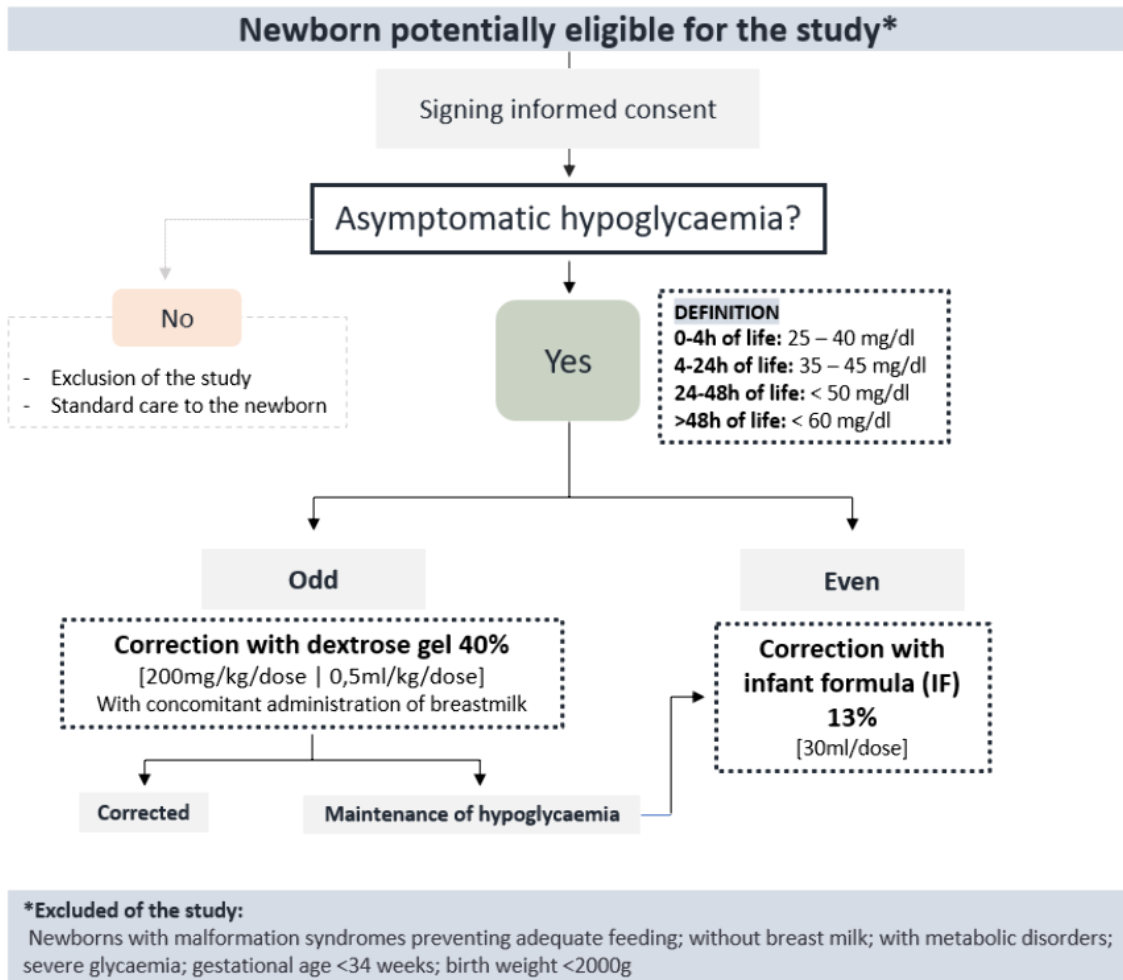
STATION 02 - E-POSTER DISCUSSIONS 02: NEONATAL & PREMATURITY / INFANCY

ORAL DEXTROSE GEL AS A THERAPEUTIC OPTION IN NEONATAL HYPOGLYCAEMIA – EFFICACY AND IMPACT IN EXCLUSIVE BREASTFEEDING

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Background and Aims: Neonatal Hypoglycaemia (NH) is a common clinical condition. If left untreated, can have serious complications such as neonatal seizures or neurodevelopment impairment. Breastfeeding is the better nutritional strategy in neonates. Management of NH is variable among neonatal centers. In some centers, treatment includes administration of infant formula (IF). Early introduction of IF is associated with lower rates of exclusive breastfeeding (EBF). An alternative therapeutic option is 40% dextrose gel, with an already approved efficacy and safety profile. It may have an important impact on the rate of EBF at neonatal discharge. With this work we aim to confirm the effectiveness of dextrose gel for NH correction and its impact on EBF at discharge.

Methods: A clinical trial was designed to be carried out at the Neonatal Service in *Centro Hospitalar Universitário de Coimbra*. At this point, the design of the study will be presented as well as the preliminary results (Task 1 to 3). Task 1 - design of the study protocol. Submission to the Ethical committee. Task 2- retrospective analysis of all asymptomatic non-severe NH occurred in the previous year (2023) considering clinical data, correction method used and nutritional strategy at discharge (EBF; complementary IF; IF only). Task 3: public presentation of the research protocol and preliminary data.



Results: Not Applicable.

Conclusions: With this randomized prospective single-centre study we expect to confirm the effectiveness of dextrose gel as a therapeutic method to correct asymptomatic non-severe NH. Also, higher rates of breastfeeding at neonatal department discharge with this method are expected to be observed.



PD007 / #363

STATION 02 - E-POSTER DISCUSSIONS 02: NEONATAL & PREMATURITY / INFANCY

WEIGHT GAIN AND BREASTFEEDING IN INFANTS GIVEN KANGAROO CARE IN A SOCIALLY VULNERABLE REGION IN BRAZIL

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Background and Aims: Kangaroo Mother Care (KMC) has been recommended by the World Health Organization as a perinatal care model promoting care for preterm and low birth-weight newborns. This model has shown benefits for better growth and development of this group. This study aimed to assess weight gain and breastfeeding in newborns (NB) given KMC.

Methods: A cross-sectional, nested cohort study of NB during the three stages of KC at a referral hospital was conducted between January and July 2017. Mean daily NB weight gain at each KC stage and type of breastfeeding at discharge were analyzed according to maternal and NB variables using χ^2 , likelihood ratio, Pearson's r , Student's t and Kruskal-Wallis tests. Approved by the Research Ethics Committee (permit 1.882.430).

Results: Mean NB weight gain increased significantly during the three stages (-1.2 ± 16.5 ; 9.3 ± 11.0 and 24.0 ± 12.1 g/day) ($p < 0.0001$), as did the rate of adequate weight gain (4.8%; 27.4% and 77.4%) ($p < 0.0001$). The rate of exclusive breastfeeding at KC discharge was 75.8%. A higher rate of inadequate weight gain was associated with mothers who had previous pregnancies ($p = 0.057$), were older ($p = 0.038$), had malnutrition or excess weight during pregnancy ($p = 0.003$), and also with NB appropriate-for-gestational age ($p = 0.036$) and gestational age < 32 weeks ($p = 0.043$). Exclusive breastfeeding rate was higher in mothers who worked outside the home ($p = 0.035$) and for NB with Apgar at 1-min score > 7 ($p = 0.026$).

Conclusions: The rates of adequate weight gain and exclusive breastfeeding were high at KMC discharge, but were influenced by maternal and NB conditions.



PD008 / #456

STATION 02 - E-POSTER DISCUSSIONS 02: NEONATAL & PREMATURITY / INFANCY

GROWTH PATTERNS BY BIRTH SIZE OF CHILDREN BORN PRETERM AT 23 TO 29 WEEKS GESTATION IN THE FIRST 1000 DAYS OF LIFE

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Background and Aims: Concerns are prevalent about preterm infant long-term growth that they are programmed to have stunting, underweight, high body fat, overweight, obesity as well as subsequent morbidities. The Objective of this study was to examine growth patterns of extremely and very preterm infants to three years corrected age, divided by their size for gestational age at birth: SGA, AGA, LGA.

Methods: Post discharge growth patterns were plotted against the World Health Organization growth standard using the PreM Growth study infants born <30 weeks gestational age and < 1500 grams, divided by their size for gestational age at birth: SGA, AGA, LGA, n = 1134. To avoid confounding of the growth patterns by influential morbidities, infants with brain injuries, necrotizing enterocolitis and bronchopulmonary dysplasia were excluded.

Results: By 4 months corrected age (CA) >75% of AGA and LGA infants' lengths, weights, head circumference and weight-for-length were >-2 z-scores. 89% of SGA infants' head circumference but only 45% of their weights and 32% of their lengths were >-2 z-scores at 4 months. Length, head and weight were greater than -2 z-scores by 21 months for most infants (60% or SGA and >86% of AGA and LGA). By 36 months length, head and weight were greater than -2 z-scores for >70% or SGA and >90% of AGA and LGA. Weight-for-length were surprisingly appropriate for almost all infants.

Conclusions: These growth patterns should reassure healthcare providers and parents that most preterm infants grow to their genetic potentials when provided with nutrition support.



PD009 / #595

STATION 02 - E-POSTER DISCUSSIONS 02: NEONATAL & PREMATURITY / INFANCY

THE ASSOCIATION BETWEEN ANXIETY AND BREASTFEEDING AMONG WOMEN IN ISRAEL

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Background and Aims: Human milk is the ideal nutrition for babies. Becoming a new mother can be challenging, causing anxiety which can impair maternal functioning and breastfeeding difficulties. **Aim:** To evaluate the association between anxiety and breastfeeding among women in Israel.

Methods: A cross sectional study, using **ABABIQ**- (The **A**ssociation **B**etween **A**nxiety and **B**reastfeeding **I**n **I**srael **Q**uestionnaire) an online survey of 47 questions directed to 144 women in Israel ≥ 18 who gave birth during the last six months. The survey asked about breastfeeding, and anxiety through the Generalized Anxiety Disorder-7 (GAD-7). Data was collected using QUALTRICS, transferred to SPSS v29 for statistical analysis. Means and standard deviations were calculated for continuous variables, percentages, for nominal variables. Chi-square test and correlations were performed.

Results: Age of participants was 32.42 ± 4.5 years, BMI was 25.11 ± 5.51 . Baby's age was 5.91 ± 2.12 months, No. of births 1.80 ± 0.926 . The results of GAD - 7 are (N=111/144): 1) Feeling anxious - 64.2%; 2) Not being able to stop worrying - 50.3% . 3) Worrying too much about things - 65.8% 4) Trouble relaxing- 52.3% 5) Being so restless that it's hard to sit still - 16.2% . 6) Becoming easily annoyed - 78.1% , 7) Feeling afraid as if something awful might happen 58.5% . 83% of the population who breastfed reported to feel anxious vs 27% who were not ($p = 0.024$).

Conclusions: There is an association between anxiety and breastfeeding among women in Israel. Recognizing the interplay between mental health and breastfeeding practices is essential for providing comprehensive support to mothers.



PD010 / #488

STATION 03 - E-POSTER DISCUSSIONS 03: NEONATAL & PREMATURITY / INFANCY

STIMULATION OF THE SUCKING REFLEX IMPROVE THE ORAL-MOTOR SKILLS OF THE PREMATURE BABY.

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Background and Aims: Long-term feeding through a naso/orogastric tube increases the incidence of nosocomial infection, trauma to the mucous membranes of the oropharynx, esophagus and stomach, which can negatively affect articulation, eating behavior and the processes of speech development in the future. Reducing the time of tube feeding has a positive effect on the health of the newborn, reduces the burden on medical staff and funding, which allows to improve a medical care organisation in neonatal departments. **Purpose:** To assess the efficacy of an oral sensorimotor intervention for the development of sucking function in premature infants.

Methods: The sucking function was assessed in 68 premature newborns born at 26-32 weeks. The main group (n=34) received stimulation of the sucking reflex; in the control group (n=34), newborns were observed under natural conditions of physiological nursing without the use of special techniques.

Results: The age of the first trial bottle feedings and the age of completion of the transition from tube to oral feeding were statistically significantly lower in the intervention group compared to the control group: 22 vs. 32 and 30 vs. 42 days of life ($p < 0.001$). This made it possible to put the baby to the breast earlier, due to which 85.3% of children in the main group received native mother's milk upon discharge, while in the control group only 58.8% ($p < 0.029$).

Conclusions: The use of the oral sensorimotor intervention premature infants ≤ 32 weeks of gestation helps to improve oral-motor skills, facilitates the establishment of exclusive breastfeeding in premature infants and can be used in a developmental care.



PD011 / #441

STATION 03 - E-POSTER DISCUSSIONS 03: NEONATAL & PREMATURITY / INFANCY

NO ASSOCIATION BETWEEN NUTRITIONAL INTAKE IN THE FIRST WEEK OF LIFE AND BODY COMPOSITION AT 2 YEARS OF AGE IN MODERATE AND LATE PRETERM INFANTS

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Background and Aims: Studies on nutritional requirements and the long-term influence of early-life nutrition in moderate and late preterm infants (MLPTI), infants born with a gestational age between 32 0/7 weeks and 36 6/7 weeks, are scarce. Therefore, more research is required to compose an evidence-based nutritional guideline for MLPTI. This study in MLPTI aimed to identify the association between early-life nutrition and body composition at two years corrected age (CA)

Methods: A prospective cohort study was performed on MLPTI born in the North-West Clinics, Alkmaar, The Netherlands. During hospital admission, data on nutritional intake was recorded daily, and thereafter at set moments at the outpatient clinic. Body composition was measured at the corrected age of 2 years using deuterium-labelled water.

Results: This cohort of MLPTI did not reach the recommendation of protein intake in the first months of life. No association was found between the intake of macronutrients during hospital admission and body composition at 2 years CA. There was no difference in body composition between infants who received mother's milk and those who were (partially) formula-fed. Excessive growth in the first months of life was neither correlated to body composition at 2 years CA.

Conclusions: Early life nutrition was not associated with body composition at 2 years CA, nor was there a difference in body composition in children who were fed with mother's milk or formula milk. This study highlights the importance of more research in MLPTI and their nutritional requirements to optimize body composition later in life.



PD012 / #492

STATION 03 - E-POSTER DISCUSSIONS 03: NEONATAL & PREMATURITY / INFANCY

ADHERENCE TO THE DIETARY APPROACHES TO STOP HYPERTENSION DIET DURING PREGNANCY AND ITS RELATIONSHIP WITH BIRTH WEIGHT

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Background and Aims: Adopting a healthy diet during pregnancy protects against birth weight deviations. The aim of the present study was to investigate the relationship between the adherence to the Dietary Approaches to Stop Hypertension (DASH) diet during pregnancy and birth weight classification according to gestational age.

Methods: Prospective cohort of 601 mother-child pairs in Ribeirão Preto, SP, Brazil. Food intake was assessed through two 24-hour dietary recalls and a previously validated food frequency questionnaire. The usual diet was estimated using the Multiple Source Method. Secondary data on birth weight, infant sex, and gestational age at delivery were obtained. The relationship between adherence to the DASH diet and birth weight categories was investigated using adjusted logistic regression models.

Results: The mean (\pm SD) age of the women was 27 (\pm 5) years. On total, 62 (10.3%) newborns were identified as small for gestational age (SGA), and 80 (13.3%) as large for gestational age (LGA). In logistic regression models adjusted for confounding factors, it was observed that pregnant women classified in the third tertile of the DASH diet score had a lower chance of having LGA children [OR 0,51 (IC95% 0,28; 0,94), $p=0,03$]. In the present study, there was no association between DASH diet adherence and SGA newborns [OR 0,87 (IC95% 0,42; 1,84), $p=0,65$].

Conclusions: The data from the present study suggest that greater adherence to the DASH diet in pregnancy reduces the chance of LGA newborns, which should be considered in the planning of actions to promote maternal and child health. Funding: CNPq (472221/2010-8 and 302498/2015-0).



PD013 / #504

STATION 03 - E-POSTER DISCUSSIONS 03: NEONATAL & PREMATURITY / INFANCY

EFFECT OF A LIFESTYLE INTERVENTION AMONG PREGNANT WOMEN WITH OVERWEIGHT ON BIRTH WEIGHT ACCORDING TO NEWBORN SEX: A RANDOMIZED CONTROLLED CLINICAL TRIAL

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Background and Aims: Previous studies suggest that maternal lifestyle might influence the birth weight in a sex-dependent manner. We aimed to evaluate the effect of a lifestyle intervention conducted among pregnant women with overweight on birth weight according to newborn sex.

Methods: A total of 350 pregnant women with overweight were recruited and randomly allocated into the control (CG) and intervention (IG) groups. The intervention consisted in three nutritional counselling sessions based on the NOVA food classification (encouraging the consumption of unprocessed and minimally processed foods, rather than ultra-processed foods), and the practice of physical activity during the pregnancy. Adjusted linear regression models were employed for all children, and stratified by child's sex was used to measure the effect.

Results: Adopting the modified intention-to-treat principle, data from 256 neonates were analysed for birth weight. Considering all children, the intervention had no effect on birth weight [β 78.9 (95% CI - 61.2, 219.1); $p = .27$]. Furthermore, the treatment had no effect on birth weight neither for male [β 37.4 (95% CI -140.9, 215.9); $p = .68$], or female infants [β 114.9 (95% CI -98.8; 328.8); $p = .29$].

Conclusions: In this study, the intervention for pregnant women with overweight had no effect on the newborn's birth weight, regardless of the child's sex. Further research is needed to investigate whether the effect of nutritional intervention studies among pregnant women has a different effect on birth weight according to the sex of the newborn. Funding: CNPq (406000/2018–2, 302487/2018–2 and 2021/06486-9), FAPESP 2017/15386–2, 2017/18980–2, 2021/06586-3, and 2021/06486-9), CAPES, and FAEPA.



PD014 / #100

STATION 01 - E-POSTER DISCUSSIONS 04: CLINICAL NUTRITION

ANALYSIS OF THE DIET QUALITY OF BREASTFEEDING WOMEN WITH AND WITHOUT A HISTORY OF GESTATIONAL DIABETES MELLITUS AND ASSOCIATION WITH HUMAN MILK COMPOSITION

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Background and Aims: Children exposed to gestational diabetes mellitus (GDM) in utero are at greater risk of developing chronic diseases such as type 2 diabetes. Given the significant influence of postnatal nutrition on children's long-term health, it is crucial to grasp how maternal diet influences human milk composition within the first weeks of life. Therefore, this study aims to study the association between diet quality of mothers with (GDM+) and without GDM (GDM-) using the Healthy Eating Food Index (HEFI-2019) and human milk composition.

Methods: At two-month postpartum, 24 GDM+ mothers (Age: 33.5 ± 3.6 years; BMI: 31.0 ± 7.2) and 29 GDM- mothers (Age: 30.0 ± 3.1 years; BMI: 27.7 ± 5.9) provided a maternal milk sample. Diet quality was assessed using the HEFI-2019 (on 80 points) calculated from a validated web-based food frequency questionnaire. Total solids content, triglycerides, proteins, lactose and energy were measured in human milk samples. Student t-test and Spearman correlation analyses were performed.

Results: The HEFI-2019 was similar between GDM+ and GDM- mothers (51.7 ± 6.5 vs. 50.3 ± 9.0 , $p=0.52$). The HEFI-2019 scores were not associated with human milk lactose, triglycerides or energy content ($p>0.05$). However, the HEFI-2019 was negatively correlated with human milk protein content among GDM+ mothers ($r=-0.42$; $p=0.04$). No association was observed among GDM- mothers ($r=0.13$, $p=0.51$).

Conclusions: In conclusion, overall diet quality at two-month postpartum was similar between breastfeeding women with and without history of GDM. Results of this study suggest that, among women with GDM, diet quality was inversely associated with human milk protein content.



PD015 / #315

STATION 01 - E-POSTER DISCUSSIONS 04: CLINICAL NUTRITION

THE COW'S MILK-RELATED SYMPTOM SCORE (COMISS) IN HEALTHY EGYPTIAN INFANTS

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Background and Aims: The Cow's Milk-Related Symptom Score (CoMiSS) raises awareness of Cow's Milk protein Allergy (CMPA) symptoms and has a cut-off of ≥ 10 for a "positive test". CoMiSS in healthy infants needs to be determined as the score does not return to 0 after elimination diet [PMCID:PMC4607180]. The median and mean (SD) CoMiSS in healthy European infants were 3.0 and 3.7 (2.9), respectively [PMCID:PMC6051613]. This study aims to establish normal values in healthy Egyptian infants.

Methods: In this prospective cross-sectional study pediatricians determined the CoMiSS in healthy infants ≤ 12 months. Infants seeking medical help due to CMPA symptoms, infants with any known or suspected diseases, preterm delivery, medication or food supplements were excluded.

Results: A total of 808 infants were included with a median (Q1;Q3) age of 7 (3;10) months (50.7% boys). The median (Q1;Q3) CoMiSS was 5 (5;6) and the mean (SD) was 5.2 (1.4). The 95th percentile was 7. There was no significant difference in median CoMiSS according to gender ($p=0.621$) or exclusively breastfeeding ($p=0.603$). The CoMiSS was statistically, but not clinically, significantly higher in the 0-6 months group with a Q1;Q3 of 5;6 compared to the 6-12 months group with a Q1;Q3 of 4;6 ($p=0.006$). Crying ($p<0.001$), regurgitation ($p=0.004$) and stool scores ($p<0.001$) were significantly different across the different age categories. The other factors of the CoMiSS were not age dependent.

Conclusions: In healthy Egyptian infants the median CoMiSS was 5. The 95th percentile was 7.



PD016 / #452

STATION 01 - E-POSTER DISCUSSIONS 04: CLINICAL NUTRITION

VARIABLE AGE OF ONSET OF VITAMIN B12 DEFICIENCY IN CHILDREN WITH SHORT BOWEL SYNDROME

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Background and Aims: Children with short bowel syndrome(SBS) risk developing vitamin B12 deficiency when weaned off parenteral nutrition(PN). There is little published information at what age vitamin B12 deficiency might develop. We aimed to analyse the age at when Vitamin B12 deficiency develops and possible predictive factors.

Methods: We recorded SBS aetiology, age of major intestinal resection, length of remaining small intestine, whether discharged home on PN or weaned off in hospital and age if Vitamin B12 deficiency developed, for all SBS children weaned off PN seen in our clinic

Results: Twenty-two children, 12 boys, 10 girls, aged 2.5-22 (mean 11) years were included. Commonest SBS aetiologies were necrotising enterocolitis NEC in 12/22, 54%, and mid-gut volvulus in 5/22, 22.7%. Mean birth gestational age was 31.1 weeks. Age at major small intestinal (SI) resection ranged from 2 days-5 years 2 months. SI length ranged from 7-100(mean 47.5)cm with absent ileo-Caecal valve in 13(59%). 17 children needed home PN and 5 weaned in hospital. Seventeen children (14/17 discharged home on PN and 3/5 hospital weaned) developed B12 deficiency Children weaned from home PN were B12 deficient from 11 days-15 years, **mean 44.9 months** and children weaned from hospital PN from 2.5-10 years 3months, **mean 89.6 months**. B12 deficiency was treated with oral B12 spray (9 cases) or IM B12 injections (8 cases). Normal Vitamin B12 blood levels were achieved with both treatments.

Conclusions: It is essential to follow up SBS children with vitamin B12 monitoring throughout childhood since deficiency can develop at any age and even as late as 15 years.



PD017 / #545

STATION 01 - E-POSTER DISCUSSIONS 04: CLINICAL NUTRITION

VALUE OF NUTRITIONAL SCREENING TOOLS VERSUS ANTHROPOMETRIC MEASUREMENTS IN EVALUATING NUTRITIONAL STATUS OF CHILDREN IN A LOW/MIDDLE-INCOME COUNTRY

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Background and Aims: Pediatric patients in low-income countries are at a high risk of malnutrition. Numerous screening

tools have been developed to detect the risk of malnutrition, including the Subjective Global Nutritional Assessment (SGNA), Pediatric Yorkhill Malnutrition Score (PYMS), Screening Tool for the Assessment of Malnutrition in Pediatrics (STAMP), and Screening Tool for Risk of Nutritional Status and Growth (STRONGkids).

Methods: We conducted a cross-sectional study of 1,000 children aged 1–12 years who visited the outpatient

clinic of Cairo University Pediatric Hospital. Each participant was evaluated using anthropometric measurements (weight, length/height, and weight for length/height) as well as the PYMS, STAMP, STRONGkids, and SGNA screening tools. The sensitivities and specificities of these four tools were assessed using anthropometry as the gold standard.

Results: Of the patients, 1.7% were underweight, 10.2% were wasted, and 35% were stunted. STRONGkids

demonstrated the highest sensitivity (79.4%) and a high specificity (80.2%) for detecting malnutrition compared with weight for height, followed by STAMP, which demonstrated lower sensitivity (73.5%) but higher specificity (81.4%). PYMS demonstrated the lowest sensitivity (66.7%) and the highest specificity (93.5%), whereas SAGA demonstrated higher sensitivity (77.5%) and lower specificity (85.4%) than PYMS.

Conclusions: The use of nutritional screening tools to evaluate the nutritional status of children is valuable and recommended as a simple and rapid method for identifying the risk of malnutrition in pediatric patients.



PD018 / #598

STATION 01 - E-POSTER DISCUSSIONS 04: CLINICAL NUTRITION

MALNUTRITION PREVALENCE IN NEWLY DIAGNOSED INFLAMMATORY BOWEL DISEASE PEDIATRIC PATIENTS

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Background and Aims: Malnutrition is a common feature in children with Inflammatory Bowel Disease (IBD), yet its prevalence remains underreported. This study aims to determine the occurrence of malnutrition in children newly diagnosed with IBD and assess the correlation between Body Mass Index (BMI) z-score at diagnosis and disease severity.

Methods: This retrospective cohort study analysed pediatric IBD patients diagnosed at a tertiary medical centre over a decade. Data on anthropometrics, disease type, and severity were extracted from initial visits using IBM SPSS software. The study applied descriptive statistics and Pearson correlation tests for data analysis.

Results: 62 patients were analysed, including 32 with Crohn's Disease (CD) and 30 with Ulcerative Colitis (UC), with an average age of 12.37 years. The mean BMI z-score was -1.081. Nutritional status distribution showed 50% normal weight, 1.61% obese, 4.84% overweight, 14.52% mildly malnourished, 17.74% moderately malnourished, and 11.29% severely malnourished. The prevalence of malnutrition was higher in patients with CD (53.1%) than UC (33.3%). In contrast with expectations, malnutrition was more frequently identified in less complicated forms of both diseases, with 37.50% in non-structuring, non-penetrating forms of CD and 23% in milder forms of UC. The Pearson correlation coefficient between disease severity and BMI categories was 0.257.

Conclusions: The study reveals a significant rate of malnutrition among pediatric IBD patients, particularly in those with Crohn's Disease. The correlation between disease severity and BMI was moderate, highlighting the importance of early nutritional assessment and intervention in pediatric IBD. Further research is needed to understand malnutrition's mechanisms and impacts.



PD019 / #491

STATION 03 - E-POSTER DISCUSSIONS 05: OBESITY

TAUROURSODEOXYCHOLIC ACID ENHANCES HEPATIC INSULIN SENSITIVITY THROUGH THE MODULATION OF MITOCHONDRIA-ASSOCIATED MEMBRANES

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Background and Aims: The loss of integrity in mitochondria-associated membranes (MAMs) contributes to hepatic insulin resistance during obesity. Treatment with tauroursodeoxycholic acid (TUDCA) has been demonstrated to restore insulin sensitivity in obese rodents and humans. However, the mechanisms responsible for these actions remain unknown. Here, we aimed to assess whether TUDCA enhances hepatic sensitivity to insulin in obesity by modulating MAMs.

Methods: Male C57BL/6 mice were either fed a standard (C) or a high-fat diet (HFD) for 105 days. In the last 15 days of the diet, 300 mg/kg of TUDCA or PBS was administered intraperitoneally. Human hepatocyte cell lines were treated with 500µM of palmitate for 48 hours, with or without the addition of 300µM of TUDCA in the last 24 hours. Data were analyzed by two-way ANOVA (Kruskal-Wallis, $P < 0.05$; CEUA: 5283-1/2019).

Results: TUDCA treatment reduced hepatic triglyceride content and restored liver AKT phosphorylation and insulin sensitivity in obese mice. These benefits were linked to an increase of MAMs contacts in the liver, as assessed by proximity ligation assay. In vitro, TUDCA enhanced insulin sensitivity, reduced oxidative stress markers, and decreased mitochondrial membrane potential in cells previously exposed to palmitate. This effect was associated with an increase in the MAMs contact, possibly via activation of the S1PR2 receptor.

Conclusions: Our findings demonstrate that MAMs play a role in the effects of TUDCA on improving hepatic insulin resistance, elucidating a novel mechanism of action for this bile acid in preventing insulin resistance in the context of obesity. Funding grant: FAPESP, CAPES and CNPQ.



PD020 / #390

STATION 03 - E-POSTER DISCUSSIONS 05: OBESITY

MULTIDISCIPLINARY OBESITY TREATMENT PROGRAM FOR CHILDREN AND ADOLESCENTS AT THE CHILDREN'S MEMORIAL HEALTH INSTITUTE IN WARSAW (POLAND)

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Background and Aims: The treatment of obesity in the pediatric population is currently a significant challenge for the health care. For this reason, in 2021 in the Children's Memorial Health Institute we established the Obesity Treatment Program (OTP). Patients are provided with multi-specialist medical care (e.g. experts in gastroenterology, psychology, anthropology, dietetics, physiotherapy). The series of 6 visits is carried out for each patient in OTP.

Methods: 180 patients (97 boys) completed a series of 6 visits in OTP. The individual diet was prepared by dietitians (1.500-2.200 kcal). Physical activity was recommended by physiotherapists based on a general assessment of the musculoskeletal system and fitness tests. Anthropometric measurements were performed using a standard measurement technique. Body composition analysis was performed using by bioelectrical impedance.

Results: The results of anthropometric parameters between first and 6th visit were compared. The body weight and BMI were significantly decreased: 2.5 ± 0.7 vs 2.3 ± 0.8 ($p < 0.0001$); 2.4 ± 0.5 vs 2.2 ± 0.6 ($p < 0.0001$) z-score, respectively. The percentage of body fat was decreased from 34.8 ± 5.6 to 33 ± 6.2 ($p < 0.001$), the waist circumference was decreased from 96.0 to 91.0 cm ($p < 0.0001$). 59 patients (33%) reduced their body weight by 5% or more. The percent of patients with third, second and first degree of obesity was decreased from 25.0, 30.6, 30.0 (first visit) to 17.2, 26.1, 26.7 (6th visit), respectively.

Conclusions: The Obesity Treatment Program at the Children's Memorial Health Institute provides multidisciplinary medical care for obese patients with ongoing monitoring of results and motivational support, which translates into achieving the clinical goal – loss of body weight.



PD021 / #531

STATION 03 - E-POSTER DISCUSSIONS 05: OBESITY

ASSESSMENT OF DIET AND COMPLICATIONS OF CHILDHOOD OBESITY DEPENDING ON ITS DEGREE

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Background and Aims: Background and aims: In recent years, a more frequent occurrence of severe obesity has been observed in younger children with earlier onset of comorbidity. The aim of the study was to compare diet and the occurrence of complications depending on the level of obesity in children.

Methods: Method: A total of 31 children (11.2±2.1 age) patients of University Children's Hospital, were surveyed. The study group was divided into 2 groups depends on BMI centile >99.9 as sever obese and <99.9 as obese. Children's diet were assessed (7 day diary) as well as biochemical parameters: total cholesterol, triglycerides, HDLc, LDLc, uric acid, glucose (serum 0, 120 post standard glucose load), Insulin (serum 0,120), vitamin D and TIBC.

Results: Children with severe obesity received statistically more calorie from diet but macronutrient composition didn't differ. Most micronutrient intakes were adequate in both group, the exceptions were low intakes of calcium an iron and magnesium but only iron and magnesium intake differ study groups (p<0.001). In sever obese patient more often impaired fasting glucose was diagnosed (9% vs 0%), impaired glucose tolerance (25% vs 13%), elevated triglycerides (36% vs 22%), elevate Chol (60% vs 40%), low HDL cholesterol (20 vs 14%), high uric acid in 12 (68% vs 45%), insulin resistance (68.7% vs 33%) as well as vit D deficiency (85% vs 72%), TIBC (25% vs 10%).

Conclusions: Conclusion. In children with severe obesity metabolic complication occurs more often regardless of the diet. Severely obese children have a greater risk of dietary iron and magnesium deficiency.



PD022 / #324

STATION 01 - E-POSTER DISCUSSIONS 06: CHILDHOOD & ADOLESCENCE / GUT MICROBIOME

DIET, GROWTH, NUTRITIONAL STATUS AND PREDICTORS OF SEVERITY OF FEEDING DIFFICULTIES OF AUTISTIC CHILDREN WITH PAEDIATRIC FEEDING DISORDER

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Background and Aims: Children with autism spectrum disorder (ASD) are known to have increased risk of feeding difficulties, with resultant malnutrition. There is limited data to guide early identification and referral of those with more severe feeding difficulties.

Methods: This is a retrospective review of patients with ASD attending an interdisciplinary feeding and nutrition clinic, between 2013 and 2022. Inclusion criteria: paediatric feeding disorder (PFD), not tube fed, had complete dietary data. Patient demographics, diet, growth, Behavioural Paediatric Feeding Assessment Scale (BPFAS) and Caregiver Feeding Style Questionnaire (CFSQ) results were analysed.

Results: Ninety-eight patients (82 male) were included. The mean (range) age at referral was 59.2 (17-169) months. Over half (58.2%) rejected at least 1 food group entirely and had severe food selectivity, whilst 22.4% had moderate and 19.4% had mild selectivity. Majority of children had normal weight (84.7%) and height (88.8%). Authoritarian feeding style was seen in 47.0%, followed by uninvolved (25.8%), indulgent (16.7%) and authoritative (10.6%). Mean (SD) BPFAS total frequency score was 89.8 (15.3). Children whose caregiver style was authoritarian had the highest mean BPFAS total frequency score (98.3 (15.8)), while uninvolved style was associated with the least (80.9 (11.0)); $p < 0.001$). Malay ethnicity and lower cognition ($IQ < 70$) were associated with more severe food selectivity, adjusted OR 123.7 ($p = 0.01$) and 38.0 ($p = 0.03$) respectively. Older age at referral was significantly associated with the child being underweight and having nutritional deficits (calories, calcium and iron), OR 1.02.

Conclusions: In children with ASD and feeding difficulties, Malay ethnicity, poorer cognition and caregivers with authoritarian feeding style were associated with more severe selectivity. Older age at referral was associated with the child being underweight and having nutritional deficits.



PD023 / #564

**STATION 01 - E-POSTER DISCUSSIONS 06: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**(DIS)SATISFACTION OF CHILDREN BETWEEN 6 AND 10 YEARS-OLD WITH THEIR BODY
IMAGE AND PARENTING STYLES AND DIMENSIONS**

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Background and Aims: Childhood obesity triggers adverse health consequences, with lifelong repercussions, namely an increased risk of developing cardiovascular and metabolic diseases. However, the psychological and social consequences are also a crucial point to take into account. Children's dissatisfaction with their body image has been widely documented, associating parental styles and dimensions with children's body self-perception and their weight status. Families and the school community are a reference for children, specifically with regard to nutrition, and it is important that they are involved in nutritional intervention strategies. The aim was relate children's (dis)satisfaction with their body image to their parenting styles and dimensions in children between the ages of 6 and 10.

Methods: A cross-sectional analytical observational quantitative study was carried out with 474 children between the ages of 6 and 10 from primary education in Madeira's São Martinho parish.

Results: It was found that 20.68% of the children are dissatisfied with their weight, especially male children (53.10%) and 7 years old (26.80%), of whom 66.33% wanted to lose weight and 33.67% wanted to gain weight with 98.95% of the parents of the children in the sample defined as "democratic parents".

Conclusions: Children's perception of (dis)satisfaction with their body image should be assessed in parallel with parenting styles and dimensions (associated with these children) since they play a key role in the diagnosis and understanding of paediatric malnutrition, allowing the definition of more effective intervention strategies, since the family and school community are a reference and model for the child with regard to food.



PD024 / #563

**STATION 01 - E-POSTER DISCUSSIONS 06: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**NUTRITIONAL STATUS AND ADHERENCE TO THE MEDITERRANEAN DIET IN CHILDREN
FROM 6 TO 10 YEARS-OLD OF SÃO MARTINHO, PORTUGAL**

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Background and Aims: Healthy eating plays a fundamental role in childhood by promoting the growth and development of children and preserving their health. Portugal is the second European country with the highest prevalence of childhood overweight, which indicates a public health problem. The westernization of food, to the detriment of the adherence to the Mediterranean Diet (AMD) is increasingly notorious, highlighting the importance that the family and the school have in children's food education. The aim was identify the nutritional status and the AMD in children from primary school between the ages of 6 and 10 in Madeira's São Martinho parish.

Methods: A cross-sectional analytical observational quantitative study was carried out with 474 children between the ages of 6 and 10 from primary education in Madeira's São Martinho parish.

Results: It was found that there is a high prevalence of malnutrition (67.50%) (31.00% due to excess), despite high levels ($7,95 \pm 2,09$ points) of AMD (58.90%). Countering the high levels of AMD, 44.50% of children do not eat a second piece of fruit every day, 32.90% do not eat fresh or cooked vegetables more than once per week, 40.70% do not eat fish regularly, 80.00% go one or more times per week to fast food restaurants and 57.20% do not eat 2 yoghurts and/or 2 slices of cheese per day.

Conclusions: The high percentage of malnutrition found in this population reinforces the importance of early intervention in cases of malnutrition using realistic and effective intervention strategies that included the family and the school.



PD025 / #597

**STATION 01 - E-POSTER DISCUSSIONS 06: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**WHICH FAMILY CHARACTERISTICS ARE ASSOCIATED WITH A BETTER ADHERENCE TO THE
EAT-LANCET DIETARY RECOMMENDATIONS? FINDINGS FROM THE GENERATION XXI BIRTH
COHORT**

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Background and Aims: This study aims to evaluate the associations between family characteristics and adherence to a healthy and sustainable dietary pattern, according to the Eat-Lancet dietary recommendations from sustainable food systems, at 7 years old (y).

Methods: Participants are children from the birth Portuguese cohort Generation XXI, who provided 3-day food diaries at 7y, used to assess habitual food consumption (n=2125). A predefined theoretical framework was used, based on socio-economic characteristics at child's birth, maternal characteristics before and during pregnancy (BMI, smoking, gestational diabetes), maternal diet quality and feeding practices at child's 4y, and family characteristics at child's 7y (family structure, siblings). Adherence to the Eat-Lancet recommendations was evaluated by the World Index for Sustainability and Health (WISH) adapted, at 7y. Hierarchical linear regression models were run [β regression coefficients and the respective 95% confidence intervals (95%CI)].

Results: Higher maternal age and education at child's birth were associated with increased adherence to the WISH at 7y ($\beta=0.018$, 95%CI: 0.005, 0.031; $\beta=0.038$, 95%CI: 0.024, 0.053, respectively). A better maternal diet quality, and using more restrictive practices on child's diet, at child's 4y, were associated with higher scoring in the WISH at age 7 ($\beta=0.033$, 95%CI: 0.018, 0.049; $\beta=0.067$, 95%CI: 0.009, 0.125, respectively). Maternal education and diet quality were the determinants that better explained the WISH score variance (final model: full vs. reduced: $R^2=42\%$ vs. $R^2=33\%$ and $R^2=37\%$, respectively).

Conclusions: Early maternal sociodemographic (especially education) and diet quality of mothers play a significant role in influencing healthy and sustainable diets of school-age children.



PD026 / #601

**STATION 01 - E-POSTER DISCUSSIONS 06: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**ANALYSIS OF FACTORS INFLUENCING GENERALIZED ANXIETY DISORDER AMONG
ADOLESCENT GIRLS –BY USING THE 17TH KOREA YOUTH RISK BEHAVIOR SURVEY-**

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Background and Aims: This research was conducted to examine the status of generalized anxiety disorder (GAD) among adolescent girls, utilizing the raw data from the 17th Korea Youth Risk Behavior Survey.

Methods: The number of adolescent girls in this study was 22,141, with 14.6% (n=3,256) classified as the high-risk group (HRG) for GAD. To create a low-risk group (LRG) comparable to the HRG, the Propensity Score Matching method was utilized to select subjects with the same age, living type, household income level, and BMI percentile.

Results: The results revealed that the probability of being part of the HRG for GAD increased from the baseline of 50% to 73.1% when experiencing high levels of stress and insufficient sleep. Additionally, when considering only dietary habits, the likelihood of being classified as part of the HRG for GAD increased from the baseline of 50% to 70.7% when consuming sweetened beverages more than five times a week and consuming fast food more than five times a week. When comprehensively considering general characteristics, health-related behaviors, and dietary habits, the analysis showed that the probability of being in the HRG for GAD increased from the baseline of 50% to 78.3% for those who experience high stress, insufficient sleep, and consume sweetened beverages more than five times a week.

Conclusions: To manage and prevent GAD, it is crucial to prioritize effective stress and management. Additionally, reducing the consumption of sweetened beverages and adopting a healthy diet, along with ensuring an adequate amount of sleep, are believed to be beneficial.



PD027 / #434

STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT MICROBIOME**RISK FACTORS FOR ABDOMINAL OBESITY IN ADOLESCENTS FROM MALOPOLSKA VOIVODESHIP, POLAND – A CROSS-SECTIONAL STUDY**

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Background and Aims: Abdominal obesity (AO) is an important risk factor for metabolic disorders not only in adults but also in children and adolescents. The objective of this study was to identify the association of selected modifiable and nonmodifiable risk factors with the prevalence of adolescent's AO.

Methods: The study included 381 school students aged 10 to 17 years (girls, 55.1%) in 2016 and 2017. Anthropometric and blood pressure (BP) measurements were taken. AO was defined by age- and sex-specific cutoff values for waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR). Nutritional status was assessed based on the interpretation of the BMI. A self-reported anonymous questionnaire was used to assess modifiable (including nutritional) and nonmodifiable risk factors for AO. Logistic regression analyses were applied to examine correlations.

Results: Overweight and obesity occurred in 16.7% of girls and 17% of boys. The prevalence of AO was 11.0% in boys and 10.5% in girls, as measured by WC; 8.1% in boys and 6.2% in girls, as measured by WHtR; and 6.0% in boys and 6.2% in girls, as measured by WHR. Based on WHtR, significant associations were shown between the higher risk of AO and the higher frequency of snacking ($p=0.011$), using weight loss diet ($p<0.001$), dissatisfaction with one's body ($p<0.001$), fear of weight gain ($p=0.019$), experiencing negative comments about one's appearance ($p=0.004$), and starting a weight loss diet under social or mass media influence ($p<0.001$).

Conclusions: Central obesity among adolescents is significantly associated only with modified activities, such as snacking, body self-perception, and social pressure.



PD028 / #415

STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT MICROBIOME**USING SYNBIOTICS SUPPLEMENTATION TO TREAT HEPATIC STEATOSIS WITH NAFLD: A SYSTEMATIC REVIEW WITH META-ANALYSIS STUDY OF RANDOMIZED CONTROLLED TRIALS**

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Background and Aims: Non-alcoholic fatty liver disease (NAFLD) is a chronic liver disease that occurs in a quarter of the global adult population. Thus far, NAFLD treatments are limited to lifestyle change and medicines with considerable adverse effects, with other novel treatment of choice, such as gut microbiota supplementation are currently being researched. This meta-analysis compares the effectiveness of prebiotics, probiotics, synbiotics, and placebo treatments for NAFLD-hepatic steatosis and has been written following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Methods: This systematic review has been registered to the PROSPERO database (CRD42023392048). Assessment of the bias risk of the included studies used Cochrane Risk of Bias Tool 2. The literature search was conducted by 5 independent researchers from November 15th - December 20th 2022.

Results: Out of the five outcomes of interest, AST, ALT, and IHTG demonstrate statistically significant results, supporting the use of synbiotic supplements rather than the placebo treatment, but LSM and HOMA-IR producing statistically insignificant results. To directly assess the number of lipids in patients with fatty liver disease, the parameter IHTG has been considered, which was observed in three included studies. Using synbiotics or probiotics significantly reduces IHTG with moderate heterogeneity ($p=0.02$; $I^2=60\%$). This study has offered a thorough and updated meta-analysis concerning the effects of synbiotic supplementation on patients with fatty liver disease.

Conclusions: Synbiotic supplements may serve as an alternative treatment for hepatic steatosis patients with NAFLD due to its significant benefit in reducing AST, ALT, and IHTG.



PD029 / #424

**STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**_PARENTAL INFLUENCE ON CHILD VEGETABLE INTAKE: INSIGHTS FROM SOUTH KOREAN
CHILDREN**

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Background and Aims: As we grapple with the rising challenges of childhood obesity and declining vegetable consumption in South Korean children, this study investigates the relationship between parental and child vegetable intake.

Methods: Our online survey was conducted from August 22 to August 28, 2023 on a total of 846 primary caregivers of school-aged children.

Results: Our findings reveal a significant positive correlation between parental and child vegetable intake, emphasizing the pivotal role parents play in shaping their children's dietary habits. Parents with higher food literacy provided greater social support and access to vegetables for their children. Motivations for vegetable consumption among both parents and children include nutrition, health, and personal preference. Meanwhile, barriers to vegetable intake, such as dislike, inconvenience, and taste, were reported by parents with lower consumption. Interestingly, children of parents actively trying to eat more vegetables exhibited higher cognitive and preference scores for various vegetables, underscoring the impact of parental intentions on their children's dietary choices.

Conclusions: These findings underscore the need for targeted interventions to enhance vegetable intake in South Korean children, with a strong emphasis on parental education and support. By empowering parents to increase their vegetable consumption and addressing the barriers they face, we can pave the way for healthier dietary habits in the future generation. This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (RS-2023-00280503).



PD030 / #484

**STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**NUTRITIONAL CHARACTERISTICS OF CHILDREN AND ADOLESCENTS WITH AUTISM
SPECTRUM DISORDER**

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Background and Aims: Autism spectrum disorder (ASD) in children and adolescents are associated with increased risks of overweight/obesity and underweight, and abnormal feeding behaviors. The aim of this study was to characterize the nutritional status and eating practices of children and adolescents with ASD.

Methods: This is a cross-sectional study including individuals responsible for children and adolescents aged 3 to 17 years old diagnosed with ASD. Data collection was realized with the application of an online questionnaire containing questions regarding personal, clinical and nutritional characteristics of children/adolescents.

Results: The study included 35 individuals (male, 74.3%; age, 6.6±3.2years). The BMI-for-age percentile data suggested that 45.7% of children/adolescents were normal weight, 25.7% were overweight/obesity and 14.2% with risk of overweight. A minority were mild underweight (5.7%). Details analyzes showed that 88.6% of children and adolescents were able to eat meals sitting at the table and 34.3% of children had mealtime behavioral problems. Regarding the food selectivity, 80% of the children/adolescents was selective, with 28.6% frequently consuming only 5 to 10 different foods and 8.6% accepting less than 5 different foods. The food group most refused was vegetables/legumes, followed by legumes/oilseeds. The characteristic of the food that was least accepted was the texture.

Conclusions: The majority of children and adolescents diagnosed with ASD were normal weight, but a considerable percentage of them showed overweight. Furthermore, a significant number of children and adolescents were selective in relation to food types and consistencies, which is worrying as the lack of variety of foods compromises the quality of these children and adolescents' diets.



PD031 / #535

STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT MICROBIOME

ADDITION OF DAIRY LIPIDS AND PROBIOTIC IN INFANT FORMULAS MODULATES GUT MICROBIOTA AND INTESTINAL PHYSIOLOGY WITH LONG-TERM CONSEQUENCES; A PRECLINICAL STUDY IN A MINIPIG MODEL

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Background and Aims: Whereas breast milk is the gold standard, most infants are at least partly formula-fed. The aim of the present study was to investigate the short- and long-term effects of the addition of dairy lipids (DL) as an alternative to plant lipid-based infant formula (IF) and of a probiotic, *Lactobacillus fermentum* (Lf), on gut microbiota composition and activity along with intestinal immune and barrier functions.

Methods: Piglets received from postnatal day (PND) 2 to 28 a formula with either: only plant lipids (PL), a half-half mixture of PL and DL (DL), or a half-half mixture of PL and DL supplemented with Lf (DL+Lf). Pigs were subsequently fed a standard diet for 1 month and then challenged with a high-fat, high-sucrose diet for 3 months (PDN140).

Results: Dietary-induced changes in gut microbiota composition were observed at both PDN28 and PDN140, mainly within Firmicutes (*Lachnospiraceae*, *Ruminococcaceae* and *Lactobacillaceae* families) and Bacteroidetes (*Prevotellaceae*, *Bacteroidaceae* and *Bacteroidales* S24-7 group families) phyla. At PND28, twenty fecal metabolites discriminated the three groups. DL and DL+Lf reinforced tight junction protein expressions in colon, with moderate changes in epithelial barrier permeability. At PND140, DL+Lf decreased the inflammation risk through reduced ileal pro-inflammatory cytokine secretion and increased ileal expression of genes encoding tight junction proteins. A slight but persisting effect of Lf on gut microbiota composition was observed between PND28 and PND140.

Conclusions: In conclusion, the addition of DL in IF changed the microbial signature and gut physiology in infants. The addition of Lf enhanced the beneficial effects observed in the long term.



PD032 / #479

**STATION 02 - E-POSTER DISCUSSIONS 07: CHILDHOOD & ADOLESCENCE / GUT
MICROBIOME**

**THE EFFECTS OF NUTRITIONAL COUNSELING PROVIDED BY A MULTIDISCIPLINARY TEAM
ON THE NUTRITIONAL STATUS IN CHILDREN WITH NON-IGE MEDIATED FOOD ALLERGY**

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Background and Aims: Pediatric patients affected by non-IgE mediated food allergies (FA) could present nutritional status alterations. We evaluated the impact of nutritional counseling on nutritional status of pediatric patients affected by non-IgE FA at diagnosis and after 12 months of follow-up.

Methods: Patients with non-IgE-FA (both sexes, aged <36 months), received soon after diagnosis, a nutritional counseling by dietitians specialized in pediatric FA. Nutritional status variables were analyzed at baseline and then after 12 months of follow-up.

Results: A total of 100 patients were included in the study: 58% male, mean age (\pm SD) 8.5 (8.8), 80% with cow's milk allergy. Non-IgE-FA manifestations were: food protein-induced enteropathy, FPE (44%), food protein-induced enterocolitis syndrome, FPIES (11%), food protein-induced allergic proctocolitis, FPIAP (17%) and food protein-induced motility disorders, FPIMD (28%). At diagnosis, 7% of subjects were moderate underweight (5 FPE, 2 FPIMD) and 1% was severe underweight (1 FPE), 7% were moderately stunted (4 FPE, 2 FPIMD, 1 FPIAP), 16% were moderately wasted (11 FPE, 3 FPIMD, 1 FPIAP, 1 FPIES) and 4% were severely wasted (2 FPE, 2 FPIMD). An improvement in all nutritional status variables was observed at 12 months of follow up ($p < 0.0001$), where the rate of moderately underweight subjects was reduced to 1% and of severely underweight to 0%, moderately stunted was reduced to 3%, moderately and severely wasted was reduced to 0%.

Conclusions: The nutritional counseling is an effective strategy for preventing and treating nutritional status alterations of pediatric patients affected by non-IgE-FA.



PV001 / #546

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

NEWBORN WEIGHT CHANGE AND PREDICTORS OF UNDERWEIGHT IN THE NEONATAL PERIOD IN PAKISTAN

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Background and Aims: In LMIC, growth impairment is common. However, the trajectory of growth over the course of the one month has not been well-characterized. To describe newborn growth-trajectory and predictors of growth-impairment, we assessed growth frequently over the first-30-days among infants born ≥ 2000 g in Pakistan.

Methods: A longitudinal-cohort study was conducted in the Aga-Khan-University, Karimabad-Hospital, Pakistan. 104 singleton-full-term infants, weighing ≥ 2000 g were enrolled using a convenience sampling strategy. Exclusion was set for infants with major congenital anomalies, danger signs, respiratory distress, or maternal-or-infant-contraindications to breastfeeding. Infants were eligible if their mothers were ≥ 18 years old and intended to breastfeed for at least 6 months.

Results: In this cohort of 104 infants, the mean birthweight was 2902 ± 403 g. For 104(100%) infants, weight loss occurred for a median of 5 days (interquartile range, 5–5) following birth until weight-nadir was reached $2.8 \pm 1.6\%$ below birthweight. At 30 days-of-age, the mean weight was 3347 ± 434 g. The prevalence of being underweight at 30 days was 41.2%. Of those underweight at 30 days-of-age, 29 (69%) had not been low-birth-weight (LBW), and 84(81%) had reached weight-nadir-subsequent to 5 days-of-age. Male sex (relative-risk [RR] 2.61 [1.54, 4.42]), reaching weight-nadir-subsequent to 5 days-of-age (RR 1.36 [0.72, 2.58]) were predictive of being underweight at 30 days-of-age.

Conclusions: In Pakistan's cohort, weight loss after birth was common. Underweight prevalence was higher at 30 days in newborns with normal birthweight. Furthermore, male sex, reaching weight nadir after 5 days was a predictor of being underweight at 30 days. Interventions tailored to infants with modifiable risk factors could reduce the burden of growth impairment.



PV002 / #552

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

ANTHROPOMETRIC MEASUREMENTS AND PREVALENCE OF PRETERM IN KARACHI, PAKISTAN

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Background and Aims: Charts of size-at-birth assess postnatal preterm baby growth, mirroring in-utero growth. INTERGROWTH-21st Standards monitor growth from 27 to 64 weeks postmenstrual age, aligning with WHO Child Growth Standards

Methods: A longitudinal observational-study titled as INTERPRACTICE was conducted at the Aga Khan University, Pakistan from July 2018 to September 2022. A total of 433 preterm births between 26 and < 37 weeks' gestation were enrolled from NICU and postnatal wards. Weight, length, and head circumference were measured at birth, and weekly till discharge. Information on general health, morbidity, and feeding practices at each visit. The growth of the preterm babies was monitored using INTERGROWTH-21st Preterm Postnatal Growth Standards.

Results: Findings showed that there were 20(4.6%) extremely preterm (< 28 weeks); 130(30%) Very preterm (28 to <32 weeks); 77(17.8%) Moderate preterm (32 to <34 weeks), and 206(47.6%) late preterm (34 to <37 completed weeks) babies in the cohort. The mean weight, length and head circumference of extremely preterm babies at birth were 1.05 ± 0.52 kg, 35.83 ± 4.26 cm and 24.65 ± 5.99 cm; Very preterm babies were 1.29 ± 0.29 kg, 38.77 ± 3.05 cm and 27.65 ± 3.15 cm; Moderate Preterm were 1.79 ± 0.37 kg, 42.41 ± 3.09 cm, and 30.51 ± 1.49 cm and late preterm were 2.34 ± 0.43 kg, 46.58 ± 3.99 cm, and 32.60 ± 1.43 cm respectively. 68.6% of babies were exclusively breastfed at birth, out of which only 86% continued EBF till discharge.

Conclusions: Anthropometric-measurements serve as vital-references for early-life growth and health. These charts-aid-in identifying at-risk preterm-infants and guiding nutritional-interventions.



PV003 / #333

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

FACTORS INFLUENCING BREASTFEEDING PRACTICE

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Background and Aims: Breastfeeding (BF) is recognized as the ideal method of feeding young infants. Different factors have been recognized as being likely to influence the BF choice. Objective : Evaluate factors that could influence the BF practice in mothers

Methods: One hundred women were recruited at the Specialized Hospital Establishment, in Oran. Informations on pregnancy, childbirth and BF, socio-economic level, BF knowledge were assessed using questionnaires

Results: Mothers' mean age was 30±5 years. Vaginal delivery was reported in 85%. After childbirth, 48% of mothers breastfed their babies within 30 minutes, 28% within 2 hours. 90% of women had already received information about BF. Concerning mothers' knowledge about feeding effectiveness', 31% answered; that when the mouth was wide open, and 56% answered that the right time to breastfeed the child was when he cried. Forty % responded that extracting milk manually when milk comes in makes the breast more supple. For the minimum recommended duration of BF, 45% of mothers answered 24 months and 37% 12 months. Concerning mother's diet during breastfeeding, 28% declared that it was necessary to follow a special diet, and 21% that it was necessary to eat for two. For BF advantages for the infant and his mother, 31% responded; child infectious protection, 31% prevention against allergies, 32% that it was economical, and 23% reduction in breast cancer risk.

Conclusions: It is important to clearly identify factors influencing the BF practice in order to better target women subgroups to whom breastfeeding must be promoted as a priority and to propose effective support strategies



PV004 / #328

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

PERCEIVED INSUFFICIENT MILK SUPPLY IN LATE PRETERM AND EARLY TERM INFANTS: PREDICTORS AND POTENTIAL INTERVENTIONS

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Background and Aims: Perceived insufficient milk supply (PIMS) is a common reason for breastfeeding discontinuation, with limited studies exploring contributing factors. This study aims to identify PIMS predictors, including actual milk supply, and to investigate a relaxation intervention's effect on PIMS in mothers of late preterm and early term infants (LPETI).

Methods: This was a randomised controlled trial involving 72 breastfeeding mothers of LPETI randomised to a breastfeeding relaxation (RG) or control group (CG). Baseline data (0-3 weeks post-delivery) on demographics, hospital practices, stress, depression, feeding practices, maternal BMI, and infant behaviour were collected. PIMS was evaluated at 2-3 and 6-8 weeks using the Perception of Insufficient Milk Questionnaire where lower scores indicate PIMS, while actual milk supply was estimated via a breastfeeding diary. The relationship between baseline predictors and PIMS at 2-3 weeks and the effect of the relaxation intervention on PIMS at 6-8 weeks were examined.

Results: In-hospital formula supplementation (-4.0; 95%CI -7.0, -1.0) and higher maternal BMI (-0.7; 95%CI -1.2, -0.2) predicted lower PIMS scores. Lower scores were associated with a higher supplementation frequency and not exclusively breastfeeding at 2-3 weeks. Practicing skin-to-skin contact directly after delivery (7.2; 95%CI 2.1, 12.4) and receiving community support information (10.3; 95%CI 4.0, 16.5) and adequate hospital support (5.2; 95%CI 0.8, 9.7) predicted higher scores. There was no association between AIMS and PIMS, and no significant effect of the intervention on PIMS.

Conclusions: Encouraging skin-to-skin contact, providing breastfeeding support, and minimizing in-hospital formula supplementation unless medically necessary are potential helpful interventions to address PIMS.



PV005 / #555

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

CONNECTION BETWEEN GUT AND NASOGASTRIC ENTERAL FEEDING TUBES MICROBIOME IN PRETERM NEONATES. POTENTIAL INTERACTIONS AND SHARING OF STRAINS

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Background and Aims: Background and aims: Nasogastric enteral feeding tubes (NEFT) are employed in neonatal intensive care units (NICUs) for neonates' nutrition, but they can host microorganisms inside. Gut microbiota plays a crucial role in health developing in early life but could be disturbed by the NEFTs use. This study aimed to describe and correlate the colonization and development of the infant gut and NEFTs microbiome in the first two weeks of life. Additionally, it seeks to elucidate the possible transmission of potential pathogens among neonates over time.

Methods: Methodology: A metataxonomic analysis of 71 fecal and 70 NEFTs samples was performed. Identified isolates of *Klebsiella*, *Serratia* and *Enterobacter* from the same samples were analyzed using a RAPD-genotyping for tracking their presence over samples.

Results: Results: *Staphylococcus* was the most detected genus followed by some genera of the family *Enterobacteriaceae* that were displacing gram-positives over time. The presence of *Staphylococcus*, *Enterobacteriaceae* and *Lactobacillus* in NEFTs and feces was positively correlated. Inside the same niche, the relative abundance of *Staphylococcus* was negatively correlated with that of some *Enterobacteriaceae* genera. The same RAPD profile was found in different locations and patients, even when they were not sharing hospitalization box, and some of them persisted over time.

Conclusions: Conclusion: Establishment of the gut and NEFT microbiome seems to be a bi-directional exchange process and could be influenced by nosocomial microorganisms from the hospital environment that may be transferred among patients. This work contributes to our understanding of hard-to-access niches that could be mimicked *in vitro* for future research.



PV006 / #442

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

ASSOCIATION BETWEEN ANTENATAL USED CORTICOSTEROIDS AND NEURODEVELOPMENT AT 2 YEARS CORRECTED AGE IN MODERATE AND LATE PRETERM INFANTS

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Background and Aims: Moderate and late preterm infants (MLPTI) may be at risk for neurodevelopmental problems early in life and even up into adulthood. Antenatal use of corticosteroids has been associated with adverse neurodevelopmental outcomes in very preterms. This study evaluated the association between maternal corticosteroids, head growth and neurodevelopment at 2 years corrected age (CA) in MLPTI.

Methods: Infants born between 32 0/7 and 35 6/7 weeks of gestation were included. We obtained data on the administration of maternal antenatal corticosteroids. At 2 years CA, children underwent a neurodevelopmental assessment using the Bayley Scales of Infant and Toddler Development, Third edition, Dutch version (BSID-III-NL) yielding cognitive, language, and motor composite scores.

Results: A total of 79 MLPTI were included in this study, of whom 43 received maternal antenatal corticosteroids, and 36 did not. The no-corticosteroid group scored 101.8 points on the cognitive composite, 99.3 on the language composite and 101.4 on the motor composite. The corticosteroid group scored 103.8 points on the cognitive composite, 102.4 on the language composite, and 101.4 on the motor composite. Differences were not significant. There was a significant negative association between the administration of maternal antenatal corticosteroids and head circumference z-score at two years CA (-0.541, $p = 0.048$) after adjustment for confounding.

Conclusions: There was no significant difference in neurodevelopment at 2 years CA between infants that received corticosteroids or no-corticosteroids. Our study indicates that children of mothers who were administered antenatal corticosteroids, might have a smaller head circumference.



PV007 / #443

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

ASSOCIATION BETWEEN PRENATAL INTRAUTERINE GROWTH DURING ROUTINE MID-TRIMESTER FETAL ULTRASOUND SCAN AND ANTHROPOMETRIC MEASUREMENTS AT TWO YEARS CORRECTED AGE IN MODERATE TO LATE PRETERM INFANTS

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Background and Aims: Lately, studies show that moderate and late preterm infants (MLPTI) have a greater risk of suboptimal growth later in life. Some studies show that increased prenatal growth is associated with increased postnatal growth and even growth up into adulthood. However, this association has yet to be demonstrated in MLPTI. This study aimed to identify in MLPTI if there is an association between prenatal anthropometric measurements and postnatal anthropometric measurements at 2 years corrected age (CA) and aimed to identify the association between maternal risk factors during pregnancy and anthropometric measurements at 2 years CA.

Methods: Infants born between 32 0/7 and 35 6/7 weeks of gestation were included. Anthropometric measurements of the prenatal routine mid-trimester fetal ultrasound scan included head circumference, abdominal circumference, and femur length. Postnatal anthropometric measurements at the age of two years CA included length, weight and head circumference. Maternal risk factors during pregnancy included among other things smoking and hypertensive spectrum disorders of pregnancy.

Results: A total of 79 MLPTI were included in this study. There was no significant association between prenatal anthropometric measurements and postnatal anthropometric measurements at two years CA. There was no significant association between maternal risk factors and anthropometric measurements at 2 years CA

Conclusions: There were no significant associations between anthropometric measurements from the routine mid-trimester fetal ultrasound scan and anthropometric measurements at two years CA. It remains to be clarified on how we can early identify MLPTI that will develop suboptimal growth in the first years of life.



PV008 / #619

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

THE IMPACT OF MODE OF DELIVERY ON BREASTFEEDING - A RETROSPECTIVE STUDY

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Background and Aims: As known, the cesarean section rates continue to increase in Europe. According to the World Health Organization, in Romania, in 2013, the cesarean section rate was 44,1%, one of the largest in Europe. Emergency or requested c-section may have an impact on breastfeeding initiation compared to vaginal deliveries. Our study aimed to analyze the mode of delivery and the feeding pattern in the first month of life.

Methods: We conducted an observational retrospective study from January 2021 to December 2022 in the Department of Paediatrics of "Grigore Alexandrescu" Emergency Children's Hospital. We included in study a group of newborns hospitalized for different etiologies between the first day of life and 28 days of life.

Results: We included in the study a number of 151 newborns. Majority (71,5%) of the respondents were born by c-section compared to vaginal delivery (28,4%). Among those born by cesarean section, a percent 58.3 % of the C-section were by maternal request and 41.7% were performed for medical reasons. Regarding the model of feeding, 43.7 % were breastfed and 17.2 % received exclusively milk formula. Of those delivered through C-section, 40,7% were breastfed and only 19,4% received formula. In comparison, of those delivered through vaginal birth, 51.2 % were breastfed.

Conclusions: This study provides useful documentation to highlight the fact that although the number of cesarean is increasing, this is not anymore an obstacle to breastfeeding.



PV009 / #300

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

ANALYSIS OF BREAST MILK REJECTION PROBLEMS IN VLBWI

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Background and Aims: Breast milk is essential for preterm babies and high-risk neonates from a medical and developmental standpoint. During hospitalization, frozen and thawed breast milk is typically given to infants in NICU. Due to oxidation and breakdown of lipid and protein after freezing and thawing, expressed breast milk has a sour and fishy odor. Likewise, we found that certain preterm babies detest breast milk and exhibit behaviors of breast milk rejection when they get thawed milk unlike formula feeding. This study is a retrospective study to identify the contributing factors to breastmilk rejection symptoms.

Methods: Between January 2016 and December 2020, we performed a analysis on 569 patients' electronic health data who had given birth in the NICU of A hospital in Seoul. After excluding those with poor oral function and no history of breastfeeding, data on 459 babies were examined. Approximately 50 different variables, including general medical characteristics of babies, maternal information, feeding-related characteristics, and discharge related data, were collected. We analyzed the data by t-test, chi-square test, binary logistic regression.

Results: Symptoms of breastmilk rejection were seen in 16% of the whole (N=75). The rejection group was younger than the control group, smaller at birth, maintained tracheal intubation longer, and continued TPN nutrition therapy longer, and a significant number of complications were found. And they fed by longer-frozen breastmilk.

Conclusions: We found out that the rejection group was clinically severe. By binomial logistic regression analysis, these factors were associated with breastfeeding rejection: birth weight, delivery method, RDS, CHD, sepsis, and swallowing therapy.



PV010 / #341

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

CONSUMPTION OF ULTRA-PROCESSED FOODS BY WOMEN WITH GESTATIONAL DIABETES MELLITUS AND ITS IMPACT ON BIRTH WEIGHT

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Background and Aims: The consumption of ultra-processed foods (UPF) is increasing during pregnancy, which contain high amounts of energy, fat, free sugars and additive substances. There is a lack of studies that evaluate the consumption of UPF by women with Gestational Diabetes Mellitus (GDM) and their respective impacts on the health of the newborn. Therefore, the objective was to evaluate the impact of this consumption on the birth weight outcome.

Methods: This is a prospective cohort carried out with a mother-child binomial of women with GDM in Natal, Brazil, starting in the second trimester of pregnancy until the postpartum period. Socioeconomic and health data were collected through a questionnaire and maternal consumption by at least two 24-hour recalls, in the second and third trimester. Foods were classified according to processing by Nova classification. Birth weight (g) was used as the outcome and the highest tertile of UPF consumption as the reference category for exposure. Adjusted linear regression analysis was performed.

Results: When analyzing data from 74 dyads, a median of 10.07% UPF participation in the diet was found (6.55%-14.87%) and birth weight of 3,240 kg (2,895 kg - 3495 kg). In the adjusted linear regression analysis, a statistically significant relationship was observed between the participation of UPF in the maternal diet and the reduction in birth weight (

Conclusions: The study demonstrated the impact of UPF consumption on the birth weight of newborns of women with GDM, suggesting that a greater proportion of UPF in the diet is associated with lower weight.



PV011 / #602

E-POSTER VIEWING 01: NEONATAL & PREMATURITY

EVALUATION OF LUNG ULTRASOUND IN THE DIAGNOSIS OF RESPIRATORY DISTRESS IN NEONATES

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Background and Aims: Background: Respiratory distress (RD) is a leading cause of morbidity and mortality among neonates. Traditionally, clinical criteria combined with chest X-ray have been considered the gold standard for diagnosing respiratory distress. This study aims to assess the efficiency of lung ultrasound in diagnosing respiratory distress, with a focus on preventing neonates from unnecessary radiation exposure.

Methods: A multicentric prospective study was performed where neonates with gestational age 28-40 weeks were included based on presence of clinical signs of respiratory distress. Neonates with congenital anomalies or those who received surfactant therapy were excluded. Within 6 hrs of birth, these neonates underwent X ray chest and ultrasound. Final interpretation of chest x-ray was done by the blinded radiologist. A trained neonatologist used transthoracic view in ultrasound for the initial interpretation.

Results: A total of 80 neonates were enrolled in the study, among whom 49 were diagnosed with respiratory distress syndrome, 22 with transient tachypnoea of the newborn, 4 with pneumonia, and 5 classified as normal. Lung ultrasound exhibited a sensitivity of 95.9% and a specificity of 90.3% for the diagnosis of respiratory distress, with a positive predictive value of 94% and a negative predictive value of 93.3%.

Conclusions: Lung ultrasound proves to be a highly efficient diagnostic tool for respiratory distress in neonates, offering the added advantage of avoiding harmful radiation exposure associated with chest X-rays. Early detection of respiratory distress can facilitate timely management and significantly improve neonatal outcomes.



PV012 / #512

E-POSTER VIEWING 01: NEONATAL & PREMATUREITY

RISK FACTORS FOR HOSPITALIZED NEWBORN AND PATHOLOGY IN PEDIATRIC DEPARTMENT OF CONSTANTA

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Background and Aims: Newborns represent a special category of patients, as they are at their first contact with the environment and have an organism unusual for extrauterine life, especially those who represent categories of newborns at risk such as prematures, dysmature, macrosomia, those with low weight for gestational age. The objectives of the paper were to highlight the incidence of newborn pathology compared to other pediatric categories, to highlight the risk factors present in newborns, as well as to study the main pathologies of newborns (clinical and paraclinical aspects).

Methods: The paper represents a retrospective study on 110 cases of newborn patients admitted to the Constanta Clinical County Emergency Hospital, Pediatric Department in the period 01.09.2021-01.03.2022, where we followed a series of items: age, sex, reasons for admission, onset of symptoms, medical history of the newborn, medical history of the mother, paraclinical and imaging investigations.

Results: We noticed that 54% of the patients were male and also an increased frequency of patients from the urban environment, respectively 70%. Most of the newborns in the studied group were aged between 21 days and 28 days, totaling 82 cases (75%). We found that among the studied patients, 42 (39%), are fed naturally, at the breast, 42 (39%), receive a mixed diet (milk formula and breast milk) and 24 (22%), only receive formula milk. 48 (44%), had positive cultures for one or more germs.

Conclusions: We can concluded that an increased incidence of hospitalizations was in newborns who were not exclusively breastfed.



PV013 / #392

E-POSTER VIEWING 02: INFANCY

THE IMPACT OF PARENTAL SOCIOECONOMIC STATUS ON BREASTFEEDING PRACTICES AND INFANT GROWTH IN KOREA

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Background and Aims: The World Health Organization recommends exclusive breastfeeding for up to six months and continuing until two years of age. Previous studies have shown that higher socioeconomic status (SES) is associated with increased and prolonged breastfeeding. This study investigated the impact of SES on breastfeeding and infant growth within the Korean context.

Methods: Data from 255 infants were collected through the Korea Infant Physical Growth Examination Survey, an ongoing multicenter cohort study initiated in 2020.

Results: Contrary to previous studies, our study suggests an inverse correlation between SES and breastfeeding practices. The proportion of exclusive breastfeeding showed a decrease concomitant with higher maternal education levels at birth (53%, 43%, 30%; $p=0.07$), 3 months (60%, 48%, 42%; $p=0.508$), and 6 months (33%, 27%, 23%; $p=0.639$). Conversely, paternal education levels exhibited no discernible association with breastfeeding. The exclusive breastfeeding rate at birth decreased with increasing monthly income, a trend consistently observed at 3 and 6 months ($p<0.05$). Similarly, the combined ratio of exclusive and partial breastfeeding declined as monthly income increased ($p<0.05$). Several data showed statistically significant differences in z-scores for height and weight at 3 and 6 months by maternal education, paternal education, and household income. However, there were no significant differences in the final 12-month height or weight.

Conclusions: Our study shows that specific SES factors can affect breastfeeding rates and growth, especially concerning maternal education and family income. Higher maternal educational achievement might limit breastfeeding due to increased employment engagement. This emphasizes the need for a multifaceted strategy to promote breastfeeding in contemporary society.



PV014 / #493

E-POSTER VIEWING 02: INFANCY

COMPARISON OF THE ORIGINAL COMISS VALUES AND THE UPDATED COMISS VALUES IN CZECH INFANTS

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Background and Aims: Cow's Milk-related symptom score (CoMiSS) is a scoring system reflecting the appearance and intensity of symptoms possibly related to dietary exposition to cow's milk. In 2022, the tool was updated by changing the stool scale type and adding angioedema. We aimed to compare the values of the original and the updated versions in a longitudinal observational study.

Methods: We calculated the original CoMiSS and the updated CoMiSS of infants not diagnosed with cow's milk allergy. Infants were repetitively assessed during regular checkups at 1.5-3-4-6-8-10 and 12 months. We compared pairwise original and updated scores with the Wilcoxon Signed Rank Test. An ethical committee approved the study, and informed consent was obtained from caregivers.

Results: One hundred twenty-two infants underwent all assessments included in the protocol. The difference between the original CoMiSS value and the updated version was statistically significant in all assessments ≥ 6 months ($p < 0.001$). The difference in the age group < 6 months was not statistically significant ($p > 0.999$ at 1.5 and 4 months, and $p = 0.586$ at three months, respectively). The evolution of both scores was characterised by a decrease in the values with increasing age: original CoMiSS values median (P5 - P95) from 7.0 (4.0-10.0) to 2.0 (0.0-4.0) and the updated from 7.0 (4.0-10.0) to 0.0 (0.0-4.0).

Conclusions: The statistically significant difference between the original and updated CoMiSS is limited to a group of infants aged ≥ 6 months. This finding implies that the data previously obtained in healthy infants younger than six months using the original CoMiSS can be preserved.



PV015 / #458

E-POSTER VIEWING 02: INFANCY

CATCH-UP GROWTH IN CONGENITAL INTESTINAL LYMPHANGIECTASIA AFTER INTRODUCTION OF COMPLEMENTARY FOODS: A CASE REPORT

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Background and Aims: Congenital intestinal lymphangiectasia is a rare disease that is part of a group of protein-losing enteropathies and consists of malformations of lymphatic drainage of the small intestine. Edema and cavitory effusion are the main clinical manifestations of this condition. The mainstay of treatment is to compensate for the enteric loss of proteins with a high-protein diet with a low content of long-chain triglycerides (LCT). Here, we report the case of a malnourished child with congenital intestinal lymphangiectasia who presented with episodes of pericardial effusion and achieved catch-up growth after the introduction of complementary foods.

Methods: This was a retrospective study of the medical records.

Results: A male infant who presented anasarca at birth and hypoalbuminemia in the neonatal period (albumin 2,5 mg/dL) evolved with episodes of refractory pericardial effusion and needing for pericardiocentesis at 2 and 3 months of age. Upper gastrointestinal endoscopy revealed intestinal lymphangiectasia. Nutritional management was initiated with a high-protein diet (4–5 g/kg), restriction of LCT, and supplementation of medium-chain triglycerides (MCT). After hospital discharge, he continued follow-up using skimmed milk with TCM and micronutrient supplementation, but no satisfactory weight gain was observed (z-score weight-for-length: -2,8; weight-for-age: -3,61). After the introduction of complementary food with restriction of LCT, the patient showed improvement in anthropometric parameters and achieved catch-up growth within two months (z-score weight-for-length: -1,67; weight-for-age: -2,67).

Conclusions: This case report highlights the importance of nutritional management in the development and growth of children with congenital intestinal lymphangiectasia.



PV016 / #250

E-POSTER VIEWING 02: INFANCY

GOAT MILK-BASED FORMULA REDUCES MILK-RELATED SYMPTOMS IN PRESUMED HEALTHY INFANTS IN USA: PRE-POST STUDY

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Background and Aims: Gastrointestinal (GI) symptoms affect approximately half of infants and their nutrition might play a role in the occurrence of these symptoms. Previous studies suggested that goat milk-based formula (GMF) might relieve milk-related symptoms. This study aimed to assess milk-related symptoms including GI symptoms in presumed healthy American infants consuming GMF.

Methods: Between July and December 2021, GMF (Kabrita®) buyers received web-based questionnaires. The questionnaires were sent out at baseline (T=0) and after one month of GMF consumption (T=1), and consisted of general characteristics and the Cow's Milk-Related Symptom Score (CoMiSS®). The CoMiSS® ranges from 0-33 and measures the occurrence of crying, regurgitation, stool consistency, eczema and respiratory symptoms, with a higher (sub)score indicating more severe symptoms. A sign test was performed to study the differences in CoMiSS® at T=0 and T=1.

Results: A total of 48 infants was included in the study. At the start of the study, total CoMiSS® median was 4, after one month the median score significantly decreased to 2 ($p < 0.0001$). The scores on the subcategories regurgitation ($p = 0.0010$), stools ($p = 0.0037$) and skin ($p = 0.0129$) also decreased.

Conclusions: After one month of GMF consumption, GI complaints assessed by CoMiSS® significantly decreased. The subscores on regurgitation, stools and skin symptoms showed a significant reduction indicating less milk-related symptoms after a month of GMF consumption.



PV017 / #394

E-POSTER VIEWING 02: INFANCY

CORRELATION OF PARENTS' FOOD CHOICES AND SOCIOECONOMIC LEVEL IN RELATION TO CHILDREN'S FOOD CONSUMPTION IN PUBLIC SCHOOLS IN JUIZ DE FORA – BRAZIL

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Background and Aims: Childhood is the period in which eating habits are established that can persist throughout life and the family exerts a strong influence in this context. The aim is to correlate parental food choices and socioeconomic status with food consumption of children in public schools in Juiz de Fora-Brazil

Methods: A cross-sectional study is being carried out in children of both sexes, aged 4-6 years, from public schools in Juiz de Fora-Brazil. Nutritional status was assessed by body mass index (BMI) using growth curve classifications for age. Parents' food choices were assessed through a validated questionnaire (Gabe and Jaime, 2019) in which higher scores indicate healthy eating practices. The children's food consumption was obtained through two 24-hour dietary recalls, carried out on alternate days. Socioeconomic status was evaluated by familiar income. Statistical analyses were performed using SPSS software (version 20.0).

Results: At moment, 144 children were evaluated, with a predominance of 50.7% females (*n*73). According to BMI, 29.9% (*n*43) were overweight (overweight and obese) and 55.6% (*n*80) belonged to classes below C1. A positive correlation was observed between the questionnaire score and vitamin A ($r^2=0.33$, $p=$) and B12 ($r^2=0.02$, $p=0.21$) intake and negative correlation with the consumption of ultra-processed foods ($r^2=-0.16$, $p=0.05$) and trans-fatty acid ($r^2=-0.18$, $p=0.29$). A positive correlation was also observed between familiar income and questionnaire score ($r^2=0.39$, $p<0.001$).

Conclusions: Food parental practices encompass behaviours that tend to influence children's consumption and nutritional status. Acknowledgements: Coordination for the Improvement of Higher Education Personnel - CAPES (code-001); and Federal University of Juiz de Fora.



PV018 / #235

E-POSTER VIEWING 02: INFANCY

COVERAGE OF FOOD INTAKE MARKERS FOR CHILDREN UNDER 10 YEARS OF AGE IN THE CITY OF JUIZ DE FORA, MG-BRAZIL

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Background and Aims: In Brazil, the Food and Nutrition Surveillance System (SISVAN) is a Health Information System (SIS) that composes the Food and Nutrition Surveillance (VAN); it provides continuous data on the nutritional status and food intake of the population user primary health care, for planning actions, programs and policies to promote adequate and healthy nutrition, as well as the prevention and treatment of nutritional diseases. In children, monitoring nutritional status and food intake are tools for development assessment, disease prevention and treatment of possible nutritional diseases. To describe, between 2021 and 2022, the coverage of food intake monitoring for children under 10 years age.

Methods: This is cross-sectional study that characterizes the registered population of Juiz de Fora city. Food intake coverage indicator, available on SisvanWeb, was used as a result of the ratio between the number of children under the age of 10 with an food intake record and the population of children under the age of 10 living in the city per 100. The descriptive statistics was conducted using Stata software.

Results: Annual coverage ranged from 0.33 to 0.86% between 2021 and 2022, with a significant increasing trend.

Conclusions: Despite the increasing trend, the assessment of food consumption proved to be less than expected and little used by the city. Data recording can be improved by overcoming the problems that limit the progress and consolidation of the system. Acknowledgements: Coordination for the Improvement of Higher Education Personnel – CAPES (code 001), Department of Health Care Programs and Actions of Juiz de Fora, Brazil.



PV019 / #511

E-POSTER VIEWING 02: INFANCY

PRODUCTION AND EVALUATION OF A BABY FORMULA FROM WHOLEWHEAT, SOYBEAN AND CARROT

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Background and Aims: Malnutrition is a public health problem of significant importance in developing countries especially infants and children due to their high nutritional needs for growth and development. The aim is to formulate and evaluate a Baby formula for children (6-24months) using available ingredients (whole wheat, soybean and carrots) from Bamenda.

Methods: An experimental design to formulate and analyse a baby formula from available foods from Bamenda food market. The proportional method was used in formulation of the infant formula, using whole wheat flour (WWF), soya beans flour (SBF) carrot flour (CF). Five formulations/sample were obtained using the WWF, SBF and CF composite consisting of : A (75%,15%,10%), B (72.5%,20%, 7.5%), C (70%,25% and 5%), D (67.5%,20%,12.5%) and sample E (60%, 25%, 15%) respectively. The formulated formulas were evaluated for their nutritional composition, including Protein, Carbohydrates, lipid, and the Vit A content. The energy content of the samples was also evaluated. 30 sensory evaluation forms were administered to the panelists to evaluate the sensory attributes of the processed baby formula in Bamenda.

Results: The proximate composition analysis of the Baby formula revealed that sample E had the highest energy value of 423.56Kcal, carbohydrate was 68.20 ± 3.47 , protein; 15.77 ± 1.55 , Fat; 9.40 ± 0.28 and moisture content; 8.50 ± 0.71 . These values met the daily recommended amounts for infants within the age range of 6-24 months according to the Food codex,1991. The highest vitamin A content was recorded also in sample E ; 86.47mcg which is definitely due to the increase in the proportion of the carrot flour. Following the sensory evaluation of the different formulated samples of the Baby formulas, the most preferred formula was sample E with the mixture proportions ratio of 60% : 25% : 15% for WWF, SBF and CF respectively.

Conclusions: Proximate analysis revealed that the energy content, the carbohydrate and protein content were significantly high for sample E and within the range recommended by CODEX 1991, which could be used to fight against malnutrition in children.



PV020 / #293

E-POSTER VIEWING 02: INFANCY

EFFECT OF DAILY INTAKE OF FORTIFIED GROWING-UP MILK COMPARED TO STANDARD FORMULA OR COW'S MILK ON NUTRIENT STATUS AND NEURODEVELOPMENTAL OUTCOMES IN TODDLERS

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Background and Aims: Little is known about the impact of different milks on the nutrient status and functional outcomes in toddlerhood, an understudied stage of development. The primary objective of this trial was to compare the effect of a fortified growing up formula (GUM) with enhanced concentrations of docosahexaenoic acid (DHA), lutein, and choline, compared to a standard GUM or cow's milk, on blood biomarkers and neurodevelopmental outcomes in toddlers aged 18-24 months.

Methods: This was a partially randomized, controlled 4-arm parallel-group dietary intervention trial, conducted in the Lower Mainland, British Columbia, Canada. Toddlers (18mo±2weeks old) were randomized to receive 500 mL/day of either the fortified or standard GUM, whole cow's milk, or join a non-intervention population group. Data collected from the children included family sociodemographic variables, detailed dietary intake (5-day food record and food frequency questionnaire), blood collection, anthropometrics, sleep duration and quality, stool sample collection, maternal dietary intake, measures of family environment and maternal/household stress, and neurodevelopmental assessments.

Results: 411 toddlers were enrolled in the trial, and 377 completed a baseline study visit. 51.2% were female, with a median (25th, 75th percentile) birthweight of 3.38 (3.07, 3.67) kg, weight-for-length z-score of 0.46 (-0.19, 1.15) and gestational age of 39 (38, 40) weeks.

Conclusions: This work will provide novel data on the impact of different types of milk and dietary patterns on nutrient intake and status as well as neurodevelopment in toddlers. Findings can be used to determine optimal nutrition patterns that will set children up for healthy growth and development.



PV021 / #309

E-POSTER VIEWING 02: INFANCY

ASSOCIATION OF MATERNAL WEIGHT AND LEPTIN LEVELS IN INFANTS UNDER 2 YEARS OLD

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Background and Aims: The nutritional status of pregnant women and babies are critical factors assessing the risk of NCD in later life and may also influence adipokines levels during the first two years of life. This study aimed to describe leptin levels in infants up to 2 years old and possible associations with maternal pregestational nutritional status and weight gain, gestational age adequacy, birth weight, current nutritional status, and adiponectin levels.

Methods: A cross-sectional study evaluated 144 infants (45.8% male), 6 to 24 months of age; 56.2% were preterm and 25.0% small for gestational age. These infants were evaluated at birth and under 2 years of age. Data: pre-pregnancy maternal body mass index, weight gain during gestation, gestational age, birth weight, current anthropometric indicators. Laboratory: leptin and adiponectin levels .

Results: In the preterm group, the mean age, birth weight and gestational age were 12.3±5.3 months; 1701±587 grams (655 to 2885 grams) and 32.3±3.15 weeks. In stepwise method linear regression (after multicollinearity evaluation), leptin levels were independently influenced by age ($\beta = -0.032$, 95% CI -0.048 to -0.017), pre-pregnancy BMI ($\beta = -0.020$; 95% CI -0.033 to -0.007) and gestational weight gain ($\beta = 0.014$, 95% CI 0.03 to 0.024) after adjustment for sex (male), gestational age (weeks), weight-for-gestational-age classification, adiponectin, birth weight, and weight-for-stature z score at 2 years old. No difference was observed in leptin levels between preterm and term infants of similar age.

Conclusions: Leptin levels in infants under two years of age were influenced in a different way by maternal nutritional status before and during pregnancy.



PV022 / #446

E-POSTER VIEWING 02: INFANCY

EXPLORING AWARENESS, ATTITUDES, AND PRACTICES RELATED TO INFANT AND YOUNG CHILD FEEDING (IYCF) AMONGST CAREGIVERS OF CHILDREN UNDER THREE IN MOZAMBIQUE

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Background and Aims: In Mozambique an estimated 38% of children under five are stunted. A sufficient and diverse nutrient-rich diet is important to promote growth, prevent stunting and reduce the risk of poor cognitive and educational outcomes in childhood. This research aimed to assess caregivers' knowledge, attitudes, and practices related to infant and young child feeding (IYCF).

Methods: This exploratory qualitative study was conducted in Nampula, Zambézia and Manica provinces in Mozambique. Using saturation sampling, caregivers of children aged under three years were recruited to 14 focus group discussions, 11 in-depth interviews, 13 observations of child-caregiver interactions, and 11 key informant interviews. Findings were analysed using a deductive-inductive exploratory thematic approach.

Results: Caregivers understand the importance of breastfeeding and mothers generally exclusively breastfeed until 6 months. Most caregivers are aware that foods should be introduced to children from 6 months and recognise the importance of providing different types of food. Despite this knowledge, caregivers' practices are limited by lack of time, being unable to afford and refrigerate certain food types, and not wanting children to get used to foods that they can only buy intermittently. Simple porridge is often fed to children, which does not provide sufficient nutrients for growth. Caregivers sometimes buy foods with low nutritional value (such as sweets and cookies) because buying these foods is a status symbol.

Conclusions: Despite good knowledge and positive attitudes towards recommended IYCF practices, caregivers' limited time, food affordability and knowledge mismanagement, remain barriers to improved nutrition among young children in Mozambique.



PV023 / #348

E-POSTER VIEWING 02: INFANCY

THE MELK STUDY. A PROSPECTIVE OBSERVATIONAL STUDY EXPLORING DETERMINANTS OF HUMAN MILK COMPOSITION, AND ITS POTENTIAL IMPACT ON OFFSPRING HEALTH

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Background and Aims: Human milk provides infants optimal nutrition and immunological benefits, with its composition varying by factors such as postpartum period. The role of maternal diet in human milk composition has been studied, however limitations in study design and execution hinder the drawing of conclusions. Next to that, studies indicated a possible influence of maternal ethnicity on human milk composition. However, these studies did not account for differences in diet between ethnicities, and often lacked standardized protocols. **Objectives:** 1) to explore associations between maternal diet, ethnicity and breast milk composition. 2) to assess potential associations between breast milk composition and selected aspects of infant health.

Methods: We will conduct a cross-sectional study in the Netherlands, involving 120 healthy mothers from three ethnic backgrounds (Chinese, Caucasian, Turkish), exclusively breastfeeding their 2 month old infants. We will collect human milk samples at two mornings and assess maternal diet over 4 days. Additionally, we will gather data on various maternal and child characteristics, including maternal stress, socio-economic status, health, and infant feeding, crying, gastrointestinal health, and developmental status.

Results: This study will provide insights into the association between maternal factors (diet and ethnicity) and human milk composition, thereby shedding light on its potential impact on infant health.

Conclusions: Understanding these associations will contribute to the development of nutritional guidelines for breastfeeding mothers, ultimately promoting optimal health and well-being for mother and child. The study design, its strict sampling procedure as well as the first results of the Caucasian population can guide and inspire future studies.



PV024 / #230

E-POSTER VIEWING 02: INFANCY

ROBSON CLASSIFICATION: A KEY TOOL IN ASSESSING CESAREAN SECTIONS AND EARLY-TERM BIRTHS IN THE POPULATION-BASED STUDY WITH MORE THAN 17 MILLION BIRTHS IN BRAZIL

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Background and Aims: The Robson classification system can potentially inform new strategies to reduce excessive Cesarean section (CS) use. This study explored the association between CSs and early-term births according to the Robson classification.

Methods: A population-based, cross-sectional study was performed with routine registration data of live births in Brazil between 2012 and 2019. We used the Robson classification system to compare groups with expected high and low CS rates. We used propensity scores to compare CSs to vaginal deliveries (1:1) and estimated associations with early-term births using logistic regression.

Results: A total of 17,081,685 live births were included. Births via CS had higher odds of early-term birth (OR 1.32; 95% CI 1.32-1.32) than vaginal deliveries. Births by CS to women in Group 2 (OR 1.50; 95% CI 1.49–1.51) and 4 (OR 1.57; 95% CI 1.56-1.58) showed the highest odds of early-term birth, compared to vaginal deliveries. Increased odds of an early-term birth were also observed among births by CS to women in Group 3 (OR 1.30, 95% CI 1.29–1.31) women with a previous CS (Group 5 - OR 1.36, 95% CI 1.35–1.37), a single breech pregnancy (Group 6 - OR 1.16; 95% CI 1.11-1.21, and Group 7 - OR 1.19; 95% CI 1.16-1.23), and multiple pregnancies (Group 8 - OR 1.46; 95% CI 1.40–1.52) compared to live births by vaginal delivery.

Conclusions: CSs were associated with increased odds of early-term births. The highest odds of early-term birth were observed among those births by CS in Robson Groups 2 and 4.



PV025 / #336

E-POSTER VIEWING 02: INFANCY

POSITIVE CHANGES IN BREASTFEEDING AND COMPLEMENTARY FEEDING INDICATORS ARE ASSOCIATED WITH FAVORABLE CONTEXTS OF NURTURING CARE IN BRAZIL

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Background and Aims: The investigation of changes in infant feeding practices using the nurturing care (NC) approach can support programs targeted at early childhood development. This study aimed to analyze trends of breastfeeding and complementary feeding indicators in children aged under 2 years in primary health care (PHC) settings in Brazil from 2015 to 2019, considering local NC contexts.

Methods: Ecological time series study. Infant feeding indicators were calculated from food intake markers of 1,055,907 records of children aged under 2 years, as collected in PHC from 2015 to 2019. The local NC context was measured by the Brazilian Early Childhood Friendly Municipal Index (IMAPI). Prais-Winsten regression was used to calculate the annual percent change (APC) by sex and by the contrast between the lower and upper quintiles of NC scores. Positive or negative APC with p-values <0.05 indicated increasing or decreasing trends.

Results: Stationary trends of exclusive and continued breastfeeding, food introduction, and minimum dietary diversity were observed, with a prevalence of 54.5%, 45.2%, 92.5%, and 78.2%, respectively, in 2019. Increasing trends were observed for mixed milk feeding (2019: 19.2%; APC, +2.42%) and minimum meal frequency (2019: 61.1%; APC, +2.56%), while decreasing trends were observed for sweet beverage consumption (2019: 31.9%; APC, -5.92%) and unhealthy foods (2019: 16.1%; APC, -4.69%). The indicators progressed more positively in contexts more favorable for NC.

Conclusions: Although indicators were far from the global targets for infant feeding practices, the results suggested that structuring early childhood programs based on NC may improve infant nutrition.



PV026 / #285

E-POSTER VIEWING 02: INFANCY

KOREA INFANT PHYSICAL GROWTH EXAMINATION SURVEY (KIPGROS) : COMPARISON OF ANTHROPOMETRIC MEASUREMENTS WITH WHO GROWTH STANDARDS IN KOREAN CHILDREN UNDER 3 YEARS OF AGE

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Background and Aims: Due to the absence of anthropometric data for children under 36 months of age, the WHO Growth Standards (2006) is used in Republic of Korea. Korea Infant Physical Growth examination Survey (KIPGroS) is a cohort that collects anthropometric measurements of infants and toddlers in Korea. The primary goal of this research is to review the appropriateness of using the WHO Growth Standards in Korea.

Methods: Recruitment began in April 2020, and a total of 7 university hospitals and several local hospitals were participated. Mothers and newborns were registered according to the inclusion and exclusion criteria and visited the hospital once a month for 1-12 months and once every 3 months for 12-36 months. Data on body measurements, eating habits, perinatal factors, demographic characteristics were collected.

Results: A total of 256 subjects were enrolled, of which 128 (50.2%) were boys and 127 (49.8%) were girls. 76 (29.7%) subjects dropped out, but measurements were included in the analysis. The mean Z score compared to the WHO Growth Standards was height 0.06 (boy 0.10, girl 0.02), weight 0.31 (boy 0.34, girl 0.29), head circumference 0.39 (boy 0.42, girl 0.36), BMI 0.40 (boy 0.42, girl 0.38).

Conclusions: The mean z-score compared to the WHO Growth Standards was within the acceptable range of variation for each country's measurement data presented in the WHO multicenter growth reference study. Weight and head circumference are relatively large compared to the height, which is presumed to be due to the racial characteristics of Korea or the high rate of mixed feeding rate.



PV027 / #426

E-POSTER VIEWING 02: INFANCY

TIME TRENDS AND SOCIAL INEQUALITIES IN INFANT AND YOUNG CHILD FEEDING PRACTICES

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Background and Aims: Infant and young child feeding practices are critical for children's growth and development, necessitating public health monitoring. This study aimed to investigate temporal trends and social disparities in infant and young child feeding practices in Brazil from 2008 to 2019 using data from the Brazilian Food and Nutritional Surveillance System (SISVAN).

Methods: Data from SISVAN, encompassing healthcare units across Brazil, were analyzed, involving 911,735 children aged 0 to 24 months. Feeding practices were evaluated using breastfeeding and complementary feeding indicators. The Brazilian Deprivation Index (BDI) was employed to gauge social inequalities.

Results: Breastfeeding and complementary feeding practices varied across extreme BDI quintiles. Generally, results were more favorable in municipalities with lower deprivation levels (Q1).

Improvements over time were noted in specific complementary feeding indicators in lower deprivation areas, including minimum dietary diversity (Q1: 47.8-52.2%, $p=0.006$), minimum acceptable diet (Q1: 34.5-40.5%, $p=0.004$), and meat and/or eggs consumption (Q1: 59.7-80.3%, $p<0.001$; Q5: 65.7-70.7%, $p=0.041$). Stable trends were observed in exclusive breastfeeding, whereas decreasing trends were seen in sugary beverages and highly processed foods consumption, irrespective of deprivation levels.

Conclusions: This study underscores positive trends in infant and young child feeding practices in Brazil over the past decade. Nonetheless, social disparities persist, with more favorable breastfeeding and complementary feeding patterns in municipalities with lower poverty levels, underscoring the need for targeted interventions to address socioeconomic discrepancies. Consequently, these findings can inform tailored strategies for high-risk groups and contribute to nutrition-related morbidity prevention and control.



PV028 / #42

E-POSTER VIEWING 02: INFANCY

QUANTITY AND QUALITY OF BREASTMILK OF LAOTIAN LACTATING WOMEN RELATED TO FOOD AND NUTRITION SECURITY IN LUANG PRABANG PROVINCE, LAO PDR

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Background and Aims: According to recommendations, infants should be breastfed exclusively for the first six months of life. However, understanding situation and long-term effects of infants depends on quantity and quality of Laotian breast milk (BM).

Methods: In Luang Prabang, we collected data during the winter and rainy seasons. The amount of BM was determined using the IAEA's stable isotope technique. Nutrients related to child growth were examined in the quality of hind BM. The nutritional status, food pattern, and intake of the mothers were all evaluated.

Results: Overall number of subjects was 67 mother-infant pairs (winter, n=35, and rainy, n=32). The median (IQR) daily BM quantity was 762 (682-935) mL. The median (IQR) energy, protein, lipid, and carbohydrate contents of hind BM per 100 mL were 77.3 (66.8-86.3) Kcal, 1.3 (1.2-1.4) g, 4.4 (3.2-5.4) g, and 8.3 (7.9-8.4) g, respectively. The amounts of vitamin A, calcium, and phosphorus were 48.5 (38.0-70.5) mcg, 26.3 (24.2-28.7) mg, and 22.0 (19.4-24.4) mg, respectively. Arachidonic acid and docosahexaenoic acid accounted for 0 g and 0.02 g of total fatty acids, respectively. Others reported practically zero fatty acid. The levels of macro- and micronutrients differed significantly between seasons ($P < .05$). Using of cooking oil and consumption of meat products were restricted. Several food taboos remained in effect for breastfeeding women.

Conclusions: Although exclusive breastfeeding benefits newborns, Laotian lactating women's eating habits should be improved, with a focus on fatty acid content. These findings will support Ministry of Health, Lao PDR building policies and guidelines encouraging food-based approaches for them.



PV029 / #329

E-POSTER VIEWING 02: INFANCY

POOR COMPLEMENTARY FEEDING PRACTICES ARE ASSOCIATED WITH UNDERNUTRITION AND MICRONUTRIENT DEFICIENCIES IN VIETNAMESE INFANTS AGED 6-23 MONTHS: FINDINGS FROM VIETNAM GENERAL NUTRITION SURVEY 2020

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Background and Aims: Complementary feeding is critical for optimal nutrition and child growth. This study aimed to examine the current feeding practices among Vietnamese infants and its associations with undernutrition including micronutrient deficiencies (MNDs) using Vietnam General Nutrition Survey (GNS) 2020 data.

Methods: Data on anthropometry, biomarkers of micronutrients and feeding practices of 2,039 Vietnamese infants aged 6-23 months from GNS 2020 were analysed. Associations were assessed using multivariate logistic regressions and reported as adjusted odds ratio (AOR) and 95% confidence interval (CI).

Results: 10.9%, 5.6% and 3.4% of infants were stunted, underweight and wasted. 56.7%, 34.6%, 31.2%, and 14.3% had zinc deficiency, iron deficiency (ID), anemia, and retinol deficiency (VAD). 31.9% and 24.8% of them achieved minimum dietary diversity (MDD) and minimum acceptable diet (MAD), the prevalence was lower in younger infants and in poor rural regions. Infants who achieved MDD (AOR=0.62, CI=0.42, 0.91) and those who consumed animal-source foods (AOR=0.68, CI=0.48, 0.97) had reduced odds of stunting, whereas those who did not consume vegetable and fruit had 1.55 times increased odds of stunting. Infants who achieved MDD and MAD had reduced odds of ID (AOR=0.73, CI=0.56, 0.96; AOR=0.72, CI= 0.54, 0.94), iron deficiency anemia (AOR=0.70, CI=0.55, 1.01; AOR=0.62, CI=0.43, 0.90), and VAD (AOR=0.55, CI=0.37, 0.82; AOR=0.58, CI=0.38, 0.89). Infants who continued breastfeeding at 12-23 months had reduced odds of zinc deficiency (AOR=0.70, CI=0.52, 0.96), but no impact on other MNDs.

Conclusions: Poor complementary feedings were observed in Vietnam and significantly associated with stunting and MNDs. Nutrition education for optimal child feeding practices is recommended.



PV030 / #568

E-POSTER VIEWING 02: INFANCY

DIAGNOSTIC APPROACH AND MANAGEMENT OF COW'S MILK PROTEIN ALLERGY

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Background and Aims: Cow's milk protein allergy (CMPA) is one of the most common food allergies. It is a complex condition that manifests itself through adverse reactions to the proteins present in cow's milk, or dairy products containing such a protein. Symptoms can range from mild to severe and affect multiple body systems. The aims of the study was: assessment of the prevalence and clinical characteristics of cow's milk protein allergy in the study sample, evaluation of associated conditions, identification of allergic cross-reactions that may cause allergic reactions.

Methods: The retrospective statistical study was conducted between May 2020 and May 2023 in the Pediatric Clinic of the County Clinical Hospital Constanța on a group of 60 children diagnosed with an allergy to cow's milk proteins.

Results: Most patients diagnosed with cow's milk protein allergy are formula fed -40% (24 patients). 33.33% (20 patients) are fed mixed (natural and formula). 26.67% (16 patients) are exclusively naturally fed patients. 66.67%, presented skin rashes as a manifestation at the onset of cow's milk protein allergy. The lowest percentage of patients (5.00%) presented respiratory manifestations, 23.33% presented digestive manifestations, dermatological 25.00%, but the highest percentage has mixed manifestations (46.67%). 66.67% of patients presented increased levels of IgE specific to cow's milk.

Conclusions: The particular IgE titer at the time of diagnosis may affect the prognosis and increasing the chance of later acquiring other IgE-mediated disorders. Compared to IgE mediated CMPA with non-IgE-mediated CMPA, the IgE mediated is greater.



PV031 / #380

E-POSTER VIEWING 02: INFANCY**A BIBLIOMETRICS ANALYSIS OF STUNTING PREVENTION AMONG UNDER 5 CHILDREN IN LOW MIDDLE-INCOME COUNTRIES: TRENDS, OBSTACLES AND EMERGING STRATEGIES**

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Background and Aims: Stunting remains a global health concern in low- and middle-income countries (LMICs), where its prevalence continues to be alarmingly high. This study aims to examine the landscape of strategies related to nutrition-sensitive and specific programs in stunting reduction in LMICs.

Methods: A bibliometric analysis and systematic review based on the PRISMA method were conducted using Medline and Web of Science databases. Our examination encompasses a range of studies, including randomized controlled trials, cohort studies, and longitudinal studies published from 1990 to current. We utilised keywords ("nutritional interventions" OR "child nutrition") AND ("low-middle-income countries" OR "LMICs" OR "developing countries") AND ("stunting", OR "growth impaired" OR "malnutrition").

Results: Out of 390 records, 245 of duplicates and irrelevant studies were removed and 145 studies were included for full-text examination. This study identifies East Africa (e.g., Ethiopia, Kenya) and South Asia (e.g., India, Bangladesh) as influential regions in stunting prevention research. There was a 63.6% increase in total publications between the periods before and after 2010, indicating a research trend's emergence during this period. Keyword analysis broadly categorises interventions into nutrition-sensitive (e.g., sanitation facility availability and maternal education) and nutrition-specific aspects (feeding practices). Additionally, tobacco control should be included in public health strategies aiming at tackling stunting. However, persistent challenges hinder the implementation of nutrition-specific interventions, including limited resources, restricted healthcare access, and socio-cultural barriers.

Conclusions: Our study underscores the growing research focus on stunting in East Africa and South Asia. It highlights the need to encourage improved sanitation and maternal education to accelerate stunting prevention strategies, which remains steady.



PV032 / #332

E-POSTER VIEWING 02: INFANCY

INFANTS LESS THAN SIX MONTHS AT RISK OF POOR GROWTH AND DEVELOPMENT: A PRIMARY CARE SERVICE READINESS SURVEY IN SENEGAL

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Background and Aims: Primary care facilities worldwide provide mother and child care, including care for nutrition and growth. A care gap has been identified for infants less than six months of age at risk of poor growth and development. The novel 2023 WHO guideline for acute malnutrition responds to this need. Our study aimed to assess primary care service availability and readiness for these at-risk infants in Senegal.

Methods: This cross-sectional survey in 15 primary care facilities in Senegal used a tool based on the WHO Harmonized Health Facility Assessment (HHFA)- including health worker questionnaires, register data and observations. We formulated a nutrition and growth indicator to assess service availability and readiness at five service contact points for infants: newborn care, postnatal care, immunization, sick child clinic and community health.

Results: (preliminary) The mean target population of the health facilities was 19,067 of which 663 less than six months. The general average service availability/ readiness (in mean % of items scored positive) was 64%/ 68%. Nutrition and growth service availability/ readiness was: newborn care routine 55%/36%, at-risk 55%/ 17%, postnatal care routine 52%/34% , at-risk 46%/ 19%, immunization routine 37%/ 26%, at-risk 17%/ 19% sick child clinic routine 56%/ 34%, at-risk 40%/ 32% and community health routine 26%/ 19%, at-risk 7%/ 14%.

Conclusions: Although care for nutrition and growth is available in most primary care services in Senegal, service readiness is suboptimal, especially in immunization and community health care. The five service contact points offer opportunities to reinforce routine care and implement the novel WHO approach.



PV033 / #249

E-POSTER VIEWING 02: INFANCY

TITLE: THE IMPACT OF THE COVID-19 PANDEMIC AND LOCKDOWN MEASURES ON BREASTFEEDING INTENTION, PREVALENCE, AND MATERNAL SUPPORT: INSIGHTS FROM A SYSTEMATIC REVIEW

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Background and Aims: We investigated effects of the COVID-19 pandemic and lockdown on breastfeeding (BF) and BF support as part of a systematic review (PROSPERO CRD42022354670).
Methods: We searched Medline (Ovid), Embase, AMED, and Web of Science for quantitative studies including BF mothers with a healthy infant <2 years that reported BF and/or BF support during the pandemic. Here we analyse studies providing data both before and during the pandemic.
Results: 49 studies were eligible for inclusion; 24 reported BF rates before and during the pandemic within a single cohort (n=9) or compared groups who delivered before and during the pandemic (n=15). Studies were heterogeneous, including 46,187 BF mothers and conducted in multiple, mostly high-income countries (Europe (n=10), North America (n=6), South America (n=3), Asia (n=4), and Australia (n=1)). Despite marked variation in predominant/EBF rates at 6 months (minimum USA 15.66% vs. 10.38% (p = 0.03) before vs. during pandemic, maximum Chile 69.5%), the impact of the pandemic on BF rates was inconsistent (decreased (n=8), increased (n=3), no significant change (n=13)). Lack of BF support was reported in n=8/14 studies, especially face-to-face health professional contact (n=3). Partners and family members were important sources of support (n=3), alongside online information (n=2). Lower predominant /EBF was associated with reduced support (n=3) and younger maternal age (n=2).
Conclusions: Despite regional variation, most of studies reported no change in BF rates during the pandemic. There was some evidence that decreased face-to-face support was offset by family and online support systems, emphasizing the need for adaptable online support/interventions in future emergencies.



PV034 / #305

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

**BETATROPHIN EXPRESSION IN ARAB CHILDREN WITH VARYING LEVELS OF ADIPOSITY
POST-LIFESTYLE MODIFICATION PROGRAM**

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Background and Aims: Betatrophin has been observed to play an important role in regulating lipid and glucose metabolism, at least in adults. This study aimed to investigate the changes in betatrophin levels and cardiometabolic markers in Saudi adolescents with varying levels of body mass index (BMI) and glycemia after a 12-month-lifestyle change intervention.

Methods: A total of 218 children and adolescents aged 13-17 years were included and stratified based on baseline BMI [normal N=45, overweight N=77 and obese N=96] before undergoing a 12-month intervention program. Anthropometric and fasting blood samples were taken at baseline and after 12 months of intervention. Glycemic and lipid profiles were measured routinely. Betatrophin was assessed using commercially available assays.

Results: At baseline, obese children had a higher betatrophin level [0.7ng/ml (0.4–1.3), $p=0.032$]. Follow-up BMI was significantly lower in the obese ($p<0.001$) and overweight ($p=0.018$) groups. However, in prediabetic children, betatrophin levels and HbA1c were significantly lower after 12-month lifestyle intervention [0.2 (0.1 - 0.8), $p=0.002$; 5.5 ± 1.1), $p<0.001$ respectively]. Follow-up lipid profile and insulin were significantly higher in all participants ($p<0.05$) in obesity and subjects with prediabetes. Finally, betatrophin levels of those who achieved 5% weight loss (N=25) showed no significant difference after follow-up ($p=0.59$).

Conclusions: Serum betatrophin levels did not change over time and cardiometabolic biomarkers were inversely correlated with betatrophin following a lifestyle intervention, suggesting that betatrophin expression in children may not be as promising therapeutic markers as compared to adults in terms of diabetes prevention.



PV035 / #453

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

ANOREXIA NERVOSA – ACUTE GASTRIC DILATATION AS A RARE COMPLICATION

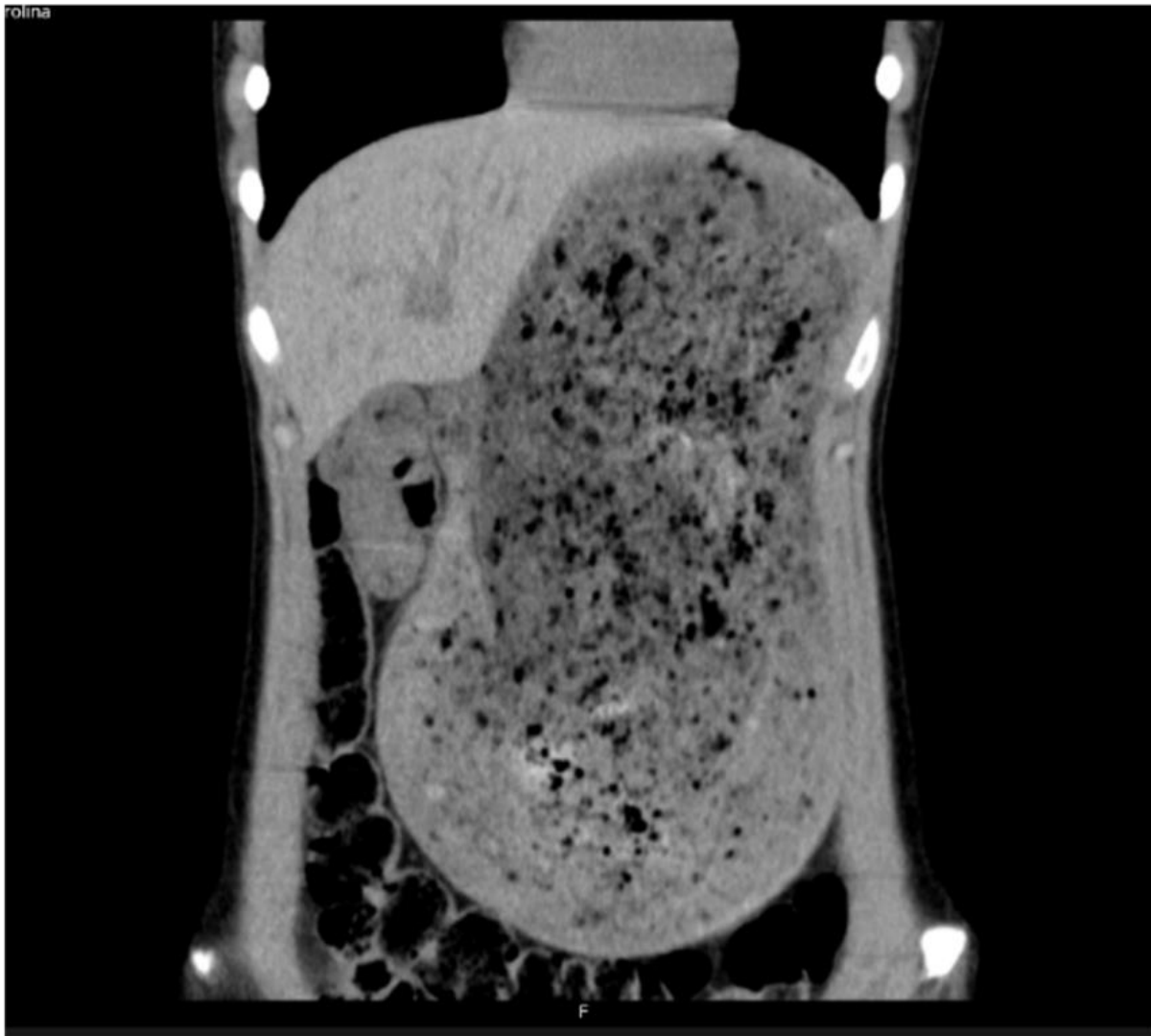
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Background and Aims: Introduction: Anorexia nervosa (AN) is the most common eating disorder occurring during adolescence, with multisystemic involvement and potentially severe complications.

Methods: Case-report

Results: Clinical case description: A 14-year-old female was admitted with severe sudden onset of abdominal pain in the upper quadrants, associated with vomiting and diarrhea lasting 3 days. Laboratory tests showed no significant changes. Abdominal computed tomography (CT) revealed severe gastric dilatation (Fig.1). She was later referred to a tertiary hospital for observation by Paediatric Surgery. The abdominal ultrasound revealed gastric dilatation with intragastric residue suggesting bezoar. An exploratory laparotomy was performed, although no intragastric mass was observed and after gastrotomy an extensive amount of gastric fluid and undigested food was removed. By post-operative day 9, due to persistent bradycardia (heart rate 35-50 bpm), General Paediatrics was consulted. She weighed 38 kg with a BMI of 14,3 kg/m² (below the 3rd percentile). 10kg of weight loss was identified as well as food restriction, body image disturbance, episodes of binge eating followed by purging, excessive physical activity, 5 months amenorrhea and self-harm due to feelings of guilt after meals. AN purging subtype was diagnosed and she was transferred to the Adolescent Unit, then to the Pedopsychiatry Unit, having been discharged after 3 months. **Fig.1 – CT coronal view.**



Conclusions: Acute gastric dilatation is an uncommon and life-threatening complication of AN and can occur after severe episodes of binge eating. A precise diagnosis must be established in due time and a suitable treatment provided. A full interdisciplinary team approach is essential in follow-up.



PV036 / #253

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

THE PREVENTABLE EFFECT OF TAEKWONDO SPORT AMONG CADETS AND JUNIOR' BONE MINERAL DENSITY: DEXA ASSESSMENT

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Background and Aims: Athletes competing in Taekwondo (TKD), the weight-category sport, tend to rapidly lose weight to achieve the desired body weight for better competitive results. Little is known about the effect of rapid weight reduction on bone mass density (BMD), especially during childhood and adolescence. The current study aimed to investigate the impact of rapid weight loss on BMD among cadets and juniors TKD athletes.

Methods: A descriptive case series study design was conducted and collected from 28 males and females aged 12–17 years old, with mean age 14.4 ± 1.7 . Dual-energy X-ray absorptiometry (DEXA) was used for both BMD and body composition assessment, and laboratory tests were also performed for the total calcium (Ca), TSH, free T4 (FT4), and 25-OH-vitamin D.

Results: showed normal levels of Ca (82.1%), TSH (96.4%), and FT4 (96.4%), whilst 85.7% had vitamin D deficiency. DEXA results showed that within male athletes, juniors had a wider range of BMD than cadets, while within females, results did not vary, with no statistical difference between both males and females

Conclusions: . Our results suggested that children and adolescents' BMD was positively related to TKD sport regardless of the abnormal weight loss strategies used, as evidenced by laboratory results. Children and adolescents should be conscious and practice TKD sport adopting healthy weight loss behaviors.



PV037 / #281

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

ATTITUDES, KNOWLEDGE AND HABITS OF FIRST GRADE PUPILS IN ELEMENTARY SCHOOLS TOWARDS NUTRITION

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Background and Aims: Proper nutrition and adequate eating habits, are very important for children's growth and development. The aim of this study was to determine the attitudes, knowledge and habits of pupils, related to the principles of proper nutrition.

Methods: The study was conducted in 2021-2022. It was carried out by experts from the Institute of Public Health of Vojvodina in cooperation with the City Administration for Health, and involved first grade pupils from selected elementary schools in Novi Sad, Serbia. Data were collected via a questionnaire specially designed for this research and adjusted to the age of the children. The questions included knowledge about proper nutrition, as well as the pupils' attitudes and eating habits.

Results: Based on the answers given, it was determined that a large number of students have knowledge about the principles of proper nutrition, as well as its importance for achieving and maintaining good health. However, the analysis of the answers towards dietary habits, study showed that everyday habits were not in line with the recommendations. Insufficient coverage of milk and dairy products, fresh fruits and vegetables in the daily diet was found, while snacks, sweets and sweetened beverages were significantly present.

Conclusions: Inadequate habits and choices in family and school nutrition, as well as the availability of inadequate groceries near schools allows students to make inadequate meal/snack choices. That is why it is important to initiate systemic activities involving parents, schools and local communities, to change eating habits of pupils.



PV038 / #629

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

THE EU-SWEET PROJECT: INTAKE OF LOW/NO-CALORIC SWEETENERS, URINARY SWEETENER EXCRETION, AND THEIR LINK TO OBESITY AND METABOLIC HEALTH IN DUTCH CHILDREN - LIFELINES STUDY INSIGHTS

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Background and Aims: Childhood obesity in Europe is approximately 8%, with implications for adult obesity and chronic diseases. The recognized link between sugar-sweetened beverages (SSBs) and weight gain prompted the shift towards the consumption of low-and no-calorie sweetened beverages (LNCSBs). Amidst the ongoing debate on the health impact of LNCSBs, amplified by a recent WHO statement discouraging their use, our study aimed to quantify LNCSBs' intake patterns and explore potential associations with metabolic outcomes in Dutch children.

Methods: Current analyses comprise data of 500 children (8-17 years) participating in the Lifelines Cohort Study. Child anthropometric and dietary intake data were acquired through parental questionnaires. Blood samples were analysed for lipid profile, fasting glucose, and HbA1c. Urinary sugars (sucrose and fructose) and sweeteners (acesulfame K, saccharin, cyclamate, sucralose and steviol glucuronide, a metabolite of steviol glycosides) are currently analysed in timed-overnight urine samples using a recently developed and validated UPLC-MS/MS method.

Results: Data collection is concluded, and most biological analyses have been finalized. The outcomes of urinary sweetener analyses are pending. Regression analyses, incorporating covariate adjustments, to examine the association between urinary sweetener levels and obesity/metabolic health will commence in December 2023. This timeline facilitates the presentation of recently acquired results at the conference.

Conclusions: This research introduces a novel approach improving the objectivity of assessing low/no-caloric sweetener intake. Previously, self-report questionnaires with significant methodological constraints were employed for this purpose. The application of this innovative methodology in pediatric studies provides valuable insights into potential health risks associated with artificial sweeteners.



PV039 / #624

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

CASEOMORPHINS, A NEW CHALLENGE?

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Background and Aims: Casomorphins are peptides derived from the digestion of casein, a protein found in cow milk. Beta-casomorphin-7 (BCM-7) in particular has been the subject of some research and discussion due to its potential opioid-like effects in the body, some researchers claiming that BCM-7 may be linked to various health issues, including gastrointestinal discomfort, inflammation, and neurological disorders including symptoms associated with autism spectrum disorder (ASD). We aimed to observe the effect of eliminating BCM-7 from the diet of an ASD child.

Methods: We eliminated the dairy products and used probiotic therapy in a 5-years old female with ASD, who suffered from recurrent abdominal pains, loss of appetite, memory difficulties, night terrors, chronic fatigue and generalized pruritus.

Results: The IgG mediated allergy test showed high elevated antibodies to dairy products. The patient also was HLA-DQ8 positive, genetic marker associated with certain autoimmune conditions. The FlorInScan showed dysbiosis and small intestinal bacterial Overgrowth (SIBO) with Citrobacter and Pseudomonas and a low presence of E. Coli and Enterobacter. We eliminated dairy products and other trigger foods and used probiotics with Bifidobacterium, Lactobacillus and E. coli to stimulate the growth of beneficial aerobic flora. The patients showed a positive response to treatment with resolution of pruritus, abdominal pain, improvement in appetite, memory and focus, and decrease in night terrors. After the treatment she did no longer meet the criteria for ASD.

Conclusions: After the elimination of BCM-7 from the diet, the patient did not have recurrent abdominal pain and the appetite improved.



PV040 / #461

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

IMPACTS OF THE CAMBODIAN NUTRITION TRANSITION ON MATERNAL AND CHILDHOOD DIETARY PATTERNS

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Background and Aims: In LMIC, such as Cambodia the transition of food environments from those based in home-production to those high in processed and mass-produced foods is particularly impactful. The aim of this study was to explore the effects of the ongoing nutrition transition on purchasing and consumption patterns among Cambodian caregivers and children.

Methods: Mothers and caregivers of children aged 6-59 months from urban and rural provinces in Cambodia completed an assisted questionnaire exploring food perceptions and practices, as well as the Cambodian adaptation of the Diet Quality Questionnaire (DQ-Q). From the DQ-Q, a Global Diet Recommendation (GDR) 'healthy' score was calculated, measuring consumption of healthy foods (e.g. fruits and vegetables) and a GDR 'limit' score measuring consumption of foods to limit or avoid (e.g. SSBs). In both cases, a higher score indicates greater consumption.

Results: 1033 caregivers and their children participated in the study. Caregivers and children both had higher GDR-limit scores when food was sourced from wet markets ($p < 0.001$; $p = 0.015$) and when they reported buying snacks ($p < 0.001$, $p < 0.001$). Children also had higher scores when food was sourced from mobile vendors ($p = 0.028$). GDR-limit scores were positively correlated with GDR-healthy scores among caregivers (0.233, $p < 0.001$) and children (0.297, $p < 0.001$).

Conclusions: Easy access to processed snacks and foods in places where foods are commonly sourced, e.g. wet markets, is associated with greater intake of these foods. While intake of processed foods is widespread, foods are not replacing healthy foods, and rather, may be eaten in addition to the regular diet.



PV041 / #625

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

PUBERTAL HEIGHT, WEIGHT AND BMI REFERENCES ALIGNED FOR THE INDIVIDUAL VARIATION IN THE TIMING OF PUBERTAL GROWTH

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Background and Aims: Despite the broad variation of pubertal growth, references traditionally describe growth in relation to chronological, not biological age. Hence, growth-references for the adolescent period have been of limited usefulness for monitoring individual growth and for research. To fill this gap, we have developed pubertal height, weight and BMI references for the adolescent years.

Methods: The QEPS-height-model was transformed to a corresponding QEPS-weight-model; thereafter, QEPS-weight was modified by an individual weight-height-factor (WHF). The QEPS-height and weight models were used to define a corresponding QEPS-BMI model. Longitudinal measurements from GrowUp1990Gothenburg were used to create weight references aligned for height at pubertal onset, defined as 5% of the specific pubertal growth. GrowUp1974Gothenburg subgroups based on pubertal timing, stature at pubertal onset, and childhood body composition were assessed using the novel references. After exploring the puberty adjusted references in healthy children (including children with low/high weight status) have puberty adjusted references been used in analysing growth of patients with congenital adrenal hyperplasia (CAH).

Results: References for height/weight/BMI specific to puberty (P-function), and weight/BMI gain in absence of pubertal growth, allowing alignment of individual growth based on age at pubertal onset. For both sexes, basic weight/BMI was greater for tall, and high-BMI subgroups. The P-function-related weight/BMI was greater in short children. In CAH-patients the puberty aligned reference clearly show a lower P-function.

Conclusions: Novel pubertal height/weight/BMI references consider individual variations in pubertal timing. The references will improve growth monitoring, for both healthy children and children with syndromes and diseases and serve as valuable research tools.



PV042 / #366

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

A QUANTITATIVE EVALUATION OF TRAQQ-Z: A SMARTPHONE APPLICATION FOR ACCURATE DIETARY ASSESSMENT AMONG DUTCH ADOLESCENTS AGED 12-18 YEARS

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Background and Aims: Accurate self-reported dietary assessment is essential for nutrition research, but challenging due to measurement errors. Especially in adolescents, irregular eating habits, meal skipping, and external influence from peers or parents can lead to misreporting. Therefore, tailored dietary assessment tools are urgently needed. This study explores Traqq®, an ecological momentary dietary assessment app developed and validated for Dutch adults, for use in adolescents (12-18 years). Traqq® relies on repeated short recalls to assess dietary intake, a promising approach for use in adolescents as compared to traditional, lengthy methods. Traqq® was evaluated in terms of assessment accuracy, app usability, and user experiences among Dutch adolescents aged 12-18 years.

Methods: Dietary intake data was collected from 102 adolescents during a two-week study period. Intake was reported via Traqq® during four random (school)days; two days by repeated 2-hour recalls and two days by repeated 4-hour recalls. Reference methods included two 24-hour recalls and a Food Frequency Questionnaire.

Results: The data collection phase has recently concluded. The included participants, consisted of 62% girls, with an average age of 15±2 years and a mean BMI of 19.9±3.3. More preliminary results from the quantitative evaluation are anticipated to be available at the commencement of 2024, and they will be presented during the upcoming conference.

Conclusions: This study uniquely combines quantitative and qualitative approaches to evaluate a novel dietary assessment tool for adolescents. We anticipate that this user-centered approach will yield an effective tool, achieving both efficiency and accuracy in dietary assessment with satisfying response rates among this specific population.



PV043 / #41

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

BLOOD LEAD LEVEL OF URBAN SCHOOL GOING CHILDREN AGED 6 TO 16 YEARS IN TEN CITIES OF INDIA: A CROSS SECTIONAL MULTICENTRIC STUDY.

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Background and Aims: Lead exposure affects the growth and development of children and adolescents. We assessed the blood lead level (BLL) of urban school going children aged 6 to 16 years in ten cities of India.

Methods: This multi-centric cross-sectional study enrolled participants from randomly selected schools. Data on demographic details, socioeconomic status (SES) and anthropometric indicators was collected. Blood samples were collected for assessment of BLL. Inductively coupled plasma-optical emission spectrometry technique was used to assess BLL.

Results: From April 2019 to February 2020, 2247 participants were enrolled from 60 schools (62.6% government schools) with equal gender distribution. The overall median (interquartile range) BLL was 8.8 (4.8, 16.4) µg/dl. The highest median (interquartile range) BLL was in Manipal 30.6 (23.0, 46.7) and lowest in Dibrugarh 4.8 (3.2, 7.0). Overall, 82.5% of participants had BLL above ≤ 4 µg/dl. Significant negative correlation was observed between BLL and SES (correlation= -0.24, $p < 0.001$), anthropometric indicators (correlation= -0.11, $p < 0.001$), hemoglobin level (correlation= -0.045, $p = 0.03$) and multivariate regression model showed association with gender, SES and anthropometric indicators.

Conclusions: BLL are elevated in urban school going children and there is intercity variation. Hence, urgent focus is needed to reduce exposure to lead in India.



PV044 / #108

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

SEROPOSITIVITY RATES FOR CELIAC DISEASE (TTG-IGA, TTG-IGG, DGP-IGA, DGP-IGG) IN A SINGAPORE PAEDIATRIC ENDOCRINOLOGY AND GROWTH CLINIC ARE SIMILAR TO THOSE IN WESTERN LITERATURE

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Background and Aims: The prevalence of Celiac Disease in Western populations is about 1%. but in children with short stature and no gastrointestinal symptoms the prevalence increases to 2–8% and up to 18- 59 % after excluding endocrine causes (van Rijn 2004) . The prevalence of CeD in Singapore is unknown.

Methods: From 2008 to 2020, 1925 patients <21yr at first visit (1036 males, 990 females, (mean age 10.32., SD 3.98 yrs) attending a Singapore paediatric endocrine clinic were screened using a panel of 4 tests for celiac disease : Tissue Transglutaminase IgA Tissue Transglutaminase IgG , Deamidated Gliadin Peptides IgA and Deamidated Gliadin Peptides IgG . Of these 90 % were seen for growth, 94 (5 %) had Type 1 Diabetes mellitus and about 25 % had gastrointestinal symptoms. The racial distribution was 879 (45.7%) Chinese, 460 (23.9%) Caucasian, 207 (10.8 %) Indian , 108 Eurasian, 224 other Asian and 47 Other races.

Results: TTg-IgA was positive in 124 (6.44%) , 197 (10.23%) were positive for Ttg IgG , 183 (9.51%) were positive for DGP IgA, and 32 (1.66%) were positive for DGP IgG. 432 (22.55%) Any one of 4 tests were positive in 432 (22.55%) and > 1 tests .were positive in 119 (6.2%) patients.

Conclusions: Seropostivity patterns for celiac disease markers (TTG-IGA, TTG-IGG, DGP-IGA, DGP-IGG) in a Singaporean paediatric endocrinology and growth clinic are similar to those reported in Western literature.



PV045 / #311

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

PATTERNS OF HLA DQ2 AND DQ8 IN A COHORT OF CHILDREN WITH GROWTH DISORDERS AND SEROPOSITIVE TESTS FOR CELIAC DISEASE IN SINGAPORE

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Background and Aims: We previously showed that only 80% of Caucasians and about 50% of Asians were positive for DQ2 and or DQ 8 in a cohort of children with growth disorders and seropositivity for any one or more tests for tissue transglutaminase IgA, tissue transglutaminase IgG, Deamidated Gliadin IgA and Deamidated Gliadin IgG.

Methods: Pediatric endocrine and growth disorder patients aged below 21 yrs when first seen between 2008 -2020 and who were positive for at least one of 4 tests : Tissue transglutaminase (tTg) IgA , tTg- IgG , Deamidated Gliadin (DGP)-IgA and DGP-IgG, had HLA DQB1 testing at Health Science Authority, Singapore. Celiac serology was tested at Tan Tock Seng Hospital Clinical Immunology Laboratory using Euroimmun kits (tT-IgA, DGP IgA, DGP IgG) and Orgentec kits (tTg IgG)

Results: Altogether 220 patients were positive for at least one of the 4 tests and had HLA DQ test data available Those positive for DQ 2 and or DQ 8 included : 62% (36/58) of patients with positive TTg IgA , 52% (63/121) with positive TTG IgG, 62% (75/121) with positive DGP IgA and 52% (14/27) with positive DGP IgG , 100%(6/6) with 4 tests positive, 43% (10/23) with 3 tests positive and 57% (26/46) with 2 tests positive.

Conclusions: HLA DQ2 or DQ8 status did not affect seropositivity to Ttg IgA, TTg IgG, DGP IgA or DGP IgG in growth disorder patients with seropositivity for celiac disease tests



PV046 / #218

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

HOW DO CENTRAL AMERICAN PARENTS IN THE UNITED STATES OBTAIN INFORMATION ABOUT BEHAVIORS ASSOCIATED WITH THE RISK OF EARLY CHILDHOOD OBESITY?

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Background and Aims: In the United States (US), Latino children are at increased risk of obesity. The fastest-growing Latino population in the United States originates from Central America. To describe how Central American parents perceive the importance of energy balance-related behaviors (EBRBs), preferred sources to obtain information about EBRBs, and assess whether these differ by parent's gender and country of the nativity.

Methods: Cross-sectional survey.

Results: Seventy-four parents participated in the study. More than half were immigrants from El Salvador, Guatemala, and Honduras and were classified as having low acculturation. Mothers perceived consuming ≥ 5 fruits and vegetables daily, limiting sugar-sweetened beverages consumption, and having < 2 hours daily screen time as extremely important, whereas fathers perceived these behaviors as being less important. Although a higher proportion of foreign-born than US-born parents perceived most of the assessed EBRBs (4 out of 6) as extremely important, these differences were not significant. Parents reported multiple sources to obtain EBRB-related information. Direct person-to-person interactions were the most commonly preferred sources, with pediatricians being the top source (97.3%), followed by other parents (86.5%), and WIC professionals (74.3%). Pediatricians were the preferred source to obtain information about EBRBs, irrespective of the parent's gender and country of the nativity.

Conclusions: Findings suggest the significance of understanding how Central American parents perceive the importance of EBRBs and the sources they would prefer to obtain information for their children's EBRBs. Study findings have implications for obesity prevention interventions designed to reach and deliver key evidence-based child health information to Central American parents in the United States.



PV047 / #503

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

CHILDREN'S ANTHROPOMETRY AUDIOVISUAL RESOURCES FOR EASING AND ACCURATE PROFESSIONALS' PROCESS LEARNING.

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Background and Aims: Background: Anthropometry studies human body composition. Using weight, height, skin folds, bone diameters and perimeters it allows researchers to determine children's development and tissues composition more precisely than other techniques such as bioimpedance. To assure the quality and accuracy of measurements there are standardized protocols and, although currently there are audiovisual resources showing how to perform protocols, they are not focused on children population which requires special considerations. The aim of this work was to generate audiovisual resources of children's standardized measurements- videos and photos- to be used by healthcare professionals, students and scientist for better understanding and practice of them.

Methods: Methods: children's volunteers come to the university facilities to record the videos. To measure them it was used a tape measure, demographic pencil, stadiometers and scales specific for infants and children. A certificate ISAK anthropometrist level 3 performed all measurements explaining clearly and precisely the processes while being recorded.

Results: Results: Several short videos and images explaining how to perform each measurement of the anthropometry protocol in children are recorded using real people as a model. The measurements collected were weight, length and head circumference in infants, and weight, height, perimeters and skin folds in children.

Conclusions: Conclusion: These resources are designed to improve and facilitate professionals and students the protocols' learning process. Its accuracy is crucial to report and do follow ups of children development in a precise way to show children's evolution, tendencies and do a possible comparison between children.



PV048 / #284

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

PREVALENCE AND FACTORS RELATED TO ANEMIA IN CHILDREN ATTENDING A HEALTH FACILITY IN MAPUTO, MOZAMBIQUE

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Background and Aims: Anemia has adverse health consequences, contributing to increased morbidity and unfavorable impacts on socioeconomic development. Globally, anemia prevails as a public health issue, being also a concern in Mozambique. This study aimed to estimate anemia prevalence and evaluate structural determinants and hematological parameters association among children aged 6 to 59 months attending pediatric services in a quaternary health facility in Maputo City Province, Mozambique.

Methods: From August 2020 to August 2022, we collected secondary data from 637 inpatients or outpatients who attended pediatric consultations at the 'Maputo Central Hospital (HCM)' - in Maputo City Province. The cut-off value for anemia (for both girls and boys) was Hb<11.0g/L. We used SPSS 28.0 software to perform descriptive statistics, measures of association, and bivariate logistic regression.

Results: The overall rate of anemia in children aged 6-59 months was 62.2% (396/637), with 30.9% moderate anemia (197/637), 23.9% mild anemia (152/637), and 7.4% severe anemia (47/637). Children aged 6-11 months are more prone to anemia than children from other age groups (OR=2,39; CI 95 %= 1,37 - 4,16). Children whose caregivers have no schooling (OR=3,07; CI 95%= 1,37-6,89) or with a primary (OR= 2,71; CI 95 %=1,23-5,98) or secondary (OR=1,96; CI 95%=1,07-3,60) level of education are also more likely to have anemia.

Conclusions: More than half of the children were anemic, demonstrating that anemia remains a severe public health problem, particularly in this setting. The critical factors for anemia were the age group, child caregiver schooling, malaria, and liver size.



PV049 / #483

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

FOOD HABITS AND NUTRITIONAL STATUS OF ADOLESCENTS OF SCHOOLS OF SÃO PAULO, BRAZIL

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Background and Aims: The eating habits of adolescents have been characterized by a high consumption of pre-made meals, easy to prepare and ultra-processed foods, in addition to insufficient intake of fresh foods, traditional in the diet, such as beans and vegetables. These habits are associated with an increased risk of obesity, cardiovascular disease and diabetes. This study evaluates the eating habits and the nutritional status of adolescents from education networks in the city of São Paulo.

Methods: This is a cross-sectional study, carried out with adolescents of both sexes, aged 14 and 15 years. Data collection was carried out by applying an online questionnaire with questions related to socioeconomic resources, lifestyle, eating habits and anthropometric data of the participants.

Results: Regarding food consumption, it was found that the average macronutrient intake was adequate. The percentage contribution of macronutrients to total energy intake was 56% for carbohydrates, 14,7% for proteins and 29,2% for lipids. Regarding the nutritional status, only one (n = 1) girl was short, while the other adolescents were categorized as having a suitable height for their age. As for BMI for age, the majority (11.1%) in males and 66.6% in females had eutrophy.

Conclusions: Adolescents are a vulnerable group and monitoring with nutritionists is essential for the development and healthy growth of these young people.



PV050 / #326

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

THE USE OF PORANG FLOUR, MORINGA LEAVES, AND BLACK SOYBEAN-BASED TEMPE IN COOKIES FORMULATIONS TO PROMOTE FUNCTIONAL FOOD FOR ADOLESCENTS WITH ANEMIA

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Background and Aims: Anemia is a global public health problem that includes 32% of Indonesian adolescents. This study aims to incorporate porang flour, moringa leaves, and tempe into cookies and examine their iron (Fe), folic acid, cobalamin (vitamin B12), unsaturated fatty acids, amino acids, and antioxidants activity to determine their potential as functional food snacks for adolescents with anemia.

Methods: This study is experimental with a completely randomized trial design (CRD) with three treatments or formulations based on the combination of porang, moringa leaves, and black soybean-based tempe as follows: F1 (91:3:3:3)%, F2 (85:3:6:6)%, and F3 (77:3:10:10)%. The cookie sample was then analyzed for water content, ash, iron, folic acid, cobalt, and antioxidant activity.

Results: The results of the ash and water content tests of all three cookie formulations showed values in accordance with the Indonesian National Standard (SNI) for cookie products. F3 has significantly higher iron, folic acid, and cobalt levels than F1 and F2 ($p < 0.05$). Antioxidant activity is highest in F3, but there is no statistical difference between F2 and F3 ($p > 0.05$). The results showed a significant difference in the unsaturated fatty acid parameter between the groups ($p < 0.001$). The highest essential and non-essential amino acid content were found in F3.

Conclusions: The combination of porang's tubers, moringa leaves, and tempe made from black soybeans, especially F3, has the potential to be used as a functional cookie as a source of iron (Fe), folic acid, cobalamin, unsaturated fatty acids, amino acids, and antioxidants for adolescent anemia.



PV051 / #514

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

EFFECTS OF ORAL NUTRITIONAL SUPPLEMENTATION WITH DIETARY COUNSELLING ON ACUTE ILLNESSES AND SICK DAYS IN CHILDREN AT-RISK OR WITH UNDERNUTRITION – A RANDOMIZED CONTROLLED TRIAL

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Background and Aims: Undernutrition in childhood is associated with poorer immune system function. Oral nutritional supplements (ONS) help to correct undernutrition and provide nutrients for the normal functioning of the immune system, including protein, Vitamins A, C, D and zinc. This study evaluates the impact of ONS with dietary counselling (DC) on acute illness incidence, sick days and related outcomes in children with or at-risk of undernutrition.

Methods: A randomized, multi-site interventional study of 324 children aged 24-60 months at nutritional risk (z-scores for weight-for-age (WAZ) <-1, height-for-age (HAZ) <-1 and weight-for-height (WHZ) < 0) compared the effectiveness of 2 servings of ONS daily with DC (ONS+DC), to a DC-only control. Frequency of acute illness, sick days, missed school days, missed parent workdays (due to child's illness), and healthcare expenditures were reported by parents at study visits on day 30, 120 and 240. Cumulative 240-day outcomes were analyzed.

Results: During the 240-day period, more children in ONS+DC were free of any acute illness episodes (30.7% vs 19.6%; p=0.023), had no healthcare expenditures (34.6% vs 22.7%; p=0.019), and more parents had no missed workdays (88.9% vs. 79.8%; p=0.026). ONS+DC also had 1.41 (37%) fewer sick days and 1.44 (37%) fewer missed school days (incidence rate ratio (IRR) (95% CI): 0.63(0.41-0.96); p=0.033 for both) than the DC-only group during the 240-day period.

Conclusions: Compared to DC-only, more children in ONS+DC remained illness-free and had fewer sick days, with consequent benefits observed in school attendance, healthcare expenditures and parent's attendance at work.



PV052 / #429

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

FACTORS INFLUENCING THE USE OF SPECIALISED DIETS AMONG CHILDREN ATTENDING PUBLIC PRIMARY SCHOOLS IN KRAKOW (SOUTHERN POLAND).

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Background and Aims: A specialized diet could be administered due to medical needs or religious and cultural reasons. The objective of this study was to identify the association of selected risk factors influencing the use of specialized diets among children attending public primary schools in Kraków.

Methods: A study was conducted in 2022 on a total of 1,594 children (49.4% girls) and based on a diagnostic survey using the Computer-Assisted Web Interview (CAWI) method addressed to the parents. The nutritional status of children was assessed based on the BMI interpretation. The study was approved by the Jagiellonian University Bioethics Committee. Data were prepared and analyzed using Stata 17SE and OriginPro 2021b. To examine correlations, logistic regression analyses were performed.

Results: Among all children 15.1% had a specialized diet (8.5 % due to doctor's recommendations and 6.6% due to the parents' choice). In total 3.7% children had obesity and 9.2% were overweight. The most common reason for using a specialized diet was food intolerance (4.0%) and food allergy (3.1%). In the study group having a specialized diet was found to be significantly associated with using oral treatment for chronic disease ($p<0.001$) and with a disability certificate ($p<0.001$). The probability of having a specialized diet was higher among children with food intolerance or allergy compared to those without it and also in obese children compared children with other BMI category ($p<0.001$).

Conclusions: It should be made possible to receive dietary meals at school, especially in schools with integrated classes.



PV053 / #518

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

WHETHER CONDITIONAL CASH TRANSFERS HELPS IN ADDRESSING GENDER-BASED INEQUALITIES IN EDUCATION AND NUTRITION AMONG CHILDREN: LEARNING FROM THE IMPLEMENTATION OF SHUBH-LAXMI SCHEME IN RAJASTHAN, INDIARajnish Ranjan Prasad

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Background and Aims: Conditional cash transfer (CCT) programmes have become very popular for addressing different development challenges. However, the potential of CCT programmes to change more deep-rooted norms is not very clear. The Shubh Laxmi scheme, a CCT programme, was started by the Government of Rajasthan, India, to improve the status of health and education among girls.

Methods: A study was undertaken to understand the changes in beneficiaries' perspectives due to scheme. A total of 95 beneficiaries were randomly selected and in-depth interviews were conducted. Also, 2 FGDs were conducted with 30 non-beneficiaries in order to understand their perspectives.

Results: 93% of respondents shared that the scheme had a positive impact on the birth, nutrition and education of their girls. 76% of respondents shared that they use funds for providing nutritional foods to their children, and 98% of respondents shared that they will get daughter admitted to school and will claim the benefits of the third instalment under the scheme. 61% of respondents also shared that the scheme had changed their perspectives towards the importance of girls' education and health including nutrition and 68% of respondents shared that they will get their daughters educated at least until class 12.

Conclusions: The findings show that the CCT programme has helped in generating a positive attitude among beneficiaries towards the survival, education, nutritional status and well-being of girls. The key challenge was low awareness of the scheme and of the procedures for claiming its benefits. This study highlights that CCT programmes are useful for nudging people to address gender-based inequalities in health and education among children; however, effective implementation remains key.



PV054 / #520

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

DETERMINANTS OF MALNUTRITION AMONG ADOLESCENT GIRLS IN URBAN SLUMS OF JAIPUR, INDIA

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Background and Aims: Malnutrition is very prevalent among adolescent girls in India. A study was undertaken to understand the determinants of the prevalence of malnutrition among 10 to 19 years old adolescent girls in urban slums of Jaipur city, India.

Methods: A cross-sectional study of 417 adolescent girls was conducted. Descriptive statistics, chi-square, and bivariate and multivariate logistic regression were used to analyze the data and determine the factors associated with malnutrition.

Results: 68.2% of girls were found to be anemic and 48% girls were thin. Educational achievement of less than class 5th among girls (AOR= 1.7; 95% CI=0.64-8.51), their mother's (AOR= 1.43; 95% CI=1.3-6.27) along with father's income of less than Rs 5000 per month (AOR=1.2; 95% CI=0.45-4.12), mother's income of less than Rs 5000 per month (AOR= 2.07; 95% CI=1.23-6.38), and poor sanitation (AOR= 2.26; 95% CI=1.64-6.31) were factors significantly associated with prevalence of malnutrition. Girls cited parental neglect of their health, insufficient funds, and inconvenient timing at health facilities as major barriers.

Conclusions: The findings from the study shows high prevalence among malnutrition among adolescent girls in urban slums. There is a need to create community-level awareness, improve outreach by field health workers, to address burden of malnutrition among adolescent girls.



PV055 / #190

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

DISTRIBUTION OF PALPEBRAL FISSURE LENGTHS IN POLISH CHILDREN - RESULTS OF PILOT STUDY

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Background and Aims: Fetal alcohol syndrome (FAS) is a serious consequence of drinking alcohol in the prenatal period. The FAS problem occurs in every society and is recognized in all ethnic groups. Classic facial dysmorphic features include microcephaly, short palpebral fissures, smoothing filtrum and thinning of the upper lip. There is concern that normative data on PFs now available may not reflect all ethnic groups and might be inaccurate in general. The aim of the pilot study was to develop national reference distributions for the palpebral fissures, which is a key element in the diagnostic process of children with FAS and FASD.

Methods: The study participants were recruited from patients admitted to Children's Memorial Health Institute (CMHI). The study was conducted on a group of 114 (56 girls and 58 boys) children aged from 3 to 15. Each participant were photographed in standardized way. The PFL were measured from the digital facial photographs using a computerized method. For this study, the photos captured only the eyes rather than the full face to further protect the identity of the subjects.

Results: Mean values of PF were classified to age and gender groups. Analysis demonstrated that PF grow with age, and there is a slight but meaningful difference between boys and girls in each age group. The results were presented in tables and graphs.

Conclusions: This is a pilot study and a research involving a larger group is needed. However, the PFL standards available in the literature are inaccurate for the Polish population.



PV056 / #565

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

EATING HABITS, ADHERENCE TO MEDITERRANEAN DIET AND NUTRITIONAL STATUS OF ADOLESCENT'S POPULATION OF BASIC AND SECONDARY SCHOOL IN ALVERCA, PORTUGAL.

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Background and Aims: In adolescence, eating habits and lack of physical activity are the main predictive factors for the development of obesity and chronic diseases and have a determining role in nutritional status and well-being in future ages. The aim was to evaluate the relationship between the level of adherence to the Mediterranean Diet (MD) and the parameters related to the nutritional status of an adolescent population of basic and secondary school in Alverca, Portugal.

Methods: For this purpose, in this cross-sectional observational study, anthropometric measurements (height, weight, and waist circumference) were performed, as well as a questionnaire that assessed the eating habits and physical activity practice, a Food Frequency Questionnaire, and the assessment of adherence to MD through the KIDMED validated questionnaire.

Results: 216 adolescents participated in this study, with an average age of 13,13±1,87 years, where it was possible to verify that there was a significant relationship between the lack of physical activity and the development of overweight in adolescents. This population revealed an increased consumption of red and processed meats, soft drinks, and fruit nectars, in contrast to a decreased consumption of fish, fruit, and vegetables, not reaching the dietary recommendations of these food groups. The percentage of overweight was 21.30%. Overweight adolescents and an increased waist circumference were related to a low or moderate level of adherence to MD.

Conclusions: Overweight and an increased waist circumference are related to low adherence to MD. In addition, it was found that the eating habits of adolescents remain inadequate, so their intervention is urgent.



PV057 / #43

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

DIFFERENCES IN SOCIOECONOMIC AND BEHAVIORAL EXPLANATORY VARIABLES FOR FOOD AND NUTRITION INSECURITY AMONG UNITED STATES HOUSEHOLDS WITH AND WITHOUT CHILDREN

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Background and Aims: Food insecurity affects over 10% of United States households overall and 13% of households with children. The study aims were to determine and compare socioeconomic and behavioral explanatory variables for food and nutrition insecurity by household type based on presence and age of children.

Methods: Secondary analysis was performed on an existing dataset collected in 2021 and consisting of households at risk for or experiencing food insecurity. Logistic regression was used to identify significant explanatory variables for food and nutrition insecurity by three household types – at least one child <5 years of age, at least one child ≥5 years of age, and no children..

Results: Greater dietary choice was protective for both food and nutrition insecurity in all three household types [80%-90% decreased odds]. Higher income and more fast-food meals decreased odds (30%-60%) of food insecurity, while more processed meals and greater utilization barriers to healthful meals increased odds (30%-120%) for some household types. Higher income also decreased odds (20%) of nutrition insecurity, while greater fruit and vegetable intake, more processed meals, greater limited availability of foods, greater utilization barriers to healthful meals, and shopping at convenience stores increased odds (20%-760%) for some household types.

Conclusions: Dietary choice is an important factor for food and nutrition insecurity in households at risk for or experiencing food insecurity. Differential associations between food and nutrition insecurity and other household characteristics suggests that the presence and age of children may need to be considered when designing interventions or proposing policy to reduce food and nutrition insecurity.



PV058 / #319

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

A SYSTEMATIC REVIEW OF AUTOMATED DIGITAL TOOLS TO PROMOTE A HEALTHY DIET AMONG CHILDREN AND ADOLESCENTS

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Background and Aims: Prevalence's of childhood overweight and obesity steeply increased during the past decades. In response, a broad variety of digital behavioral dietary interventions have been developed, but a coherent overview of all digital tools (DTs) (e.g., with respect to target age, targeted dietary behaviors, integrated behavior change techniques (BCTs)) is currently lacking. We systematically reviewed the DTs aiming to improve dietary behaviors among children and adolescents with particular focus on integrated BCTs and their effectiveness.

Methods: PsycInfo, PubMed, and Scopus were systematically searched for articles that evaluated DTs to promote dietary behavior change in children and adolescents. Studies were included if the: 1) primary component of the intervention was delivered digitally, 2) tool targeted dietary behavior, 3) tool focused on children or adolescents as primary user, and 4) study included an evaluation.

Results: 51 included studies identified 41 unique DTs, including 1) app-based (37%), 2) web-based (29%), 3) computer-based (27%), 4) text-message-based (5%), and 5) combined technology tools (2%). 59% of DTs involved stakeholders in their design and 5% reported using co-design methodologies. Studies particularly evaluated behavior change outcomes (86%), performance indicators (59%), and health outcomes (20%), mostly among children in higher socio-economic contexts (68%). DTs included on average 6.2 BCTs. Ineffective tools incorporated on average slightly more BCTs (6.5), compared to effective DTs (5.7).

Conclusions: DTs are commonly used for cost-effective dietary interventions. Evaluation studies among diverse populations of children are needed to enhance existing evidence. Co-design methods hold promise in developing effective interventions for diverse populations by incorporating perspectives of both children and relevant stakeholders.



PV059 / #439

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

NUTRITIONAL STATUS OF YOUNG BRAZILIAN UNIVERSITY FRESHMEN

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Background and Aims: The entry into University life, although highly desired, can represent a period of important changes for young people, which can affect their physical and mental health. Among these changes, the adoption of different eating patterns can be considered, which can increase the risk of chronic diseases. The aim of this study was to assess the nutritional status of University students at a private Higher Education Institution of the city of São Paulo - Brazil.

Methods: Cross-sectional study, with the application of a standardized questionnaire containing questions related to demographic, dietary characteristics and daily habits. Anthropometric data were also collected (weight, height, Body mass Index – BMI, abdominal circumference - AC). The results were analyzed by descriptive statistics.

Results: Forty-two freshmen took part of the study, being 88.1% female, with an average age of 21 years old. Most of the students were beginning the Nutrition undergraduate course (76.2%). Regarding lifestyle, 76.2% of the students referred to practice physical activity regularly and 31% did not consume alcoholic beverages. Only 7.1% of the students were current smokers. Most of the students were eutrophic according to BMI (71.4%), followed by 16.7% who were overweight and 4.8% who were obese/underweight. Sixty percent of male students were overweight, compared to 18.9% of the women. Furthermore, the mean abdominal circumference was 77cm, indicating no risk of complications associated with obesity.

Conclusions: In the present study, male students, smokers and sedentary were those who were more likely to be overweight, compared to women, non-smokers and physically active.



PV060 / #631

E-POSTER VIEWING 03: CHILDHOOD & ADOLESCENCE

ENERGY AVAILABILITY IN FEMALE TEENAGE FIGURE SKATERS OF SÃO PAULO, BRAZIL

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Background and Aims: Figure skating on wheels requires a thin and long body type. These demands predispose mainly female teenage skaters to Relative Energy Deficiency in Sports syndrome (RED-s). Low Energy Availability (EA) impairs growth, development process and sports performance. AIMS: To estimate the EA of adolescent skaters.

Methods: Cross-sectional study carried out with ten female skaters (10-19 years old), from a figure skating school in São Paulo, Brazil. Energy intake was assessed through a face-to-face interview, using a habitual food diary. A bioimpedance measurement scale (Tanita®) measured the skaters' weight and body fat. EA was obtained by subtracting energy expenditure in exercise (EEPE) from caloric intake, divided by fat-free mass (FFM). EA values were classified as <30kcal/kgFFM/day=inadequate, 30 to 44.9kcal/kg FFM/day=adequate and 45kcal/kg FFM/day=optimum. EEPE was calculated using metabolic equivalents for "Skating" (MET=7). Quantitative and qualitative variables were analyzed by descriptive statistics. This research is a part of a larger study ethically approved by Mackenzie Presbyterian University.

Results: The mean age of the participants was 15.1 years old (SD=2.21) and mean energy intake was 1573.4Kcal/day. The average body fat percentage was 27.13% (SD=5.84), considered moderately high and only three girls had an adequate body composition. None of the skaters had an optimum EA and the group's average was 35% below the ideal value (29.47kcal/kg FFM/day; SD=9.19). Fifty percent of the skaters had an inadequate EA.

Conclusions: Although most of the studied skaters presented an inadequate body fat percentage, half of them had a low energy intake and could be at risk of RED-s.



PV061 / #454

E-POSTER VIEWING 04: OBESITY

ASSOCIATION BETWEEN ADDED SUGAR INTAKE AND CHILDHOOD OVERWEIGHT/OBESITY (OWOB) IN GUAM AND POHNPEI

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Background and Aims: SSBs, an added sugar, was correlated with child BMI and waist circumference in Guam. Yet, added sugar exists throughout the food system and often not adequately addressed in childhood OWOB prevention. This study aims to explore the association between high added sugar intake and child OWOB risk in Guam and Pohnpei.

Methods: A cross-sectional cluster sample of children 3-9-year-olds (407/72 Guam/Pohnpei) using two-day food logs and 24-hour recalls reported by a surrogate were used to assess added sugar intake. PacTrac3 estimated total energy and food groups - grains, vegetables, fruit, milk, and meat. Group differences were examined using parametric or non-parametric methods for numerical data, accordingly. Logistic regression models were used to investigate the association between added sugar intake and childhood OWOB.

Results: In our study, 25.9% of children were OWOB (6.8% in Guam and 20.8% in Pohnpei). Children were categorized as high or low added sugar consumers using a 6-tablespoon daily cut-off. In Guam, 63.4% were high consumers whereas 23.6% in Pohnpei. Excluding meat, intake of recommended food groups was higher among high consumers ($P < .02$). High daily added sugar consumers had a 1.563-fold increased OWOB risk (95% CI: 1.022, 2.391, $p = 0.039$) compared to low consumers. However, after adjusting for total energy and food group intake, this association was no longer statistically significant.

Conclusions: OWOB children in Guam and Pohnpei are high consumers of added sugar and recommended food groups, except meat. This highlights that added sugar may be a hidden nutrient in the food system to be addressed in multilevel prevention efforts.



PV062 / #360

E-POSTER VIEWING 04: OBESITY

PARENTAL OBESITY AND ITS COMPLEX ROLE ON PEDIATRIC OBESITY DEVELOPMENT AND TREATMENT – A ONE YEAR FOLLOW-UP RETROSPECTIVE STUDY

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Background and Aims: Obesity is a chronic condition that is highly prevalent among children and adolescents. Although its development is multifactorial, parental obesity (PO) is a well-established predictor of childhood obesity (CO). We aimed to clarify the role of PO in the development and treatment of CO in our population.

Methods: We conducted a retrospective analysis of the first year of follow-up for CO in a secondary care hospital's general paediatrics department. We included patients aged 2 to 18 years old referenced between 2017 and 2021. Patients with secondary obesity were excluded. Descriptive and inferential statistics were performed.

Results: A total of 177 patients were included (age, mean \pm SD 10.2 \pm 3,2yo, 100 females [56.5%]). Most patients (n=141, 79.7%) completed one year of follow-up. Almost half (n=88, 49.7%) had at least one obese parent. The global mean BMI z-score at admission was 3.2 (\pm 1.1) and 2.7 (\pm 1.1 [$p < 0,001$]) after one year. The mean BMI z-score was higher in children with at least one obese parent both at admission (3,5 \pm 1,34 vs 3,0 \pm 0,81 [$p=0,012$]) and after one year (2,9 \pm 1,2 vs 2,4 \pm 0,9 [$p=0,006$]). Reported adherence to nutritional counselling was higher ($p=0,05$) in families with at least one obese parent. Reported adherence to physical activity was similar in both groups ($p=0,68$).

Conclusions: Parental obesity seems to play a key role in CO development in our population. The results call for a family centered approach to care, avoiding stigmatization, and attending to each family's individual characteristics.



PV063 / #393

E-POSTER VIEWING 04: OBESITY

EATING DISORDERS IN A PEDIATRIC POPULATION SUFFERING FROM OVERWEIGHT

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Background and Aims: Childhood obesity is an increasingly common nutritional condition that often persists in adulthood. This excess weight has a negative impact on physical and mental health, as well as quality of life. **Objective.** To identify eating disorders among a pediatric population suffering from overweight.

Methods: Patients (n=30; 16 girls/14 boys), aged 5 to 17 years old, were recruited from A. Cabral Pediatric Clinic in CHU-Oran. Anthropometric measurements were carried out. Physical activity level was estimated using a HAS questionnaire, and diet quality by using KidMed score. Eating disorders were estimated by two questionnaires, the Binge Eating Scale (ADO-BED) and the Child-Three Factor Eating Questionnaire (CTFEQ)

Results: Obesity was observed in 77% of our patients and 23% were overweight. Physical activity practice was noted in 40% of patients, and 60% were sedentary on the week-end. KIDMED score showed that 83% had a very poor quality diet (score \leq 3). Eating behavior evaluation, using the ADO-BED questionnaire showed a low risk of developing binge-eating episodes in 97% of our patients. However, CTFEQ score results noted that 67% of children and adolescents had a loss of control eating, 7% cognitive restraint, and 7% emotional eating.

Conclusions: Poor eating behaviors associated with a sedentary lifestyle are noted in overweight pediatric population. Nutritional intervention and psychological care are necessary for these patients



PV064 / #547

E-POSTER VIEWING 04: OBESITY

USE OF ANTHROPOMETRY VERSUS ULTRASOUND FOR THE ASSESSMENT OF BODY FAT AND COMORBIDITIES IN CHILDREN WITH OBESITY

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Background and Aims: We aimed to examine the association between abdominal fat measured by ultrasound and anthropometric indices in children with obesity, and those with normal weight. We also examined the association between anthropometry and fat measures in the prediction of comorbidities in children with obesity.

Methods: Forty children with body mass index of >95th percentile were included as cases, and a comparable group of 32 healthy average-weight peers were included as controls in this study. All children underwent clinical assessment, anthropometric measures, and evaluation of abdominal subcutaneous fat (SCF) and visceral fat by ultrasound. Fasting blood sugar, serum transaminases, and lipid profile of all the included children were also evaluated.

Results: Children with obesity had a mean age of 8.7 ± 2.9 years (range 3–13). The SCF and intraperitoneal fat (IPF) values correlated well with each other and with anthropometric measurements in children with obesity. Among all the included cases, 90% were metabolically unhealthy, 70% had hypertension, 52.5% had dyslipidemia, and 22.5% had echogenic liver. Anthropometric measures, abdominal SCF and IPF were higher in children with complications. SCF was observed as a good predictor for hepatic echogenicity among the measured ultrasound parameters (P: 0.03, odds ratio 4.6). The best cutoff value for SCF in cases with hepatic echogenicity was 23.2 mm with an overall accuracy of 80%.

Conclusions: In children with obesity, abdominal SCF and IPF correlated well with anthropometric measures and were higher in children with comorbidities. This finding, however, did not predict comorbidities apart from those with echogenic liver.



PV065 / #228

E-POSTER VIEWING 04: OBESITY

THE HUMAN MILK ENDOCANNABINOIDOME AND NEONATAL GROWTH IN GESTATIONAL DIABETES

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Background and Aims: Endocannabinoids and their congeners, namely the endocannabinoidome (eCBome), are lipid derivatives involved in the regulation of energy homeostasis, are associated with obesity and related complications. These lipids are present in human milk. How GDM could potentially alter their profile in breastmilk provided to the infant needs further investigation as such components could regulate child appetite and growth. To compare the profile of endocannabinoidome mediators in the milk of GDM+ and GDM- women and to assess the association between these mediators and the growth of children of women GDM+ or GDM-.

Methods: Circulating eCBome mediators was measured by LC-MS/MS in human milk obtained at 2 months postpartum from GDM+ (n=24) and GDM- (n=29) women. Infant weight and height at 2 months were obtained from the child health record. Weight-for-age z-score (WAZ) and length-for-age z-score (LAZ) were calculated.

Results: Circulating *N*-palmitoyl-ethanolamine (PEA) was higher in human milk of GDM+ women than in GDM- women (4.9 ± 3.2 vs. 3.3 ± 1.7 p=0.04). Higher levels were also found for several 2-monoacyl-glycerols (2-MAGs). The levels of *N*-acyl-ethanolamines (NAEs) (B=-4.6, p=0.04) and especially non-omega-3 NAEs (B=-5.6, p=0.004) in human milk were negatively correlated with the WAZ of offspring exposed *in utero* to GDM.

Conclusions: In this study, the profile of eCBome mediators in human milk at 2 months postpartum was shown to be altered in GDM+ women and associated with the growth of the GDM+ offspring at 2 months.



PV066 / #103

E-POSTER VIEWING 04: OBESITY

OBSTACLES PREVENTING PUBLIC HEALTH NURSES FROM DISCUSSING CHILDREN'S OVERWEIGHT AND OBESITY WITH PARENTS

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Background and Aims: We examined how well-baby care nurses perceive communication with parents regarding their children's obesity and identified main communication barriers. Pediatric obesity is a significant public health concern, and health care personnel are among the first to detect overweight and the first to offer assistance to parents. Yet, research suggests that when nurses identify a weight problem in children, they may have trouble initiating this discussion.

Methods: This qualitative study, using semi-structured interviews with 20 public health nurses, addressed potential obstacles nurses face when discussing young children's weight.

Results: Lack of time and workload were the most significant barriers to meaningful conversation with parents. Instructing parents toward a healthy lifestyle, while specifically relating to the child's weight, is perceived as part of the nurse's role, but execution was flawed. Trust and good communication between the nurse and parents are seen as critical ingredients to provide future guidance around a child's weight.

Conclusions: Nurses want parents to feel comfortable to discuss children's weight problems, but are worried that such a discussion may impair previously established trust. Nurses should receive comprehensive training to address childhood obesity, including specific communication skills to implement when discussing this stigmatized and sensitive topic.



PV067 / #104

E-POSTER VIEWING 04: OBESITY

CHILDHOOD OBESITY: A COMPREHENSIVE REVIEW FOR HEALTH PRACTITIONERS

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Background and Aims: Childhood obesity is a condition characterized by excessive body weight in children and adolescents. It is a growing global health concern, with rates on the rise in many countries. Identifying and addressing childhood obesity is crucial, as it can have significant short-term and long-term health implications. The purpose of this study was to discuss the current literature on childhood obesity and provide health practitioners, particularly nurses, with essential knowledge for identifying at-risk children and implementing appropriate interventions.

Methods: Current literature was accessed through databases such as CINAHL, Science Direct, PubMed and ProQuest. Keywords used in the search included obesity, childhood, health, relevant national statistics, policy, prevention and health risks. The literature was restricted to the last 10 years, with a focus on the most recent 5 years. Fifty relevant papers from various countries were selected, and 35 papers representing key areas of relevance were chosen as the basis for this article. These papers informed the discussion on acknowledged factors in childhood obesity.

Results: While childhood obesity may be influenced by specific cultural and national circumstances, universal themes emerged from the literature review. These include social factors, physical activity, advertising, public policy, and the importance of partnerships in addressing the issue.

Conclusions: There is a global concern regarding childhood obesity. Countries with high or increasing rates of childhood obesity must acknowledge the underlying factors that contribute to this significant health issue. Public policies and collaborations within the community, involving all healthcare professionals, are essential in the efforts to prevent it.



PV068 / #410

E-POSTER VIEWING 04: OBESITY

METABOLOMIC ASSAY, IN SILICO, IN VITRO AND IN VIVO STUDIES OF ANTI-OBESITY POTENTIAL OF CLITORIA TERNATEA KOMBUCHA AS FUNCTIONAL BEVERAGE

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Background and Aims: This study aims to innovate a fermented drink from *Clitoria ternatea* kombucha (CTK), find out their metabolites profile, and determine the antiobesity potential through molecular docking (*in silico*), *in vitro* and in metabolically disorder mice that receive a diet rich in cholesterol and fat (CFED).

Methods: 40 male *Mus musculus* were categorized into four groups, i.e., A = Control/Normal Diet; B = CFED Only; C = CFED + CTK 65 mg/kg BW (Body Weight); D = CFED + CTK 130 mg/kg BW, and then sacrificed after 6 weeks of intervention.

Results: A total of 79 compounds were identified in CTK, and 13 ideal compounds were selected for *in silico* study. The study found that Kaempferol, Quercetin-3 β -D-glucoside, Quercetin, Dibenzylamine, and α -Pyrrolidinopropiophenone showed the best potential as the functional antiobesity compounds since their affinity value ranked high in against obesity receptors. *In vitro* studies showed the potential activity of CTK in inhibiting not only ABTS, but also lipase, α -amylase, α -glucosidase to levels similar to acarbose (control) at 50–250 μ g/mL. In the *in vivo* study, the administration of CTK (130 mg/kg BW) significantly alleviated obesity markers caused by high-fat diet ($p < 0.05$). Specifically, lipid profile (HDL, LDL, TC, TG), blood glucose, markers of oxidative stress (SOD liver), metabolic enzymes (lipase, amylase), and markers of inflammation (PGC-1 α , TNF- α , and IL-10) were in most cases restored to normal values.

Conclusions: In conclusion, major metabolites compounds of CTK have the potential to be promising functional foods antiobesity. However, further human clinical trial studies should validate these health benefits.



PV069 / #217

E-POSTER VIEWING 04: OBESITY

NUMBER OF OLDER SIBLINGS AND OLDER SISTERS INVERSELY ASSOCIATED WITH CHILD BMI Z-SCORE AMONG SAUDI PRESCHOOLERS: A CROSS-SECTIONAL STUDY

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Background and Aims: The association between sibship circumstances and child body mass index (BMI) has not been investigated in any Arab/Middle Eastern sample. The objective of this study was to examine the association of number of siblings, number of older siblings, and number of younger siblings with child BMI z-score (BMIz) among preschoolers in Saudi Arabia (SA) while adjusting for potential confounders.

Methods: A total of 209 mothers and their children were recruited from eight different preschools. Mothers completed the study questionnaire over the telephone. Child anthropometry was objectively measured; BMIz was calculated based on age- and sex-specific World Health Organization (WHO) growth standards and reference data. We used hierarchical multiple linear regression to examine the association between sibship composition variables and child BMIz, independent of the effect of potential confounders, and to evaluate changes in model fit.

Results: Number of siblings was negatively associated with child BMIz ($\beta = -0.18$, 95% confidence interval (CI) = -0.35, -0.06, $P < 0.01$, adjusted $R^2 = 0.16$). There was a negative association between number of older siblings and child BMIz ($\beta = -0.23$, 95% CI = -0.38, -0.11, $P < 0.01$, adjusted $R^2 = 0.21$) as well as between number of older sisters and child BMIz ($\beta = -0.18$, 95% CI = -0.52, -0.09, $P < 0.01$, adjusted $R^2 = 0.19$). However, there were no significant associations between number of older brothers or number of younger siblings with child BMIz.

Conclusions: Further research is needed to understand the underlying mechanism of the association between greater number of older siblings and older sisters with lower BMIz.



PV070 / #569

E-POSTER VIEWING 04: OBESITY

ADOLESCENT NUTRITION AND DIETARY PRACTICES IN BOTSWANA

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Background and Aims: The prevalence of overweight (OW) and obesity (OB) in adults (25-64 years) in Botswana increased from 37.4 % (2007) to 47.3 % (2017). There is no disaggregated data on adolescents. This study described adolescent OW and OB, knowledge, attitudes on healthy eating and dietary practices.

Methods: Adolescents (n=240) were randomly selected and completed a structured questionnaire. Body weights and heights were measured.

Results: Adolescent OW and OB (BMI-for-age > 85th percentile) prevalence was 15 %. Girls (16%) had significantly higher rates than boys (13%). Adolescents in low poverty districts had significantly higher mean BMI than those in medium and high poverty districts. Thinness (BMI-for-age < 5th percentile) prevalence was 20% and was significantly higher in boys (25%) than girls (18 %), in districts with high (17.5%) than those with low poverty rates (11.1%) (p<0.05). Over 82 % of participants correctly selected healthier snacks and 97.5% knew that excessive sugar, salt, and fat made food unhealthy. Over half thought healthy foods were not expensive. More (70%) adolescents had lunch and dinner daily than breakfast (45%). Also, more adolescents consumed cereals (92%) and meat and poultry (89%) in the preceding 24 hours, than fruits, and vegetables at 50-65%; legumes, pulses, nuts (30%), eggs (20%) and fish (16%), But 80 % of participants reported high access to vegetables. Potato chips (58.6%) and sugar sweetened beverages (SSB) (58.6 %) were also consumed and were accessible in homes and schools.

Conclusions: OW/OB and thinness co-existed in adolescents and were influenced by gender and district poverty status. Adolescents had positive attitudes towards healthy-eating.



PV071 / #419

E-POSTER VIEWING 04: OBESITY

TRIPONDERAL MASS INDEX RATHER THAN BODY MASS INDEX IN DISCRIMINATING HIGH ADIPOSITY IN BRAZILIAN CHILDREN AND ADOLESCENTS

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Background and Aims: Background: Body mass index (BMI) is used worldwide to track excess weight in children and adolescents, however, it has limitations in predicting body fat percentage (BF%). Triponderal mass index (TMI) has been studied as an alternative indicator to predict BF%. **Aim:** To compare BMI and TMI as predictors of BF% in Brazilian children and adolescents.

Methods: Methods: Cross-sectional study conducted with 226 individuals aged between 5 and 17 years in the municipalities of Ribeirão Preto/SP and Porto Alegre/RS, Brazil. BF% was assessed by bioimpedance. ROC curve analyzes were performed to verify the accuracy of BMI and TMI in detecting high adiposity. The areas under the curve (AUC) of BMI and TMI were compared by non-parametric analysis.

Results: Results: Prevalence of high adiposity according to BF% was 54.1% (95% CI, 44.8-63.2) in boys and 63.5% (95% CI, 54.5-71.9) in girls. TMI can predict BF% better than BMI for both sexes, presenting a higher R² (0.73 and 0.63 versus 0.62 and 0.62 for boys and girls, respectively). TMI was found to present a significantly higher AUC than BMI for indicating high adiposity in this population ($p=0,007$).

Conclusions: Conclusion: TMI proved to be a better predictor of excess body fat than BMI in Brazilian children and adolescents. TMI is a useful and simple screening tool that can be incorporated into clinical practice in Brazil.



PV072 / #435

E-POSTER VIEWING 04: OBESITY

MICRONUTRIENT DEFICIENCY AFTER BARIATRIC SURGERY IN ADOLESCENTS - THE EXPERIENCE OF A TERTIARY HOSPITAL

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Background and Aims: Metabolic and bariatric surgery is an effective treatment option for severe obesity, although there is risk of nutritional deficits after the procedure. Our goal was to evaluate the existence of micronutrient deficits one and two years after bariatric surgery in adolescents.

Methods: Retrospective study using clinical records of pediatric patients, from a tertiary hospital, who underwent bariatric surgery since 2013. We evaluated sociodemographic data, body mass index (BMI) evolution and pre and post operative micronutrient deficits.

Results: Forty-four patients had vertical gastrectomy and one patient had gastric bypass. 62,2% of patients were female and the average age was 17,2 years (15-20 years). The average pre-surgical BMI was 46,9 kg/m². 35 patients were included: 30 after one year and 19 for evaluation two years after surgery. The most frequent comorbidities were non-alcoholic fatty liver disease, arterial hypertension, obstructive sleep apnea syndrome, and dyslipidemia. The average BMI one and two years after surgery was 32,8 and 31,6 kg/m², respectively. All patients started micronutrient supplementation after surgery. Micronutrient deficit was 60% one year after surgery and 68,4% after two years, the most frequent iron, vitamin D, and magnesium deficiencies in both evaluations.

Conclusions: The majority of our patients had a marked reduction in BMI. Micronutrient deficiencies were found in more than one half of patients despite being on supplementation. The pediatric population requires a unique approach to nutritional intervention, with particular attention given to supplementation for these patients to avoid possible complications.



PV073 / #93

E-POSTER VIEWING 04: OBESITY

PERSONALIZED NUTRITION INTERVENTIONS: A COMPREHENSIVE ANALYSIS OF INDIVIDUALIZED DIET PLANS AND THEIR IMPACTS

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Victor Babes University of Medicine and Pharmacy Timisoara, Endocrinology, Timisoara, Romania

Background and Aims: The individualized approach to the quantitative and qualitative food plan proved to have positive results in weight loss. The aim of this study is to demonstrate the effectiveness and benefits of personalized dietary interventions by conducting an in-depth analysis of individualized nutritional plans.

Methods: This prospective observational study was performed in our endocrinology and metabolic unit starting in December 2022 until July 2023 on 60 overweight and obese adults (14 men and 46 women) aged between 18 and 75 years, who presented for a personalized dietary intervention. The TANITA BC 418 model bioimpedance was used for body analysis in dynamics.

Results: The median age was 37.5 ± 12.3 years, the median initial BMI was 32.5 kg/m^2 , which decreased to 30.5 kg/m^2 after one month ($p=0.026$) and further reduced to 28.5 kg/m^2 by the end of weight loss dietary individualized plan ($p<0.0001$). This represented a median weight reduction of 5.3% ($p=0.061$) after the first month and a notable 12% ($p=0.0001$) by the end of third month. A significant decrease in abdominal circumference was identified by 8.36% ($p=0.02$), and fat mass by 12% ($p=0.0006$) at the end of the nutritional plan. The percentage of muscle mass increased (8%, $p=0.043$) and an improvement in the state of hydration was observed (10.2 %, $p=0.0001$). Significant correlations were found between HOMA-IR and several factors: fat mass ($r=0.401$, $p=0.0018$), abdominal circumference ($r=0.439$, $p=0.0004$) and BMI ($r=0.685$, $p<0.0001$).

Conclusions: Individualized nutritional plan proved to present significant benefits in the process of weight loss in terms of the anthropometric and bioimpedance parameters.



PV074 / #351

E-POSTER VIEWING 04: OBESITY

CHILDHOOD OBESITY AND METABOLIC SYNDROME – A WAKE-UP CALL

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Background and Aims: Worldwide, the prevalence of obesity in children doubled in the last decade, becoming a severe public health issue. Metabolic syndrome is becoming increasingly more frequent, and is diagnosed (progressively) earlier in these children. The authors aimed to evaluate for metabolic syndrome in a group of overweight/obese children.

Methods: We conducted a prospective study that included overweight (BMI 85th to 95th percentile) or obese (BMI \geq 95th percentile) 3-18 years old children. The patients were enrolled in the Pediatrics Department of "Grigore Alexandrescu" Children's Hospital where they were admitted for unrelated pathology. Metabolic syndrome criteria used were large waist circumference (\geq 95th percentile) and at least two of the following: increased blood pressure (\geq 95th percentile), high triglyceride level (\geq 150 mg/dl), reduced HDL-cholesterol (\leq 40 mg/dl), elevated fasting blood sugar (\geq 100mg/dl).

Results: 226 patients were enrolled (57.07% obese). The mean age was 11 years 2 months, the sex ratio M/F=1.1 and 62% came from urban areas. All patients had waist circumference \geq 95th percentile. High blood pressure was diagnosed in 20.7% (68% of them being obese). 18% had high serum triglycerides and 28.7% low HDL-cholesterol levels. Increased fasting blood glucose was found in 18,5%. 13,2% fulfilled three criteria for metabolic syndrome.

Conclusions: Obesity is a chronic disease that generates complications and a metabolic risk from an alarmingly decreasing age. Education and medical advice should target nutrition, normal growth and a healthy lifestyle in order to prevent an "epidemic" of early onset cardiovascular disease.



PV075 / #609

E-POSTER VIEWING 04: OBESITY

CORRELATION BETWEEN INVASIVE AND NONINVASIVE QUANTIFICATION OF OBESITY IN CHILDREN OF AGE 6 YEARS TO 18 YEARS IN PERIPHERAL UTTRAKHAND

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Background and Aims: Obesity is one of the most frequent Nutritional concern since last decade. Body fat percentage, body fat mass and visceral fat level are the commonly used parameters. Our study correlates noninvasive measurements like BMI, waist circumference (WC), waist to hip ratio (WHR) with fat analysis done through lipid profile and body fat analysis in overweight children.

Methods: This Study was conducted in 15 Different schools (5 Government and 10 Private) on 6456 children between age of 6 years to 18 years in peripheral Uttarakhand. All children underwent anthropometry and BMI of more than 85th centile were subject to lipid profile and body fat analysis.

Results: In this study 3.3% (213) children were found overweight (BMI 85th-95th percentile) and 7.7% (490) children were found obese (more than 95th centile). Significant positive correlations were noted between BMI, WC, WHR, with Body fat mass in 6-10 years. Between 11-14 years subgroup only WHR was found significantly correlating to body fat mass. All three of non-invasive parameters were found equivalent to visceral fat level in both 6-10 years and 11-14 years group. However no significant correlation was found between anthropometry and visceral fat level in 15-18 age group.

Conclusions: Body Fat measurement by Non-invasive methods can be used for mass screening of overweight and obesity in children and can be more acceptable and economical. This mass screening is necessary in today's scenario where in about 10 percent of children are found in overweight category in India, which will help in tracking and prevention of several lifestyle Non-communicable disorders in India.



PV076 / #427

E-POSTER VIEWING 04: OBESITY

CHANGES IN GROWTH TRAJECTORIES IN BRAZILIAN CHILDREN BORN BETWEEN 2001 AND 2014

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Background and Aims: Limited data exists regarding the recent developments in childhood growth patterns in Low-/middle-income countries. We explored alterations in the age-trajectories for height and Body Mass Index (BMI) among Brazilian children born in two distinct time periods post-2000.

Methods: We used a population-based cohort derived from the linkage of three Brazilian administrative databases: the Cadastro Único of the Federal Government, the National System of Live Births, and the National Nutritional and Food Surveillance System. Our study with longitudinal data on 5,750,214 children aged between 3 to <10 years, all born during the years 2001-2014, amounting to 20,209,133 observations. To estimate the mean height and BMI trajectories for these children, we utilized random-effects fractional polynomial models.

Results: In comparison to children born in the years 2001-2007, those born in the period of 2008-2014 exhibited greater height, with a z-score increase of 0.15 in boys and 0.12 in girls. Their height trajectories development patterns shifted upwards by approximately 1 centimeter for both sexes. BMI increased slightly, with boys gaining 0.06 z-score and girls 0.04. The mean BMI trajectories experienced minimal change. For instance, in children aged 5 to <10, the prevalence overweight/obesity of boys went from 26.8% to 30%, and girls from 23.9% to 26.6%.

Conclusions: An increase of 1 centimeter in the mean height of Brazilian children within a short period reflects improvements in maternal and child health, especially for those from low-income families. Although there was little change in the mean BMI, the prevalence of child overweight/obesity increased and remained at a high level.



PV077 / #627

E-POSTER VIEWING 04: OBESITY

RELATIONSHIP OF FAMILY'S EATING BEHAVIORS AND CHILD FEEDING PRACTICES ON INDIAN CHILDHOOD OBESITY

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Background and Aims: Aim is to investigate the relationship of family's eating behaviors, feeding practices, BMI on percentage body fat and BMI in their children

Methods: Research methods and procedures: Two hundred and twenty nine parents (120 mothers, 109 fathers) were asked to complete two questionnaires: the Three-Factor Eating Questionnaire and the Child Feeding Questionnaire, which measure dimensions of parent eating behavior and child feeding practices, respectively. Parent BMI was calculated from self-reported height and weight; children's measures included BMI and percentage fat assessed by DXA. Regression analyses were used to analyze relationships between parents' BMI and questionnaire scores and children's weight status.

Results: 72 mothers and 34 fathers returned questionnaires, representing parents of 106 children 3 to 5 years old (39 boys). Children's weight was related to mothers' BMI, but not fathers'. Girls had a greater BMI if either parent reported being overweight as a child, and both girls and boys were likely to be overweight if their mothers believed they had risky eating habits (fussiness, eating too much, etc) Girls with fathers who were more controlling had a higher percentage fat; these fathers were also more concerned about their daughters' future health.

Conclusions: Mothers exert a strong influence over their children's weight and seem to be more concerned about children's eating behaviors; fathers play a role in imposing child feeding practices. Gender bias may be present in child feeding, as suggested by dissimilar effects of parent practices on the weight status of girls vs. boys. Fathers should be included in future studies analyzing parent feeding practices and children's weight outcome.



PV078 / #359

E-POSTER VIEWING 04: OBESITY

BELIEFS AND CURRENT ATTITUDE RELATED TO OBESITY OF THE YOUNG STUDENTS FROM GENERAL MEDICINE, NURSING AND NUTRITION PROGRAMME

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Background and Aims: The 21st century is facing a global epidemic of obesity, a chronic, multifactorial, relapsing disease, people with obesity suffering prejudice and discrimination, sometimes even from the medical staff. The purpose of this study is to identify the beliefs of students enrolled at the University of Medicine and Pharmacy "Grigore T. Popa" Iași about obesity.

Methods: The study was conducted through the online survey platform Google forms, through which two internationally validated questionnaires were applied: Beliefs About Obese Persons - BAOP (Leeds beckett, 2021) and Antifat Attitudes Questionnaire - AFA (Crandall, 1994). The questionnaire was addressed only to students enrolled at the University (general medicine, nursing and nutrition programme). The final sample included 145 people, 30% from general medicine, 20% nursing, 50% nutrition programme.

Results: Compared between specializations, nursing students achieved the highest AFA score indicating strong attitudes against people with obesity and the belief that obesity could be controlled. None of the specializations reach the maximum BAOP score, a score equivalent to the belief that obesity cannot be controlled. The subscale measuring participants' fear of gaining weight revealed some worrying percentages. Helping students understand that obesity is a complex, chronic, multifaceted condition that requires a multidisciplinary approach could be the first step in dispelling these negative attitudes related to obese patients.

Conclusions: This study provides preliminary findings suggesting that some students exhibit negative attitudes toward people with obesity. The existence of academic programs that include the issue of stigma and discrimination could be the first step to dispel these negative attitudes towards obese patients.



PV079 / #487

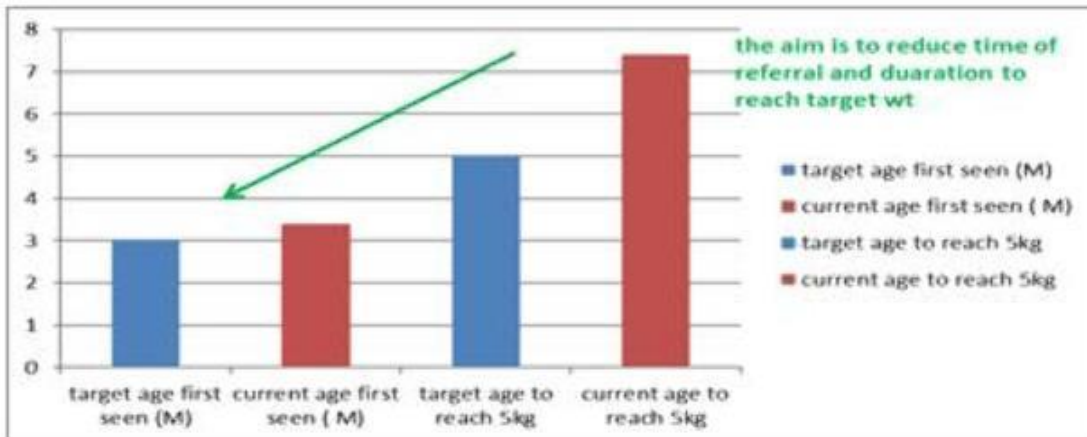
E-POSTER VIEWING 05: CLINICAL NUTRITION

OPTIMIZE THE PROCESS EFFICIENCY CYCLE OF CLINICAL DIETITIAN IN TREATMENT OF DELAYED WEIGHT GAIN IN PREOPERATIVE PEDIATRIC CARDIAC PATIENTS, WEIGHING LESS THAN 5 KG

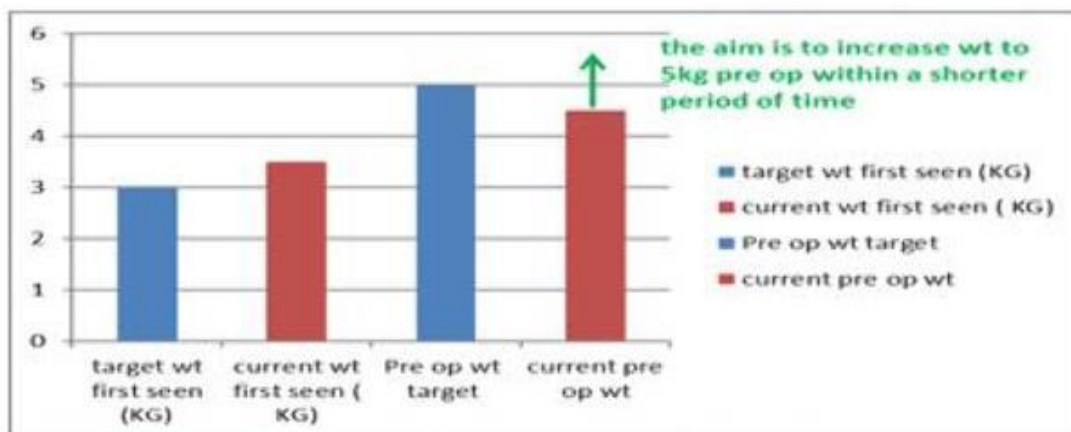
Juhaina Hamed Al Maskari¹, Sana Al Yafae¹, Ismail Al Abri², Khoula Al Said³, Fathia Al Harthi³, Amal Al Barashdi⁴

¹Royal Hospital - National Heart Center, Clinical Dietetic Department, Muscat- Buser, Oman, ²Royal Hospital- National Heart center, Pediatric Cardiology, Muscat, Oman, ³Royal Hospital, Pediatric Gastroenterology, Muscat, Oman, ⁴Royal Hospital, Dietary Service Section, Muscat, Oman

Background and Aims: In general, pediatric cardiac patients with congenital heart disease have poor and prolonged weight gain compared to others. This has a direct impact on the surgeries outcome. Based on various references, it has been shown the best outcome demonstrated after specific pediatric cardiac surgeries with pre-surgical weight 5 kg and above. This project aimed to optimize the process efficiency cycle of clinical dietitian intervention to optimize the gaining weight before surgical interventions.



	First seen weight target (KG)	Current wt first seen (KG)	Pre op wt target (kg)	Current pre op wt (Kg)
Weight (kg)	3	3.5	5	4.5



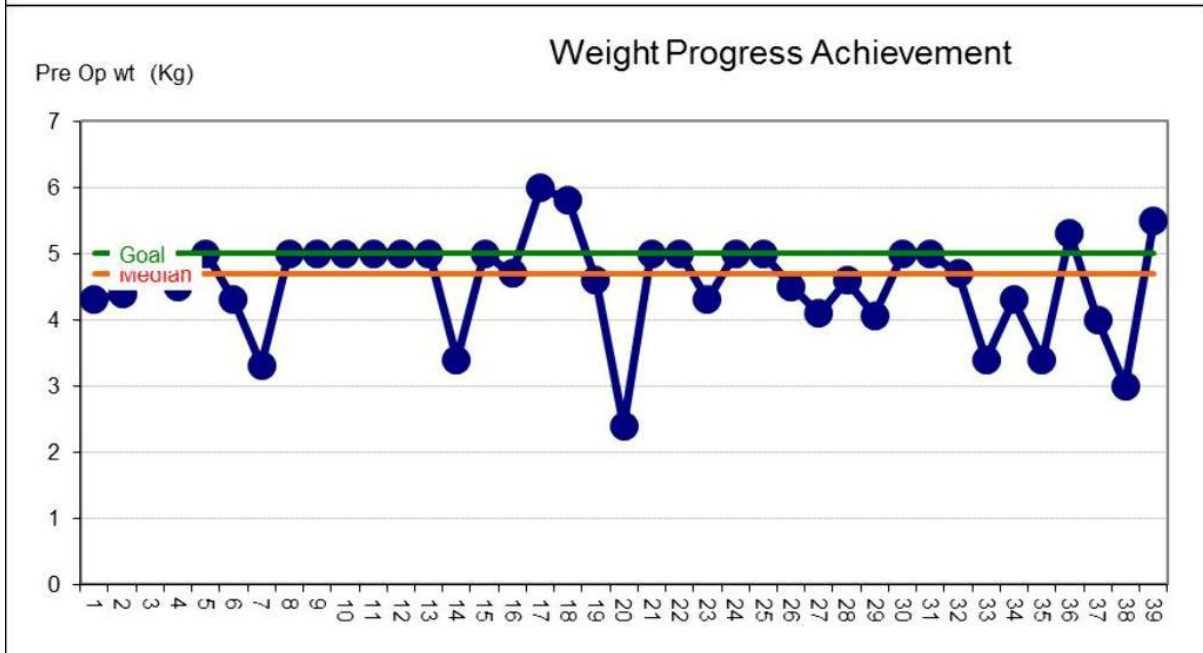
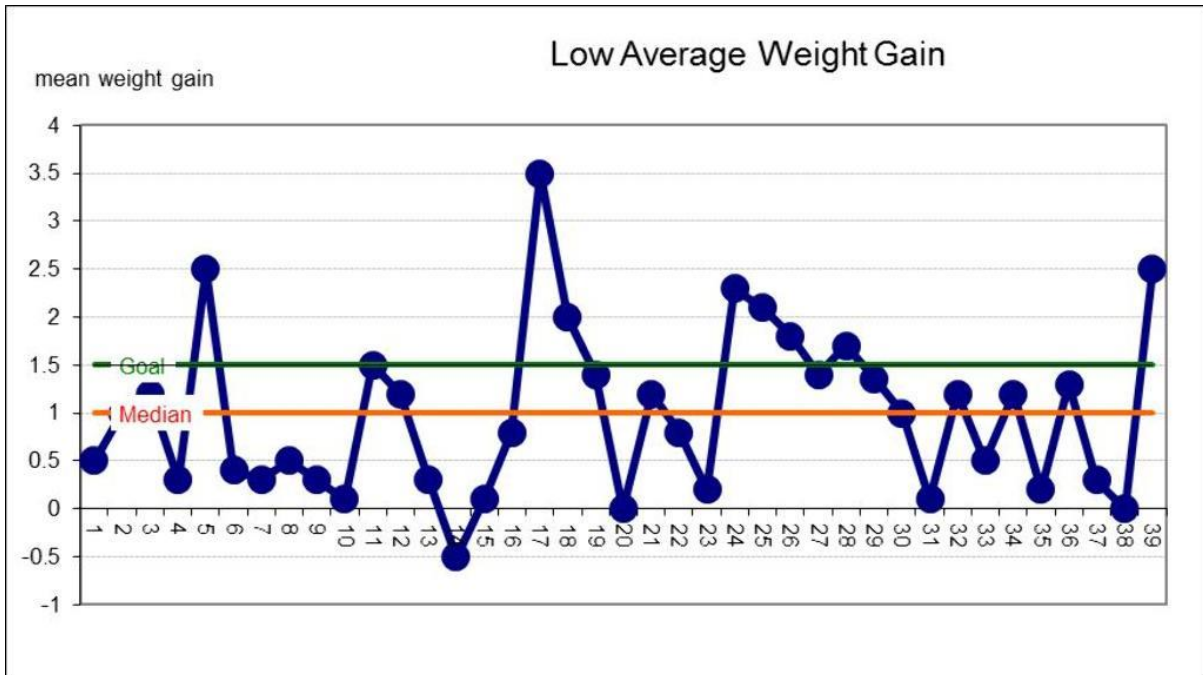
	Target age first seen (M)	Current age first seen (M)	Target age to reach 5kg	Current age to reach 5kg
Age (month)	3	3.4	5	7.4

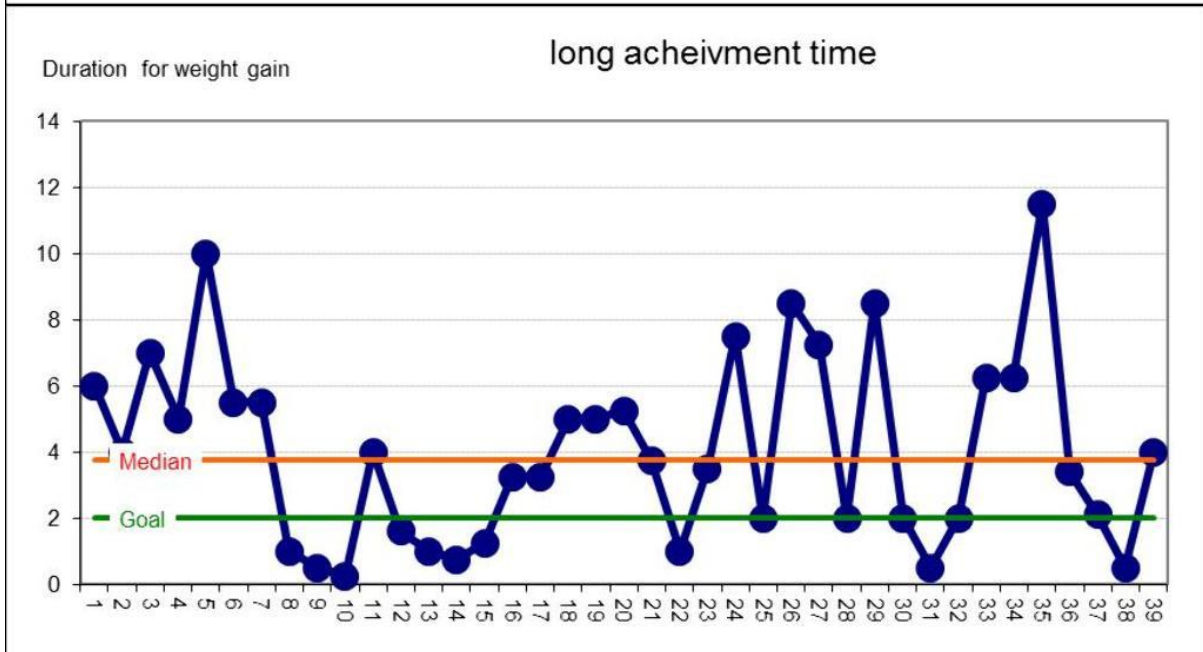
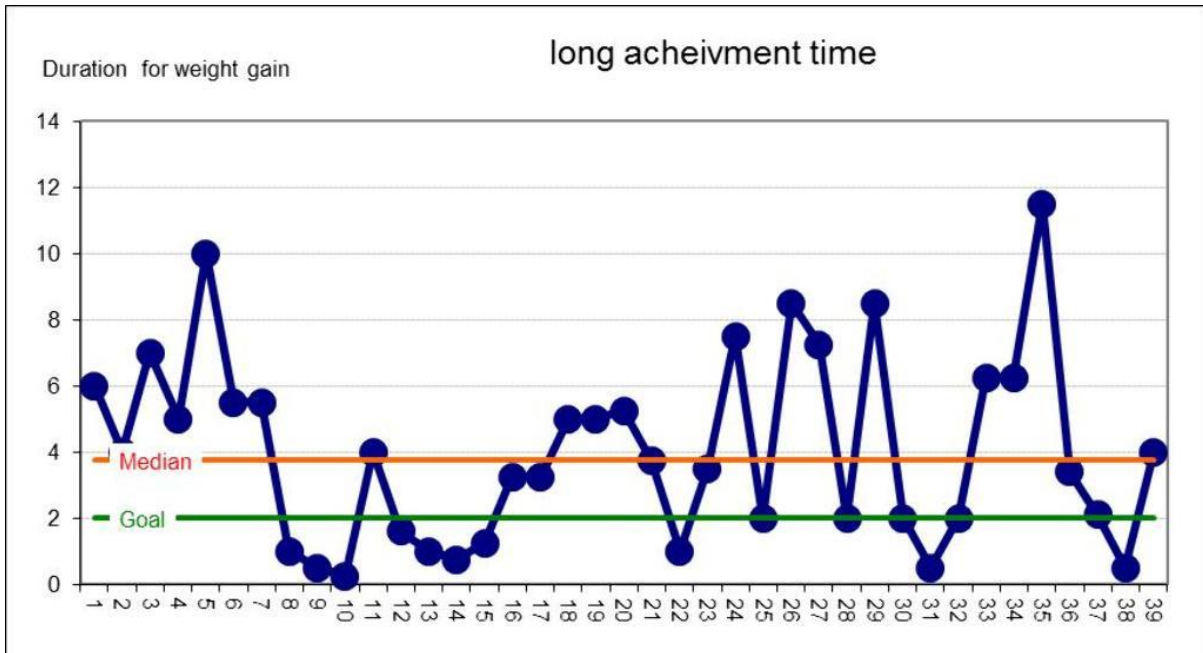


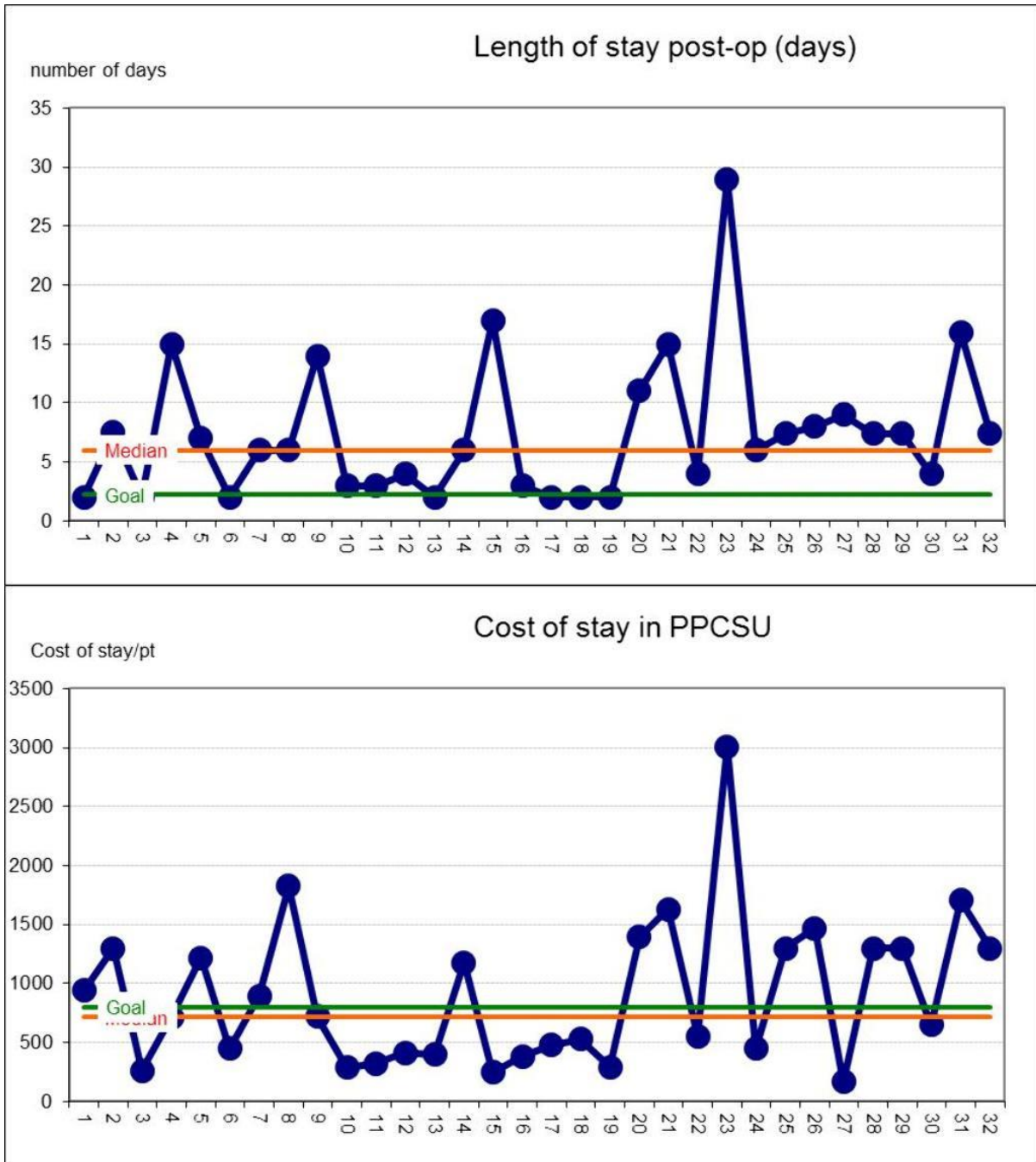
Clarify the problem:

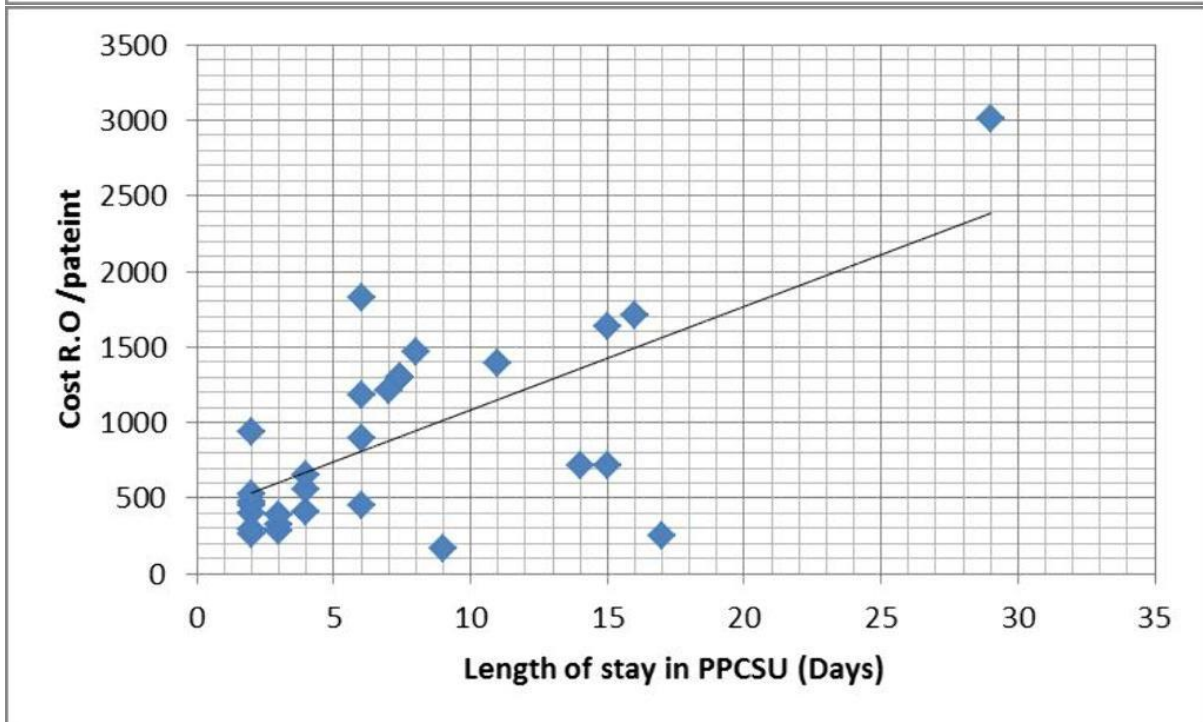
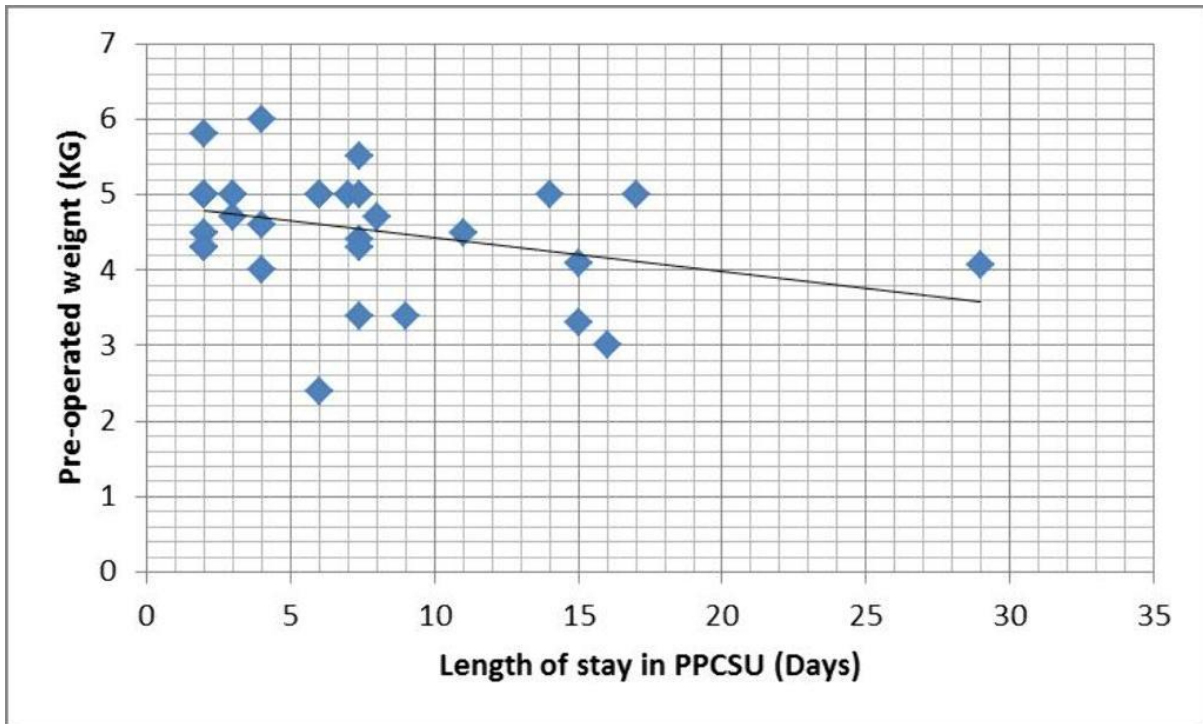
- It is a prolonged weight gain of perpetrated pediatric cardiac patients; need to achieve 5 kg weight before surgical interventions.
- The project conducted on several matrixes: Time, age, weight, Length of stay, and cost.
- 1st quarter 2021- sample size was 32 patients

1	62%	Process Efficiency Cycle (PEC)
2	4.65 kg	Weight achievement before surgery (low weight achievement)
3	4.04 months	The average duration needed to achieved 4.56 kg (long achievement time)
4	0.98 kg	Average of weight gained within 4.04 months (low average gaining weight)
5	3.4 months	Average age first referred. 7.5 months, average age achieved target weight. (Late referred and late achieved)
6	7.4 days	The average length of stay pot-operated. (prolonged of length of stay post-op)
7	2481.4 \$	The average cost for the stay in PPCSU/patient. (cost of length of stay). The cost including: (bed, lab investigations, ECO, ECG and further needed procedures). Excluding (operation cost, medications, and labor charge).





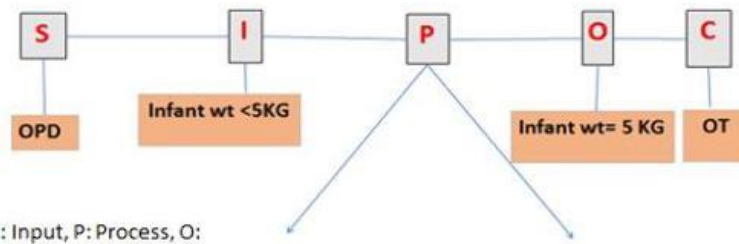




Methods:



Figure 1: Visualize the work cycle



S: Supplier, I: Input, P: Process, O: Output, C: Customer, OPD: Outpatient clinic, OT: Operational room

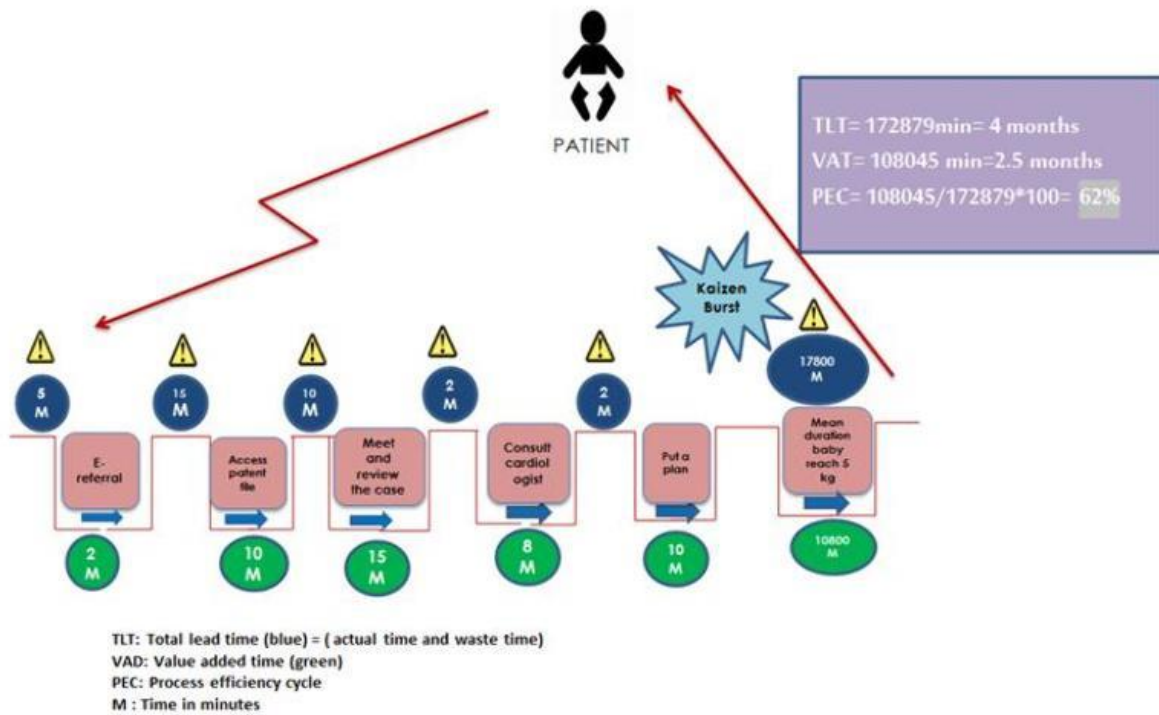




Figure 2: Rainfall the root-caused by using (fish boon tool)

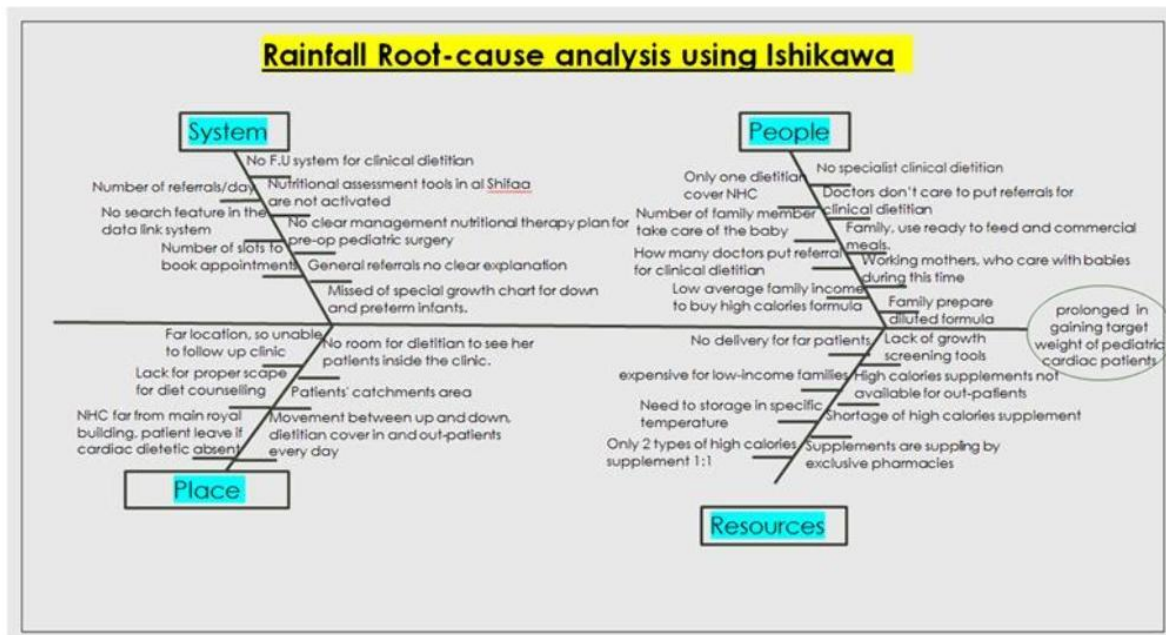
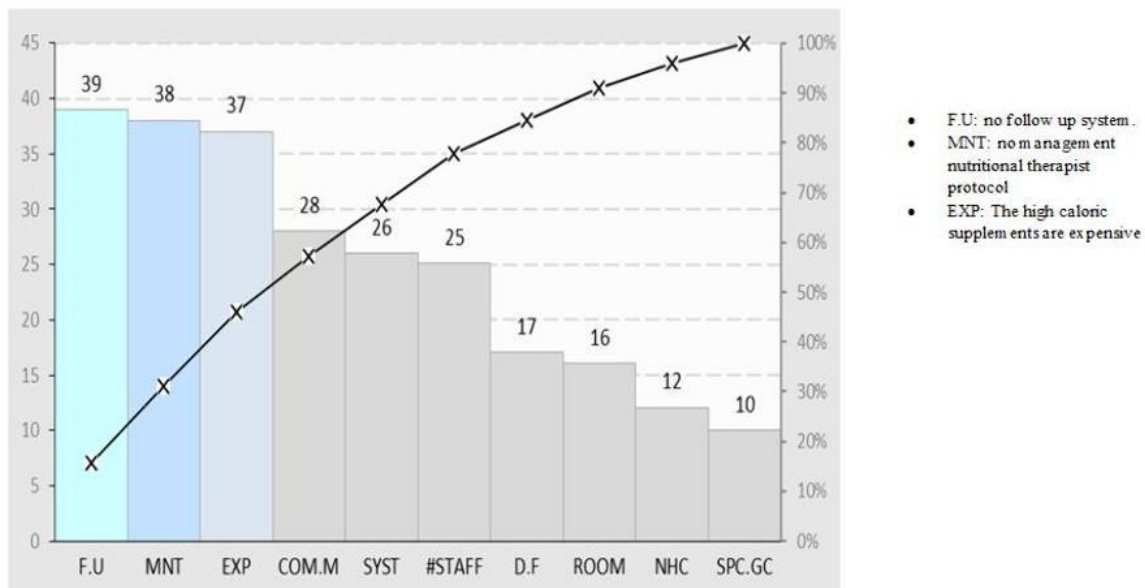


Figure 3: Pareto chart to identify the 20% of the root-causes that account for 80 % of the problem



The Conclusion:

From the 31st root-causes that we inferred from the Eshikawa, we identified the 10 most frequent causes of the problem using brainstorming with the department members, which are presented in the Table.

Pareto identified the 20% of the root-causes that represent 80 % of the problems, and they are:

1. No follow up (F.U) system for clinical dietitian to follow up her patient's growth.
2. No clear management nutritional therapy plan for pre-op pediatric surgery.
3. The high calories feed supplements are expensive for families.



Figure 4: developed the countermeasure and measure its impacts on the targets

Countermeasure		Impact on target
1	Add follow up (F.U) system for clinical dietitian to follow up her patients growth.	12.1% , improve process efficiency. 0.4kg , improve weight achieved before surgery. Save time and save money
2	Rearrange management nutritional therapy plan for pre-op pediatric surgery.	11.8% , improve process efficiency. Save time and save money. Save 0.4 months of child age by make earlier and faster dietary intervention . Save 1 month of child age for particularly earlier and faster surgical intervention.
3	Supply the high calories feed supplements for low income families.	11.5% , improve process efficiency. Save time and save money 0.52 kg , improve average gaining weight.
4	Modify high calories and high protein complementary meal plans.	8.2% , improve process efficiency. Save time and save money. 0.4 kg , improve weight achieved before surgery.

Lean, Six Sigma and statistical tools were used to identify and visualize the problem then implement the proper countermeasures. SIPOC (supply-Input-process-output-customer) and value stream mapping (VSM)(Figure 1). Eshikawa (root causes analyser)(Figure 2). Pareto chart to identify the 20%:80 % of the caused that create the problem (Figure 3). Implement the countermeasures (Figure 4).

Results:

Table 1: compared with the findings in 1st quarter of 2021 of that 2022 and 2023

	Number of patients	Age first time seen (month)	Weight first time seen (kg)	Weight just before the surgery (kg)	Age of reach desired weight (month)	Average duration of gaining weight (kg)	Average of gaining weight (kg)	Average length of stay in ICU (day)	Average cost the length of stay/ patient in ICU (\$)*
1 st quarter 2021	39	3.4	3.6	4.5	7.4	4	0.9	7.4	2481.4
2 nd quarter 2021	20	2.5	3.3	4.6	5.9	3.4	1.3	5	2360.02
3 rd quarter 2021	29	3.3	3.7	4.8	6.8	3.5	1.1	4.9	1736.59
4 th quarter 2021	14	2.06	3.3	4.7	5.2	3.1	1.4	9.7	2145.99
1 st quarter 2022	33	3.4	3.6	4.6	6.3	2.8	1.0	6.7	1509.03
2 nd quarter 2022	28	2.6	3.1	3.8	4.7	2.4	0.8	6.05	1815.56
3 rd quarter 2022	18	2.3	3.2	4.1	5.2	2.9	0.9	5.9	2022.60
4 th quarter 2022	2	2.5	3.7	4.8	5.3	2.8	1.3	5.5	1821.02
1 st quarter 2023	31	2.9	3.4	4.9	5.5	2.5	1.5	4.1	1745.99

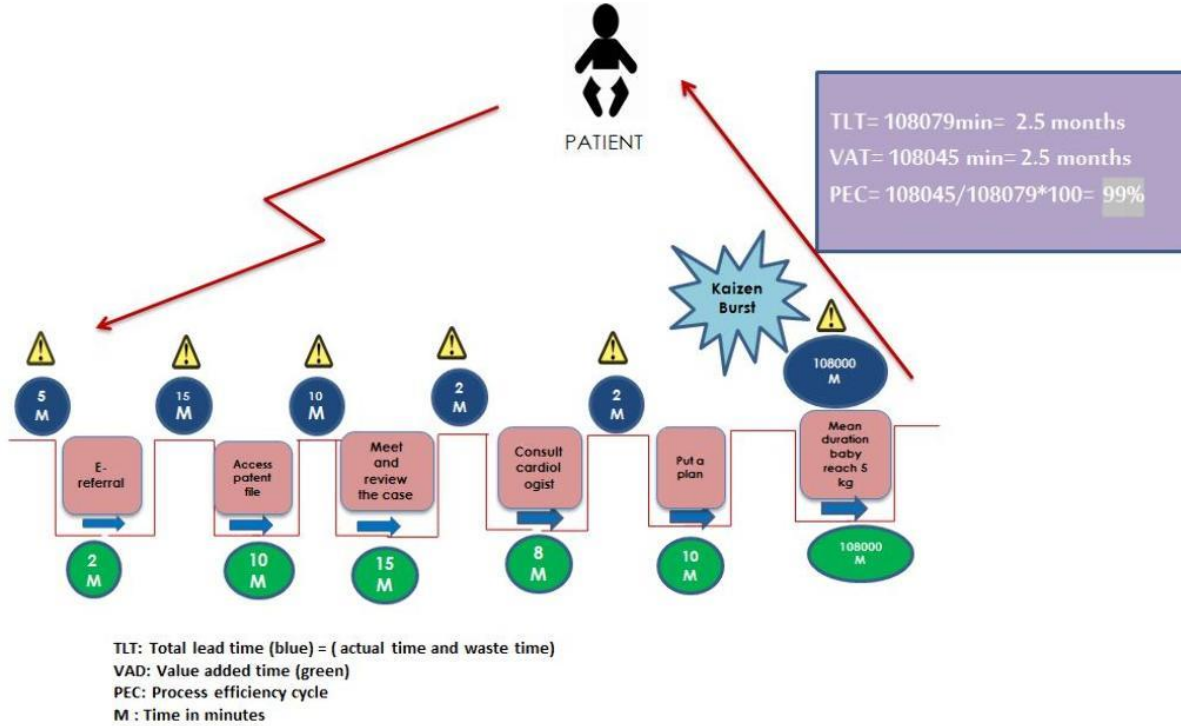
*The cost including: bed, lab investigations, ECG, and ECO, and further needed procedures. Excluding medications, operational cost, and labor charge.

In compared with the findings in 1st quarter of 2021 of that 2023 it has been shown achievement of earlier dietitian intervention from 3.4 infant month old to 2.9 month old. Also decrease in the average time required to reach target weight from 4 months to 2.5 months. The average weight -just before surgery- improved to 4.9 kg. This directly affect length of infant stay post operated that reduced from 7

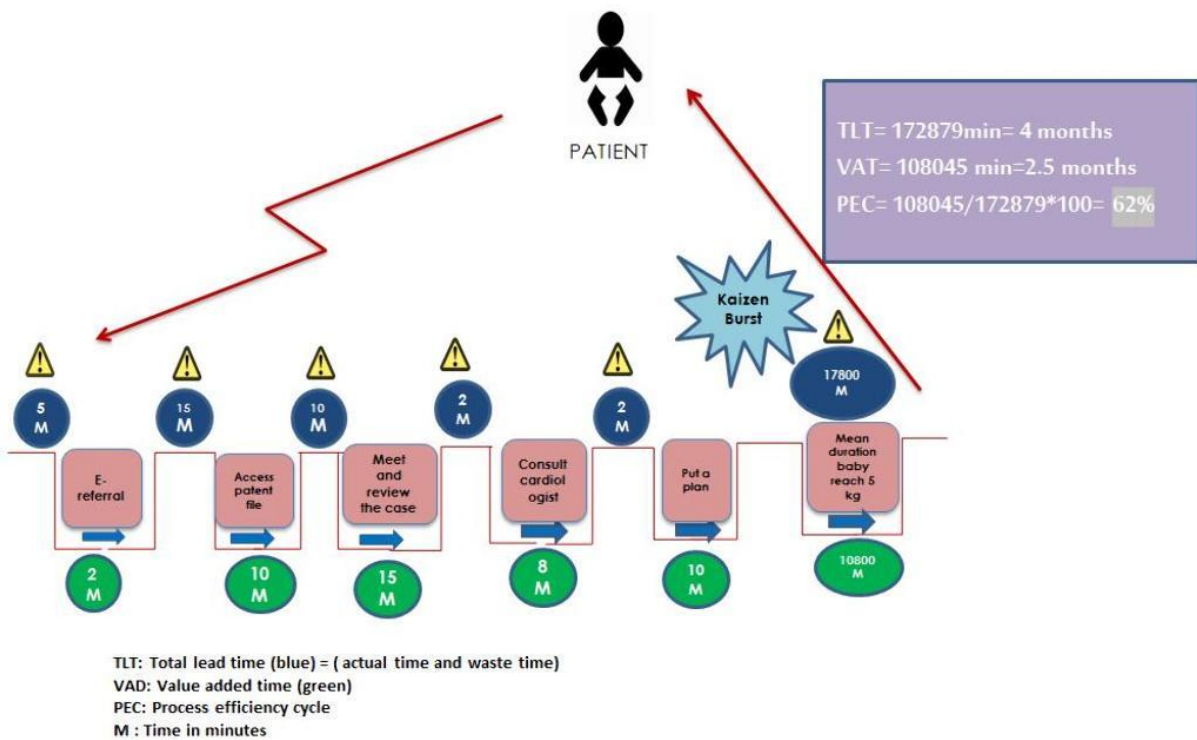


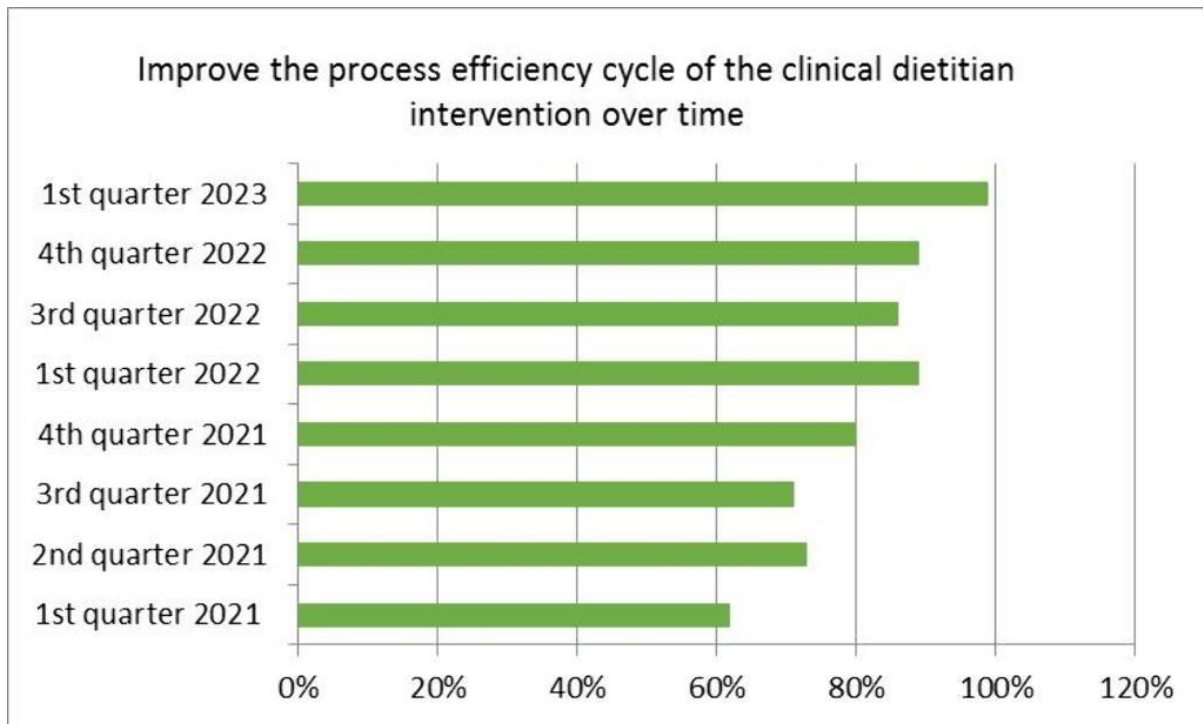
to 4 days thus save around 735.41
 \$/patient.

PEC after 2 years of implementing the countermeasures



PEC before implement the countermeasures





Conclusions: The project concludes that early proper, and efficient dietitian intervention for infants with congenital heart disease, who are in need to prepare for surgery with proper weight have a good impact in reduce length of stay post cardiac surgery and reduce average cost per patient.



PV080 / #638

E-POSTER VIEWING 05: CLINICAL NUTRITION

PAEDIATRIC ORAL FOOD CHALLENGE IN A DISTRICT GENERAL HOSPITAL: A SURVEY OF PRACTICE

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Background and Aims: Oral food challenge (OFC) is the gold standard test to diagnose food allergies. The timely availability of OFC is crucial for successful food allergy management. It remains challenging to provide the service without any delay because it is resource intensive and carries an inherent risk of anaphylaxis that demand further resources in clinical practice. We aim to assess the practice of OFC in children in a district general hospital (DGH).

Methods: Retrospective collection of data of paediatric OFC in a DGH from October 2020-July 2023. Assessed for the total of OFC scheduled, canceled, reason of cancellation, and outcome. (pass/fail). The type of foods checked. Results were formulated in the excel sheet.

Results: Oct-Dec 2020: Total 29. 28% canceled (3 by hospital, 5 by patient) 72% completed (19 passed, 2 failed, 1 patient had anaphylaxis). Nuts most common. Jan- Dec 2021: Total 132. 47% canceled (16 by hospital, 46 by patient) 53% completed (15 failed, 55 passed, 3 had anaphylaxis). Nuts most common. Jan-Dec 2022: Total 89. 48 % canceled (3 by hospital, 40 by patient) 52% completed (9 failed, 37 passed, none had anaphylaxis). Nuts most common. Jan-April 2023: Total 34. 35 % canceled (all by patient) 65% completed (5 failed, 17 passed, no anaphylaxis). Nuts most common.

Conclusions: It highlighted the potential areas of improvement. High rate of cancellations. It covers the period of COvid, that accounts for more cancellations. Cancellations/failed food challenges adds burden to the services and disappointment for the patient, hence it needs to be addressed to improve OFC provision.



PV081 / #364

E-POSTER VIEWING 05: CLINICAL NUTRITION**NEUROLOGIC MANIFESTATIONS OF VITAMIN B12 DEFICIENCY IN TODDLERS OF VEGAN MOTHERS – TWO CASE REPORTS**

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Background and Aims: Vitamin B12 deficiency in early childhood can cause severe neurologic and cognitive impairments. Maternal deficits and inadequate nutritional intake in lactating mothers and children are the leading causes of the deficiency.

Methods: We present two cases of toddlers with neurologic symptoms caused by vitamin B12 deficiency born from vegan mothers and later vitamin B12 lacking dominantly vegan food.

Results: A 3-years old boy was admitted to our hospital due to esophageal button battery impaction and corrosive mucosal injury. During hospitalisation extreme irritability and crying were noticed, along with polymorphous rash and multiple areas of alopecia. The family was vegan without B12 supplementation, with only occasional dairy products on the child's menu. The B12 levels were <109 pmol/l with all other normal laboratory values. A 17-month-old boy was presented with macrocrania, sleeping difficulties and irritability with food refusal and constipation. The mother and the child were predominantly vegan without B12 supplementation. The B12 level was <109 pmol/l with all other laboratory results within normal range. In both children intramuscular B12 supplementation was introduced with fast disappearance of all clinical symptoms. The head circumference has still been followed.

Conclusions: Vitamin B12 deficiency in infants and toddlers can lead to severe long-time complications, so pregnant and lactating vegan and vegetarian mothers must be aware of the potential detrimental effect of insufficient vitamin B12 intake. In vegan/vegetarian families adequate vitamin B12 supplementation starting from the beginning of the complementary feeding must be introduced.



PV082 / #478

E-POSTER VIEWING 05: CLINICAL NUTRITION

THROUGH A DIRECT INTERACTION WITH THE HUMAN CELLS ADVANCED GLYCATION END PRODUCTS FACILITATE THE OCCURRENCE OF FOOD ALLERGY

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¹University of Naples Federico II, Department Of Translational Medical Science, Naples, Italy, ²University of Naples Federico II, Italy, Immunonutritonlab At Ceinge Advanced Biotechnologies, Naples, Italy, ³University of Naples Federico II, Italy, Department Of Biology, Naples, Italy

Background and Aims: It has been hypothesized that the increased consumption of ultraprocessed foods, containing high levels of dietary advanced glycation end-products (AGEs), could facilitate the occurrence of food allergy (FA). Here we provide preclinical and clinical evidence on the potential role of AGEs in facilitating the occurrence of FA.

Methods: Human enterocytes, human small intestine organ culture, and peripheral mononuclear blood cells (PBMCs) from children at risk for allergy were used to investigate the direct effect of AGEs on gut barrier, inflammation, Th2 cytokines response and mitochondrial function. Then, the intake of dietary AGEs and the skin AGEs levels were investigated in children with FA and in age-matched healthy controls.

Results: Human enterocytes exposed to AGEs showed a significant increase of epithelial permeability, AGEs receptor expression, reactive oxygen species production and autophagy, with increased transepithelial passage of food antigens. Small intestine exposed to AGEs showed an increase of CD25+ cells and proliferating crypt enterocytes. PBMCs exposed to AGEs showed a reduction of the proliferation, an increase of inflammatory and Th2 cytokines, and mitochondrial dysfunction. One-hundred-eight children were enrolled (42 with a sure diagnosis of FA and 66 age-matched healthy controls). The intake of dietary AGEs and skin AGEs levels were significantly higher in subjects with FA compared to healthy controls.

Conclusions: These data suggesting a pivotal role for dietary AGEs in facilitating the occurrence of FA support the importance to limit the AGEs exposure in the pediatric age as relevant preventive strategy against this common condition.



PV083 / #416

E-POSTER VIEWING 05: CLINICAL NUTRITION

EVALUATION OF AN INFANT FORMULA WITH LARGE, MILK PHOSPHOLIPID-COATED LIPID DROPLETS ON LONG-TERM GROWTH AND ADIPOSITY: THE SATURN STUDY DESIGN

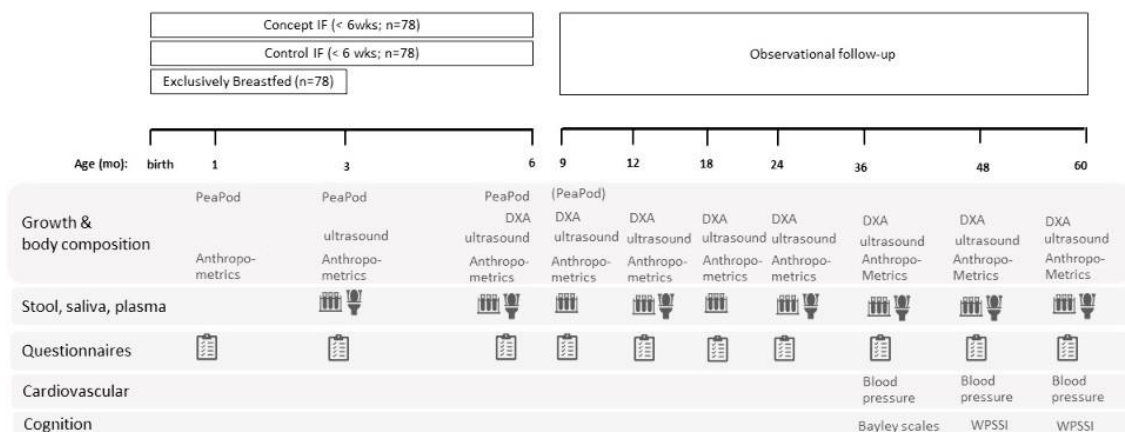
Demi Dorrepaa¹, Inge Van Beijsterveldt², Marieke Abrahamse-Berkeveld³, A.C.S. Hokken-Koelega¹
¹Erasmus University Medical Center - Sophia Children's Hospital, Pediatrics, Rotterdam, Netherlands, ²Erasmus university medical center - Sophia children's hospital, Pediatrics, Rotterdam, Netherlands, ³Danone Nutricia Research, Nutritional Physiology And Functional Nutrients, Utrecht, Netherlands

Background and Aims: Breastfeeding is associated with different adiposity development in infants and a reduced overweight risk. Human milk contains large lipid globules with a native membrane rich in phospholipids, whereas lipid droplets in most conventional infant formulas (IF) are small and protein-coated. Our study aims to evaluate the impact of a Concept IF with large, milk phospholipid-coated lipid droplets, closer to human milk lipid globule characteristics, on adiposity development.

Methods: This double-blind randomized controlled trial is nested in the Sophia Pluto Cohort study which included healthy, term infants. Exclusively formula-fed infants (< 6 weeks) were randomized to either a conventional IF (Control) or Concept IF until 6 months of age. Apart from the milk phospholipids, both IFs were similar in macro- and micronutrient composition including fatty acid profile, comprising either vegetable oils (Control) or a dairy/vegetable oil blend (Concept). Exclusively breastfed infants serve as reference. Primary outcome is the change in fat mass index between 6 and 12 months of age. Visits are scheduled at age 1, 3, 6, 9, 12, 18 and 24 months and annually until age 5 years. Body composition is measured by PeaPod until age 6 months and thereafter by DXA and visceral adiposity by abdominal ultrasound. Anthropometrics, feeding characteristics and cognitive outcomes are collected, as well as blood, saliva, buccal smear and stool samples.

Results: Figure: Saturn study design and measurements

SATURN STUDY DESIGN AND MEASUREMENTS



DXA, Dual Energy X-ray Absorptiometry; PeaPod, Air Displacement Plethysmography system; WPSI, Wechsler Preschool and Primary Scale of Intelligence

This study is registered with CCMO registration number NL64048.078.18
 Single Center Study at Erasmus University Medical Center - Sophia Children's Hospital (Rotterdam, The Netherlands)

Conclusions: This RCT will improve understanding of the role of dietary lipid droplet characteristics in infant adiposity development and the potential impact on childhood health outcomes.



PV084 / #599

E-POSTER VIEWING 05: CLINICAL NUTRITION

IMPACT OF FUNCTIONAL GASTROINTESTINAL DISORDERS IN INFANCY AND THE ROLE OF NUTRITION

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Background and Aims: Functional gastrointestinal disorders such as infantile colic, constipation and colic occur in almost half of the infants. (FGID) are common among children and may cause a significant symptom burden. The Rome criteria are symptom-based guidelines for the assessment of FGID among children

Methods: .

The aim is to provide a critical and updated review on the management of FGIDs and their impact on the health of the

infant and family to health care physicians. FGIDs are a frequent cause of parental concern in quality of life of infants ,and impose a financial burden to families, health care, and insurance. Therefore, primary management of the FGIDs should be focused on improving the infants' symptoms and quality of life of the family. If more than parental reassurance is needed,

Results: available evidence recommends nutritional advice as it is an effective strategy and most of the time devoid of adverse effects. The role of

healthcare providers in reassuring parents and proposing the correct behavior and nutritional intervention by avoiding inappropriate use of medication is essential in the management of FGIDs.

Conclusions: Symptoms and signs of FGIDs represent a frequent important burden to infants and parents and have a negative impact on their quality of life. The cornerstone of optimal management of FGIDs in infancy is based on parental education and reassurance, which can be accompanied by appropriate nutritional recommendations. In formula-fed infants, special formulas may be considered if reassurance and advice on nutrition based on appropriate volume and frequency of milk intake does not lead to sufficient improvement



PV085 / #287

E-POSTER VIEWING 05: CLINICAL NUTRITION

NUTRITIONAL HEALTH RISK BEHAVIOURS AND THEIR ASSOCIATIONS WITH VAGINAL DRYNESS IN POSTMENOPAUSAL WOMEN

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Background and Aims: Vaginal dryness is a distressing symptom that significantly affects the sexual well-being of postmenopausal women. While hormonal changes are well-known contributors, this study explores the relationships between nutritional risk behaviors, including smoking, alcohol consumption, and vitamin supplementation, and their association with vaginal dryness in postmenopausal women.

Methods: In a cross-sectional study, 351 postmenopausal women with vaginal dryness symptoms were selected through purposive sampling. Data was gathered through self-administered questionnaires at two distinct hospitals in the United Arab Emirates from March to September 2023

Results: The mean age was 46.91 ± 6.469 , and the mean age at menopause was 40.96 ± 14.193 . Significant associations were observed between smoking, alcohol consumption, and vaginal dryness ($\chi^2(4) = 13.218$, $p = 0.01$ and $\chi^2(4) = 10.730$, $p < 0.03$, respectively). Notably, the use of vitamin D and vitamin E supplements showed a highly significant association with vaginal dryness ($\chi^2(4) = 19.434$, $p < 0.001$ and $\chi^2(4) = 42.051$, $p < 0.001$, respectively). Among these factors, vitamin E supplementation exhibited moderate but the largest effect size (Cramer's $V = 0.346$), followed by vitamin D supplementation (Cramer's $V = 0.235$).

Conclusions: This study emphasizes the importance of considering various nutritional and lifestyle behaviors as modifiable risk factors that increase the likelihood of experiencing vaginal dryness, a prevalent yet often overlooked symptom among postmenopausal women. Healthcare professionals can use these insights to develop targeted interventions and lifestyle modifications, ultimately alleviating the burden of vaginal dryness and enhancing women's overall well-being during this transition.



PV086 / #313

E-POSTER VIEWING 05: CLINICAL NUTRITION

THE COW'S MILK-RELATED SYMPTOM SCORE (COMISS) IN HEALTHY INDONESIAN AND BRAZILIAN INFANTS

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¹KidZ Health Castle UZ Brussel, Pediatrics, Brussels, Belgium, ²Faculty Medicine Universitas Indonesia, Department Of Child Health, Jakarta, Indonesia, ³Federal University of Sergipe, Brazil, The Reference Center For Food Allergy Of Sergipe, Sergipe, Brazil

Background and Aims: The Cow's Milk-Related Symptom Score (CoMiSS) raises recognition of Cow's Milk protein Allergy (CMPA) symptoms. A cut-off value of ≥ 10 indicates a "positive score". As the score did not return to 0 after elimination diet, CoMiSS in healthy infants needs to be determined [PMCID: PMC4607180]. The median and mean (SD) CoMiSS in healthy European infants were 3.0 and 3.7 (2.9), respectively [PMCID: PMC6051613]. The aim of this study is to determine the CoMiSS in healthy Indonesian and Brazilian infants.

Methods: A prospective cross-sectional study was conducted. The CoMiSS was assessed by trained pediatricians during a regular visit in healthy infants from 0-12 months.

Results: In Indonesia, a total of 286 infants were included (50.7% boys). The overall median (Q1;Q3) and mean (SD) CoMiSS were respectively 1.5 (0;4) and 2.3 (2.4). The 95th percentile was 7. No significant difference in CoMiSS was seen according to sex ($p=0.212$) or exclusive breastfeeding ($p=0.397$). In Brazil, 101 infants were included (60.4% boys). The median (Q1;Q3) CoMiSS score was 4 (4;6) and the mean (SD) was 5.24 (2.2) with a 95th centile of 11. No significant difference in CoMiSS was seen according to sex ($p=0.579$), exclusive breastfeeding ($p=0.344$). Age (OR 0.96, 95% CI 0.94;0.99, $p<0.001$) and country (OR 2.40, 95% CI 2.06;2.79, $p<0.001$) were significant independent predictors for a change in mean CoMiSS in a linear regression model ($r^2=0.27$).

Conclusions: In healthy Indonesian infants the median CoMiSS was 1.5, whereas for healthy Brazilian infants the median CoMiSS was 4.



PV087 / #280

E-POSTER VIEWING 05: CLINICAL NUTRITION

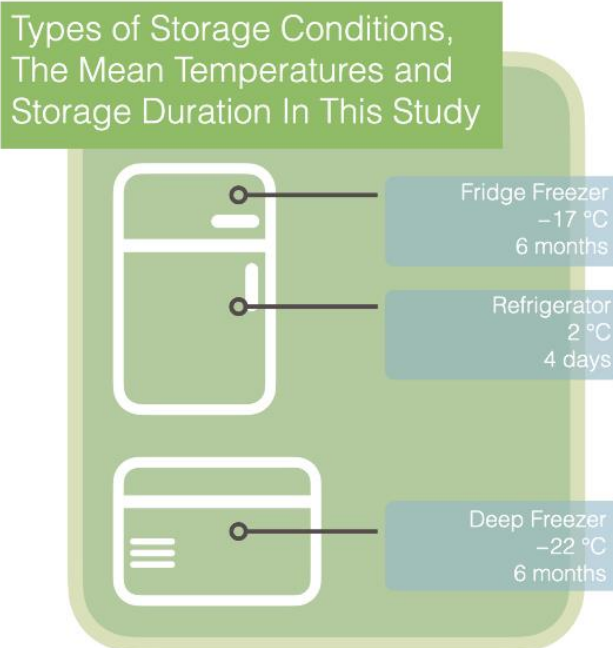
THE INFLUENCE OF PROLONGED STORAGE AND THAWING METHODS ON HUMAN MILK PROTEIN CONTENT AND THEIR CORRELATION WITH IMMUNOGLOBULIN A UNDER DOMESTIC CONDITIONS

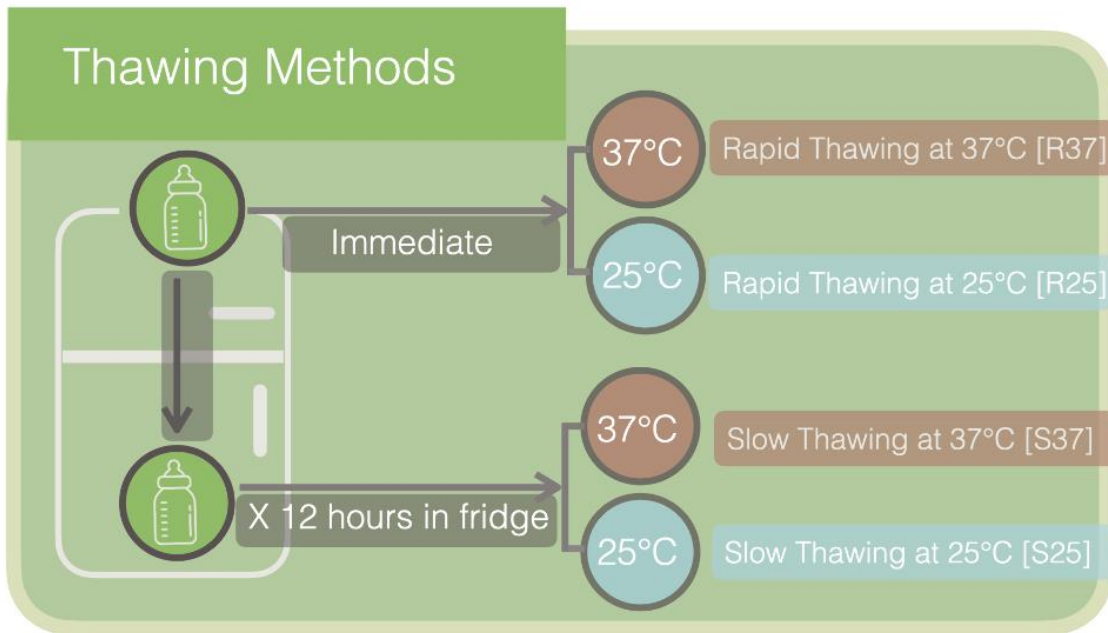
Krongporn Ongprasert¹, Penprapa Siviroj¹, Jetsada Ruangsuriya²

¹Faculty of Medicine, Chiang Mai University, Community Medicine, Chiang Mai, Thailand, ²Faculty of Medicine, Chiang Mai University, Department Of Biochemistry, Chiang Mai, Thailand

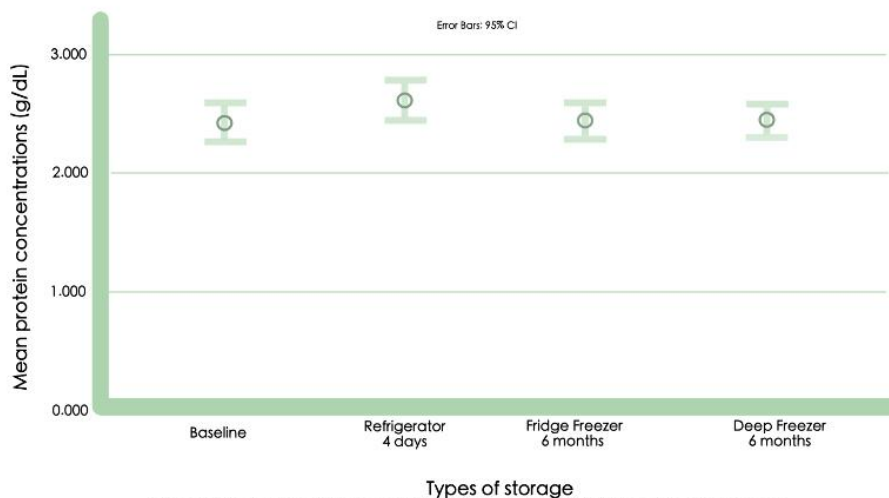
Background and Aims: Expressed human milk (HM) is essential for infants to receive the benefits of their mother's milk when they are unable to breastfeed directly. This study aimed to examine the optimal methods for preserving protein content in HM within domestic settings and their association with secretory IgA (SIgA) levels.

Methods: Forty mothers of term infants provided milk samples. Our baseline milk samples were examined within 24 hours of expression. The study stored the milk in a refrigerator for four days and in freezers (fridge freezer and deep freezer) for six months. We compared four heating methods, which included rapid thawing by immediately placing the frozen sample in warm water after removing it from the freezer at 25°C and 37°C, and slow thawing by placing the frozen sample in a refrigerator overnight and then warming it at 25°C and 37°C. The protein contents were determined using Lowry's method, and SIgA levels were measured using enzyme-linked immunosorbent assay kits.

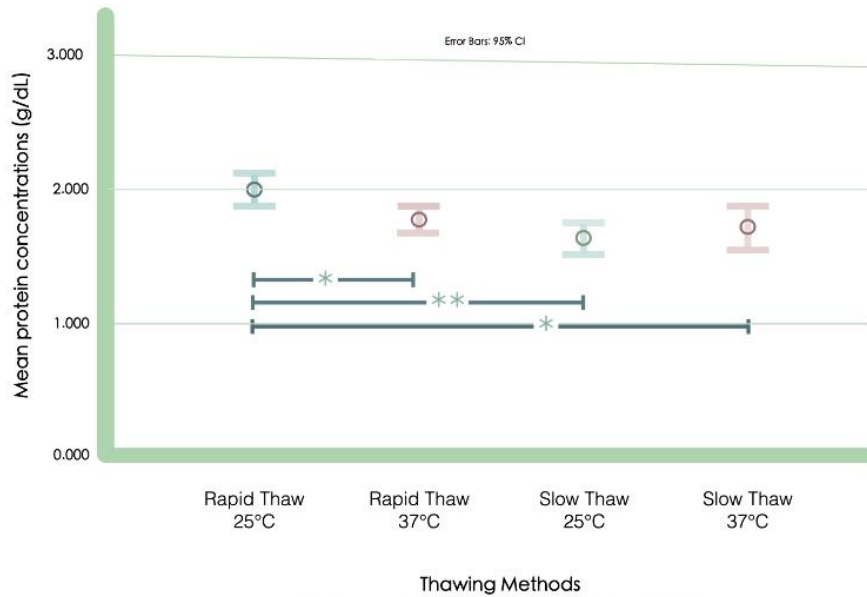




Results: The protein contents in the three storage conditions did not significantly decrease compared to the baseline samples. The protein contents were significantly higher during rapid thawing at 25°C than with other methods. There was a positive correlation between SIgA levels and protein contents in both the baseline samples and after thawing.

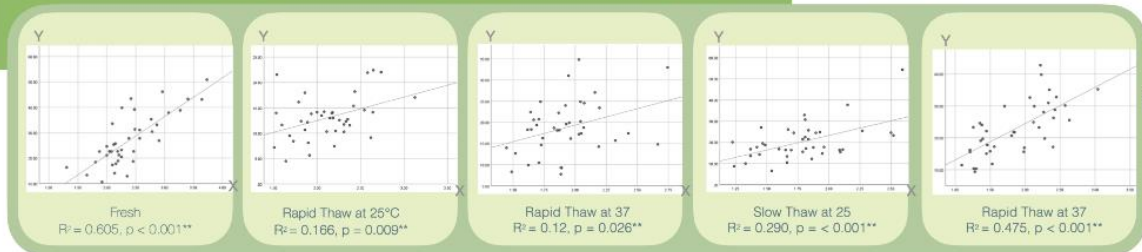


Comparison of protein contents in HM samples between fresh, refrigerated, fridge freezer, and Deep Freezer storage. Data were analyzed using one-way analysis of variance (ANOVA).



The data were analyzed using the one-way analysis of variance (ANOVA). The protein concentrations are presented as the mean and 95% Confidence interval (CI). *p < 0.05 and **p < 0.01

Correlations between protein & IgA concentrations



X= protein concentrations (g/dL) & Y= SIgA concentrations (mg/dL)
 Statistically significant analyzed using Pearson' s correlation coefficient, *p < 0.05, **p < 0.01.

Conclusions: Protein content remained relatively stable during the six-month storage of HM in both types of freezers. However, rapid thawing at 25°C has shown the potential to better preserve protein content compared to other methods in our study.



PV088 / #448

E-POSTER VIEWING 05: CLINICAL NUTRITION

GASTRIC CANCER PREVENTION: EDUCATION ACTION FOCUSED ON NUTRITION

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Background and Aims: The Hospital das Clínicas/EBSERH from the Federal University of Pernambuco is a gastric cancer (GC) treatment and prevention reference center. In Brazil, the Ministério da Saúde (MS) estimates that there will be 21480 new cases in 2023. In the publication, researchers analyzed 214 patients at advanced stages, mainly adenocarcinoma. All of them had low socioeconomic status, which implies poor eating habits. It reckons nutrition influences core cellular and molecular processes that characterize gastric cancer. Aim: promote an action to spread information about the importance of nutrition in gastric cancer prevention.

Methods: Promote educational projects in social media: Instagram, YouTube, Liftmidia TV, lives, posters, flyers, and mini-conferences establishing the importance of nutrition in GC prevention, given that patients have low socioeconomic status and feed themselves with industrialized food, relating to risk factors: alcoholism, smoking, and agrotoxics.

Results: The action presented results discussing these themes as socioeconomic and public health issues. Creating a more efficient early gastric injury detection method, indicating Helicobacter Pylori, a considerate type 1 carcinogen, is essential, reminding the risk of drinking alcoholic beverages, cigars, and agrotoxics.

Conclusions: Integral diets with proteins and good levels of vitamins A, C, and D prevent GC, suggesting that this orientation should begin at public schools through healthy eating habits, orientating a white meat, eggs, legumes, vegetables, roots, and fruits-based diet, avoiding sausages, smoked, ultra-processed, and frozen.



PV089 / #406

E-POSTER VIEWING 05: CLINICAL NUTRITION

COFFEE SILVERSKIN PHYTOCOMPOUNDS AS A NOVEL ANTI-AGEING FUNCTIONAL FOOD: UNTARGETED METABOLOMIC PROFILING AND MOLECULAR DOCKING SIMULATIONS

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Background and Aims: Coffee became a beverage that was in demand in the world and consequently produced millions of tons of coffee by-products namely coffee silverskin (CS). Unutilized CS will be waste and cause environmental pollution. Therefore, this study aims to report profiling metabolites or phytochemicals, biological activities in terms of antioxidant activity, and potential anti-aging of CS via molecular docking simulation and in vitro modulation of the mTOR/AMPK/SIRT1 pathway.

Methods: The metabolites profile was determined using untargeted metabolomic profiling via HPLC-ESI-HRMS/MS analysis and selected compounds to be simulated in the molecular docking study against human inducible mammalian target of rapamycin (mTOR), reactive oxygen species 1 kinase (ROS1), nitric oxide synthase (iNOS), and hypoxia-inducible factor-1 alpha (HIF-1).

Results: Something new has been obtained from this work, the profile of phytochemicals, and biological activities both in molecular docking simulation and in vitro studies. Some of the compounds observed in Robusta CS extract (rCSE) such as Epicatechin, Kaempferol, and Quercitrin, and Arabica CS extract (aCSE) such as (+)-Catechin dan Naringin have promising potential as inhibitors of iNOS, mTOR, and HIF-1 α via molecular docking simulation. Interestingly, the in vitro biological activity assay of antioxidant and anti-aging activity, rCSE showed the same promising potential as the results of a molecular docking simulation. More interestingly, AMPK/SIRT1/mTOR expressions are well modulated by rCSE compared to aCSE significantly ($p < 0.05$).

Conclusions: This makes the rCSE have promising biological activity as a candidate for functional food development and/or treatment agent in combating free radicals that cause the aging process.



PV090 / #412

E-POSTER VIEWING 05: CLINICAL NUTRITION

CARDIOPROTECTIVE EFFECT OF DIETARY SUPPLEMENTATION OF GREEN SEAWEED VIA REGULATION OF PRMT-1/DDAH/ADMA PATHWAY AND MODULATION OF THE GUT MICROBIOME

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Background and Aims: Alternative approaches based on natural bioresources are important in treating cardiometabolic syndrome. This study evaluated the effects of an aqueous extract of *Caulerpa racemosa* (AEC) on markers of cardiometabolic syndrome and modulation of gut microbiome in mice on cholesterol- and fat-rich diets (CFED).

Methods: A total of forty mice were divided into four groups. Group A was given a normal diet, Group B was given a CFED diet, and Groups C and D were given CFED diet and orally-administered AEC extract at 65 and 130 mg/kg BW, respectively. After 6 weeks of intervention, mice were euthanized, blood with cardiac tissue, and fecal samples were collected for further analysis.

Results: The effective concentration (EC₅₀) values of AEC were 116.9, 121.7, and 137.9 µg/mL for DPPH, ABTS, and lipase inhibition, respectively, and were more effective than controls *in vitro*. In the mice model, the administration of 130 mg/kg BW AEC was significantly more potent in improving blood lipid and glucose profiles, oxidative stress, and inflammation characterized by up-regulation of superoxide dismutase enzyme, PGC-1α, and IL-10 as well as a lower level of TNF-α (p=0.001). Interestingly, the expression of PRMT-1 and ADMA were downregulated by AEC, as well as upregulating DDAH-II significantly (p<0.05). Furthermore, a correlation between specific gut microbiomes and biomarkers related to cardiometabolic diseases was also revealed (p=0.001).

Conclusions: The *in vivo* demonstrated the role of AEC in the management of cardiometabolic syndrome via the regulation of oxidative stress, inflammation, endothelial function (PRMT-1/DDAH/ADMA pathway), and by modulating gut microbiota.



PV091 / #502

E-POSTER VIEWING 05: CLINICAL NUTRITION

THE ASSOCIATION BETWEEN MATERNAL POLYUNSATURATED FATTY ACID STATUS DURING EARLY PREGNANCY AND PRESENCE OF DYSMENORRHEA IN OFFSPRING AT AGE 15-16 YEARS.

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Amsterdam UMC, location University of Amsterdam, Public And Occupational Health, Amsterdam, Netherlands

Background and Aims: Dysmenorrhea affects a significant proportion of young women. While the implication of prenatal nutritional factors on children's health is extensively documented, the influence on dysmenorrhea in offspring remains unexplored. The study investigated the association between maternal fatty acid status during early pregnancy and dysmenorrhea in adolescent offspring, with potential mediating role of age at menarche.

Methods: Data from the Amsterdam Born Children and their Development (ABCD) population-based cohort study (n=626 mother-daughter pairs) were analyzed using multivariable logistic regression analysis with odds ratios (95% CI). Maternal fatty acid profiles were assessed in plasma at the 12th week of gestation and follow-up self-report questionnaires were completed by their daughters aged 15-16. Dysmenorrhea was defined as the presence of painful cramping in the abdomen and/or back during or just before the menstrual phase.

Results: The prevalence of dysmenorrhea was 84.7%. Adjusting for confounders, results revealed a negative association between total omega-3 fatty acids and dysmenorrhea (OR 0.85; 95% CI 0.73-0.98) and a positive association between the omega-6 to omega-3 fatty acid ratio and dysmenorrhea (OR 1.20; 95% CI 1.01-1.44), with age at menarche fully mediating these relationships.

Conclusions: In conclusion, higher maternal omega-3 fatty acid status, especially relative to omega-6 fatty acids, are associated with a reduced presence of dysmenorrhea, with later age at menarche playing a full mediating role. These findings underscore the importance of maternal omega-3 fatty acid intake during pregnancy as part of a balanced diet in shaping the health of future generations.



PV092 / #344

E-POSTER VIEWING 05: CLINICAL NUTRITION

INCREDIBLE CLINICAL CAUSES BEYOND A FIVE-MONTH-OLD BOY'S POOR FEEDING INCLUDE HIS RAPID BRAIN COGNITION AND PREFERENCE FOR CERTAIN COLORS ;CASE REPORT

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Background and Aims: The study's abstract highlights the numerous clinical factors that contribute to a five-month-old boy's malnutrition in addition to inadequate feeding. These factors include color choice, early color vision, and mature brain cognition.

Infants normally develop their sense of perception during their first year of life. This article emphasizes how a five-month-old baby can recognize colors, in particular red and blue ones. I also go through how, in very rare instances, the early development of color perception can have a clinical effect on feeding. This essay questions the widely held belief that babies under six months old can only recognize the colors white and black. This article presents the clinical data-based evidence that a child can distinguish between the colors red and blue at the age of five months and how, due to his abnormally advanced brain cognition and color perception development, he may determine for himself which color to choose. This article looks at how infants' perceptions of color are unrestricted in terms of knowing which color they choose to feel at ease with during feeding. This clinical example can help you better understand how children learn to recognize and perceive color. This article paves the way for future clinical studies on color perception and the early brain development of cognition.

Methods: This article emphasizes how a five-month-old baby can recognize colors, in particular red and blue ones. I also go through how, in very rare instances, the early development of color perception can have a clinical effect on feeding.

Results: The infant boy was also more than trichromatic and a genius since he was early in the development of both mechanisms (Teller, 1998). As a result, the blue-yellow and red-green color mechanisms in the 5-month-old boy were active and well-developed. Surprisingly, this trichromatic infant exhibits apparent mature visual discrimination that may be on par with adult levels and a relatively strong capacity to perceive desaturated (less vivid) colors (Knoblauch et al., 2001).

Conclusions: Color perception in infants may develop earlier than anticipated, as is the case in this example with a 5-month-old boy baby. It might even go farther; in this paper, we discussed how an infant's preference for a certain bottle hue may be influenced by quick brain cognition and may have a clinically significant impact on his nutrition, growth, and development. The research on baby color perception suggests that during the first five months of life, visual and perceptual development happens extremely quickly. As newborns, infants can hardly sense color, but by the age of six months, they begin to exhibit signs of perceptual organization, classification, and maintenance of color constancy, and their sensitivity to color corresponds to the statistical regularities of natural scenery. We made sure to emphasize throughout this post how color preference and food preference can be connected and taken into account for a baby's healthy development, growth, and nutrition. Insight into broader topics about perceptual development, such as the significance of sensitive periods, when brain regions acquire specialized regions for visual characteristics



PV093 / #566

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

EFFECTS OF PESTICIDES ON THE GUT-MICROBIOTA-BRAIN AXIS ASSESSED BY AN INTEGRATED HUMAN IN VITRO APPROACH

Maria Abou Diwan^{1,2}, Stéphane Delanaud¹, Emmanuel Sevin², Aurélie Corona¹, Fabien Gosselet², Véronique Bach¹, Pietra Candela², Hafida Khorsi-Cauet¹
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Background and Aims: The gut microbiota (GM) plays essential roles in maintaining host health, exerting a major influence on brain. Emerging studies are attempting to decipher bidirectional communications between GM and brain especially the communication between intestinal barrier (IB) and blood-brain barrier (BBB). Animal studies show that deregulation of the composition of GM by food pesticide residues threatens IB functions and have long-term effects on BBB. However, their chronic effects analysis on the gut-microbiota-brain (GMB) communication and developing an in vitro protocol to mimic and analyze the GMB axis remain a major challenge.

Methods: A human in vitro models' combination was developed: artificial intestine (SHIME®), Caco-2 model (IB) and a co-culture of endothelial cells and pericytes (BBB). After exposure of SHIME® to Chlorpyrifos (1mg/d,30 days) or a pesticides cocktail (Chlorpyrifos, Glyphosate, Imazalil), SHIME® supernatants were analyzed at D0 (control), D15 and D30, then added to the luminal compartment of the IB. The IB basolateral medium is then collected and added to the luminal BBB compartment. GM composition (bacterial culture, qPCR) and bacterial metabolites are analyzed as well as the permeability of both barriers.

Results: Chronic exposure to low dose pesticide residues appears to disrupt the human microbial environment, leading to intestinal dysbiosis (increase in potentially pathogenic flora such as *Enterobacteriaceae* and *Clostridium spp.*) in the colon. An increase in IB permeability associated with bacterial translocation occurred across the IB but not the BBB after pesticides exposure.

Conclusions: Our findings suggest the toxic effects of pesticides on the GMB axis, providing useful information within this communication axis.



PV094 / #186

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

BENEFITS OF THE USE OF PROBIOTICS IN SHORT BOWEL SYNDROME: A LITERATURE REVIEW

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Background and Aims: Short bowel syndrome (SBS) frequently leads to intestinal dysbiosis. Probiotics emerged as a therapeutic option for dysbiosis in general, but the literature is still controversial about their benefits in patients with SBS, especially in children and adolescents. The objective of this study is to verify the existence of benefits from the use of probiotics in SBS in the pediatric age group.

Methods: Systematic review of the scientific literature on intervention studies, carried out in PUBMED, Web of Science, and Scielo databases. For the search and selection of studies, the descriptor (MESH terms) "short bowel syndrome" was used combined with "probiotics", "*Lactobacillus*", "*Bifidobacterium*" and "*Saccharomyces*".

Results: Fourteen studies were included in this analysis. Among them, nine used a single probiotic as an intervention. The most used were *Bifidobacterium lactis* and *Lactobacillus rhamnosus*. The ten experimental (animal) studies found six benefits: less bacterial translocation, greater height and width of villi, greater depth of crypts, higher percentage of goblet cells, less intestinal permeability, and lower levels of serum endotoxins. The four studies in pediatric patients showed increased amounts of bifidobacterium, lactobacillus, and anaerobic bacteria in the gut, and higher levels of short-chain fatty acids and prealbumin.

Conclusions: The use of probiotics in animal samples with SBS potentially promotes clinical, histological, and laboratory benefits. However, there is little evidence of the benefits of probiotic supplementation in the pediatric population. Therefore, further studies are needed to reinforce the existing scientific knowledge about this potential effect.



PV095 / #593

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

IMMUNE GUT TOLERANCE IN INFANT NUTRITIONPREBIOTICS, PROBIOTICS, POSTBIOTICS FROM EMERGING CONCEPT TO APPLICATION

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Background and Aims: The use of probiotics and prebiotics has increased enormously in recent years, infant nutrition companies also try to mimic breast milk in its unique immuno-modulating properties. Studies have demonstrated that the intestinal microbiota under the influence of diet shapes the maturation of the immune system and influences the risk of atopic diseases in infants.

Methods: In the new born babies ,Colonization becomes massive after birth ,Depending on the type of birth, the early microbiota of infants differs, with a gut microbiota close to the mother's vaginal microbiota in the case of vaginal delivery and one close to the mother's skin microbiota for cesarean births, Breastfeeding remains the strongest factor influencing the digestive microbiota of infants in the first year of life

Results: supplementation with prebiotics seems a more rational and easier approach to improve the health-promoting capacity of formulas. Since breastfed infants have more Bifidobacterium in their microbiota, the first strategy was to add probiotics and, in particular, Bifidobacteria directly into infant formulas, followed by prebiotics and, more recently, synbiotics and postbiotics for their bifidogenic effects, as well as for their own positive expected effects on immunity.

Conclusions: A new born's gut is sterile at birth, with bacterial colonization beginning shortly after birth, the sequence of bacterial intestinal colonization of neonates is probably important in the development of the immune response ,Administration of probiotic bacteria during a time period in which a natural population of lactic-acid-producing indigenous intestinal bacteria is developing could theoretically influence immune development toward more balance of Th1 and Th2 inflammatory responses



PV096 / #236

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

THE ASSOCIATION BETWEEN MATERNAL CARDIOMETABOLIC PROFILE AND GUT MICROBIOTA COMPOSITION IN BOTH MOTHERS AND INFANTS IN THE CONTEXT OF GESTATIONAL DIABETES MELLITUS

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Background and Aims: Gestational diabetes mellitus (GDM) increases the risk of developing cardiometabolic diseases eventually. GDM has been associated with gut microbiota alterations in mothers and their offspring. However, how mother's health influences the composition of her microbiota and the one of her infant remains unclear. This study aims to investigate the maternal cardiometabolic profile in association with the gut microbiota of mothers and infants in the context of GDM.

Methods: Fecal samples were collected at 2 months postpartum from 28 mothers (17 with (GDM+) and 11 without (GDM-) GDM) aged 25-40 along with 30 infants (17 GDM+ and 13 GDM-). Microbiota composition was characterized by 16s rRNA gene sequencing. Glycemia, insulinemia, and HbA1c levels were measured in blood samples collected at the same time point. Mothers' body composition was obtained by dual-energy X-ray absorptiometry (DEXA) and by calculating body mass index (BMI) at 2 months post-partum.

Results: Unsurprisingly, beta-diversity of gut microbiota between mothers and infants was significantly different ($p < 0.01$). A linear model analysis revealed significant differences in abundance of 14 taxa between GDM+ and GDM- mothers and 4 taxa between GDM+ and GDM- infants ($p < 0.05$). Maternal cardiometabolic profile at 2 months post-partum, including glycemia, insulinemia, HbA1c, BMI, and fat mass percentage, was associated with mothers' and infants' gut microbiota ($p < 0.05$). Those correlations differed according to GDM exposure.

Conclusions: Slight differences in gut microbiota composition among GDM+ and GDM- infants and mothers were observed. The maternal cardiometabolic profile was associated with infant and maternal gut microbiota. Our next step is to study maternal milk microbiota.



PV097 / #369

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

SAFETY EVALUATION OF BIFIDOBACTERIUM BREVE DSM32583, A STRAIN ISOLATED FROM HUMAN MILK: AN INFANT PILOT STUDY

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Background and Aims: Human milk promotes the growth of bifidobacteria in the gut of breastfed infants. Adding bifidobacterial species to infant formula can support the development of the gut microbiota in formula-fed infants with impaired bifidobacterial colonization in early life. Here, the safety of *Bifidobacterium breve* PS1 was evaluated in an infant pilot study. The primary outcome was average weight gain between 3 and 6 months of age.

Methods: 187 infants were randomized at 3 months of age into two groups: probiotic (PG) and control group (CG). Both groups received the same infant formula, which for the PG was supplemented with *B. breve* DSM32583 at a concentration of 10⁷ cfu/g. Anthropometrics were assessed and *Bifidobacterium* counts and short chain fatty acids (SCFA) were quantified in fecal samples at 3 and 6 months of age.

Results: A total of 160 infants (80 per group) completed 3 months of intervention. Infants in CG gained slightly more weight compared to PG (CG: 1.82±1.3 kg; PG: 1.42±1.3 kg; p=0.03), but weight-for-age Z-scores in both groups at 6 months were within the normal weight distribution for this age group (Weight/z-score at 6-months: CG: 8.3±1.2 kg/ 0.73±1.28; PG: 7.9±1.0 kg/ 0.32±1.2). Both study formulas were well-tolerated and daily formula intake was comparable. *Bifidobacterium* count and SCFA concentrations were significantly higher in the feces of PG infants after the intervention.

Conclusions: The results suggest that supplementation of an infant formula with *B. breve* DSM32583 is safe and could exert potential beneficial effects on gut milieu parameter.



PV098 / #421

E-POSTER VIEWING 06: GUT MICROBIOME AND BIOTICS

THE DIFFERENCES IN THE COMPOSITION OF THE GUT MICROBIOTA BETWEEN SGA CHILDREN WITH AND WITHOUT CATCH-UP GROWTH IN THE FIRST YEAR OF LIFE

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Background and Aims: Children born small for gestational age (SGA) are at high risk of developing low weight in adulthood but some of them experience catch-up growth in early childhood, that is, up to the age of two. The developmental compensation depends on many factors, and gut microbiota colonization, as one of these factors, may be related to the occurrence or lack of catch-up growth. The aim of the study was to estimate the differences in the composition of the gut microbiota between SGA children with and without catch-up growth in the first year of life.

Methods: 26 children with SGA were examined. Feces collected on the 6th week, and on the 3rd, 6th, and 12th months of life were analyzed. Bacterial DNA was isolated using the DNeasy PowerSoil Pro Kit. In order to define the bacterial composition, the 16S rRNA gene sequencing method was used. 16S Barcoding Kit 1-24 was used to amplify and prepare the libraries for sequencing, which was performed using a MinION sequencer. Data was then bioinformatically analyzed using software developed by ONT.

Results: SGA children with catch-up had bacteria from the Enterococcus, Citrobacter, Blautia, Bacteroides, and Parabacteroides groups. Compared to them, those without catch-up had a less diverse microbiota and a greater proportion of potentially pathogenic bacteria, such as Klebsiella and Haemophilus.

Conclusions: The results indicated differences in the gut microbiota composition in SGA children without and with catch-up growth. There are indications that the gut microbiota composition may contribute to the body weight of SGA children.



PV099 / #500

E-POSTER VIEWING 07: MALNUTRITION

IMPACT OF USING ENERGY AND NUTRITION DENSE FORMULA IN CHILDREN WITH DISEASE RELATED MALNUTRITION

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Background and Aims: Malnutrition is a prevalent health issue, resulting in altered metabolism. This study aimed to estimate the budget impact of [MR1] introducing nutrient-dense formulas (Infatrini™, NutriniDrink™) Vs. standard formulas for both hospitalized DRM[MR2] [SJ3] infants (0-12 month) and children (1-5 years) in Egypt, KSA, Kuwait, and UAE.

Methods: An excel model was adapted to each country to compare the costs in the current practice of using standard formulas Vs. proposed scenario of using nutrient-dense formulas for DRM patients. Guided-questionnaire interviews with 27 clinicians were conducted to gather inputs: Prevalence of DRM, annual hospitalization rates (ICU/ward), length of stay, and nutritional intake. Average nutritional consumption was calculated based on WHO weight charts. Cost inputs were calculated based on the tender and services price list.

Results: In Egypt, introduction of nutrient-dense formula (Infatrini™, NutriniDrink™) among infant and children resulted in savings of EGP 2,823,217 (21%) and EGP 5,729,183 (40%) in public sector, and EGP 1,894,253 (34%) and EGP 1,509,945 (38%) in private sector. In KSA, it resulted in savings of SAR 213,316 (8%) and SAR 1,206,802 (35%) in private sector. In Kuwait, it resulted in savings of KWD 34,2000 (26%) and KWD 86,134 (41%) in public sector, and KWD 35,000 (28%) and KWD 10,743 (26%) in private sector. In UAE, it resulted in savings of AED 72,167,634 (33%) and AED 59,784,586 (28%) in public sector, and AED 112,530 (50%) and AED 476,877 (49%) in private sector.

Conclusions: Using nutrient-dense formula led to budget savings. Key driver of savings is reduced length of stay for patients on nutrient-dense formula.



PV100 / #449

E-POSTER VIEWING 07: MALNUTRITION

EGG AND EGGSHELL POWDER FEEDING SUSTAINED AFTER ONE YEAR: POST-PROJECT EVALUATION OF NUTRITION-SENSITIVE CHILD-OWNED POULTRY INTERVENTION IN SOUTHERN ETHIOPIAAnteneh Omer Ali¹, Susan J Whiting²¹Independent consultant, Nutritionist, Hawassa, Ethiopia, ²University of Saskatchewan, College Of Pharmacy And Nutrition, Saskatoon, Canada

Background and Aims: A nutrition-sensitive poultry intervention that declared chicken ownership of children through a novel approach called the “Chicken Gift Ceremony Model” was implemented in May-Nov 2016 in Halaba, Southern Ethiopia. Children in the intervention group (IG) received a gift of two local chickens. Poultry husbandry and consumption of one-egg-a-day and eggshell powder (ESP) as a calcium source was promoted. At end line, the number of chickens owned by children nearly doubled. Egg intake increased from <1 to 17 eggs/child/month and ESP (to those >12mo) from 0 to 17 days/child/month. We then assessed the sustainability of the intervention on child-owned chicken production and egg and ESP feeding behavior.

Methods: An in-depth interview with 115 IG caregivers and 24-hour dietary recall assessments were conducted 15 months after the project’s end.

Results: Child-owned chicken production was sustained with 86% IG children having their own chicken at the time of this survey; 94% of these had ≥2 chickens. Recalls showed 78% of children had an egg intake, a rate higher than that recorded 15 months before, while ESP consumption (68%) sustained at the same rate. Additional growth and improvement in nutritional status are promoted by the sustainable use of eggs as estimated from our recent trial showing extra protein and nutrients in one egg/d reduced the odds of stunting, underweight and anemia by 54%, 42% and 64% respectively (Omer et al., IJERPH 2022, 2023).

Conclusions: Thus, our child-owned chicken program is sustainable, and large-scale implementation of this nutrition-sensitive poultry intervention through the chicken gift ceremony model is warranted.



PV101 / #248

E-POSTER VIEWING 07: MALNUTRITION

TIME AND DETERMINANT FACTORS OF CATCH UP GROWTH IN UNDERNUTRITION CHILDREN AT THREE PERIPHERAL HOSPITALS IN WEST JAVA

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Background and Aims: Undernutrition is one of malnutrition problems. Appropriate nutritional interventions greatly impact the outcomes. This study aims to determine catch up and factors that influence at 3 peripheral hospitals.

Methods: This is a descriptive cohort study of 60 outpatient age 1 month to 5 years from August 2022 to January 2023. Determining nutritional status were using WHO growth charts collected using Recopedia®. A consultation session was conducted to collect data the cause delay catch up

Results: There are total 60 undernutrition children, 42% were underweight, 8% were wasted, 17% were stunting, 21% were weight faltering. 38% childrens caught up their growth after 2 weeks, 34% after 1 month, 28% after 2 months. Twenty children caught up after 2 weeks by providing sufficient calories and animal protein, accompanied by giving Formula for Special Medical Purposes (FSMP) and correct underlying disease. The remaining 33 childrens experienced delays due to difficulties providing sufficient calories and animal proteins (45%), difficulties of given FSMP (24%) , and delay to the diagnosis of the underlying disease (7%) and combination factors (24%). Difficulty giving sufficient calories and FSMP because of economic factors (8 childrens) , children who are not used to drink cows milk (3 childrens), and children who don't like the taste of FSMP (2 childrens) or a combination factors (10 childrens)

Conclusions: Timing of catch up is important in managing undernutrition. Ease of providing sufficient calories and FSMP, accompanied by education to parents and treatment of underlying diseases, is important in the management of nutritional disorders for better outcome



PV102 / #374

E-POSTER VIEWING 07: MALNUTRITION

PREVENTION OF VITAMIN A DEFICIENCY THROUGH FOOD BAR CONSUMPTION AMONG BREASTFEEDING MOTHERS

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Background and Aims: The estimated prevalence of Vitamin A deficiency in Southeast Asian region, including Indonesia, is 23.4% where 2.6% have mild xerophthalmia. Around 42.8% postpartum mothers in Indonesia did not get vitamin A. Therefore, there is a need to promote the consumption of vitamin A to prevent vitamin A deficiency, especially among breastfeeding mothers. This study aimed at creating a food bar that could fulfil the need of vitamin A among breastfeeding mother

Methods: Vitamin A in vegetable were in the form of β -karoten (provitamin A) that could be gained from leaves, such as *Sauropus Androgynus* (L.) Merr and *Coleus Amboinicus* L. This study used experimental design to create the formula for food bar.

Results: One pack of 100 grams food bar consist of 319 kcal energy, 9.92 gr protein, 6.75 gr fat, 54.56 gr carbohydrate and 3.4 mcg β -carotene. According to Indonesia Food and Drug Administration, a product could be claimed as a source of nutritious food if contains 15% nutrition facts label. Breastfeeding mothers need 850mcg RE or equivalent to 5.1mg β -carotene (1 RE = 1 mcg c) per day. Therefore, in 100 gr food bar contains 0.34 mg/100 gr β -carotene could fulfil 6.7% nutrition facts label per 100 gr and this food bar could fulfil 16.38%/100 gr from fortification the suggested vitamin A.

Conclusions: The energy and nutrition consumption considered as adequate if could fulfil 80-110 dietary required intakes a day. Thus, it is concluded that consume 11 pack of food bar will fulfil daily need of vitamin A among breastfeeding mothers.



PV103 / #286

E-POSTER VIEWING 07: MALNUTRITION

PRENATAL MULTIPLE MICRONUTRIENT SUPPLEMENTATION IS ASSOCIATED WITH IMPROVED MATERNAL GESTATIONAL WEIGHT GAIN. A PROSPECTIVE LONGITUDINAL STUDY IN PAREPARE, INDONESIA.

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Background and Aims: Prenatal multiple micronutrient supplementation (MMS) has consistently shown beneficial effects on outcomes of pregnancy. Although adequate gestational weight gain (GWG) has been shown to improve pregnancy outcomes, limited research has focused on the relationship between MMS consumption and GWG. We aimed to assess this relationship in pregnant women in Indonesia.

Methods: During rollout of MMS supplementation in Parepare, we performed a population-based prospective cohort study. 1216 pregnant women were enrolled and followed until after delivery. Data on pre-pregnancy weight, height, and maternal parity were collected, as well as starting time of MMS consumption and total number of tablets consumed. Weight measurements were performed at enrollment and in the third trimester. The threshold applied for compliance was ≥ 90 tablets. The Institute of Medicine (IOM) 2009 guideline was used to determine GWG adequacy. Associations between MMS consumption and GWG were assessed by binary logistic regression.

Results: Women with underweight, normal weight and overweight / obesity accounted for 11.4%, 58.1%, and 30.5%, respectively; overall 63.2% had inadequate, 26.3% had adequate, and 10.5% had excessive GWG; 53.9% consumed ≥ 90 MMS tablets. Crude analysis showed that women who consumed ≥ 90 MMS tablets had higher odds of achieving adequate GWG (OR =1.34 95% CI: 1.05, 1.69). Several potential confounders were examined but did not materially affect the association.

Conclusions: Our results suggest that ensuring the recommended dose of MMS consumption may increase the chance to achieve adequate GWG. Therefore, advice on MMS consumption and appropriate GWG should be implemented in antenatal care services.



PV104 / #77

E-POSTER VIEWING 07: MALNUTRITION

IMPACT OF STUNTING ON DEVELOPMENT OF CHILDREN BETWEEN 1-3 YEARS OF AGE

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Background and Aims: Stunting occurs due to chronic malnutrition and is a major problem for children in developing countries. It is important to evaluate the impact of stunting on the development of children. This study aimed to investigate the impact of stunting on the development of children between 1-3 years of age.

Methods: This cross-sectional study was conducted from July 2020 to March 2021 in Surabaya, Indonesia. A questionnaire and growth assessment were done, following the development measurement to stunted and non-stunted children who met the inclusion and exclusion criteria. Development was measured by the Denver Developmental Screening Test II (DDST-II), and Cognitive Adaptive Test/Clinical Linguistic & Auditory Milestone (CAT/CLAMS) scales.

Results: Three hundred children are included in this study, consisting of 150 stunted and 150 non-stunted children. Stunted children had a higher risk to be suspected of delayed development compared to non-stunted children. The Crude Odd Ratio was 2.98, 4.24, 4.75 with the p-value 0.006, 0.001, and 0.001 respectively. The Adjusted Odd Ratio was 0.34, 0.24, 0.21 with pvalue of 0.008, 0.001, and 0.001 respectively.

Conclusions: Stunting is associated with suspected development delay among children 1-3 years of age. Initiatives related to prevention need to be established and nutrition advice needs to be provided



PV105 / #331

E-POSTER VIEWING 07: MALNUTRITION

BIG LIVER, SMALL CHILD – NUTRITIONAL CHALLENGES IN A SERIES OF CHILDREN WITH CHOLESTASIS

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Background and Aims: Inborn errors of metabolism such as Niemann-Pick Disease (NPD) or Progressive Familial Intrahepatic Cholestasis (PFIC) have a huge impact on nutritional status of patients, growth failure being one of the leading signs. We aim to emphasize the importance of auxologic evaluation and malnutrition management in these children.

Methods: Authors discuss nutritional features in a series of five children with genetic metabolic conditions: 3 with PFIC and 2 with NPD. Z-scores for height, weight and BMI were used.

Results: The three PFIC cases are related (second degree cousins). 10 years old girl admitted for severe hepatic disease, massive cholestasis, growth failure (24kg,-1.85z-score;127cm,-1.8z-score;BMI=14,88kg/m²,-1z-score), diagnosed with PFIC 3, underwent liver transplantation-related donor (mother). Her 6 years old brother presented with progressive jaundice, chronic pruritus, hepatosplenomegaly (19kg,-0.6z-score;105cm,-2z-score;BMI=17,27kg/m²,1.2z-score), received liver graft (unrelated donor). Their male cousin, 3 years 5 months, admitted for failure to thrive (11,5kg,-2.6z-score;87cm,-2.9z-score;BMI=15,19kg/m²,-0.6z-score), splenomegaly, cholestasis is homozygous for ABCB4 mutation, associated with PFIC. The two genetically confirmed NPD-type B patients are: 5 years old boy with splenomegaly, cholestasis, dyslipidemia, malnutrition (15kg,-1.7z-score;96cm,-2.7z-score;BMI=16,28 kg/m²,0.7z-score) is put on enzyme replacement therapy (ERT). 14 years old boy admitted for hepatosplenic cysts, giant hepatosplenomegaly, confirmed echinococcosis and growth failure (32kg,-2.8z-score;145cm,-2.3z-score;BMI=15,22 kg/m²,-2,2z-score) is under approval for ERT.

Conclusions: Growth failure is perhaps the greater masquerade of pediatric disorders, disguising a wide range of pathologies. We should keep in mind that malnutrition is a key marker for metabolic disorders, although these patients frequently exhibit hepatosplenomegaly, abdominal distention and impaired growth, which may not be obvious.



PV106 / #385

E-POSTER VIEWING 07: MALNUTRITION

EFFECT OF CHICKEN EGGSHELL POWDER SUPPLEMENTATION ON THE NUTRITIONAL STATUS BIOMARKERS OF RATS WITH A RESTRICTED PROTEIN DIET: A PRECLINICAL TRIAL STUDY

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Background and Aims: Chicken eggshell (CE) is rich in macronutrients and micronutrients, especially protein and calcium. This study aimed to identify the effect of CE powder supplementation in improving nutritional status biomarkers, in which serum protein, hemoglobin, and IGF-1 of malnourished rats.

Methods: A total of thirty malnourished male *Rattus norvegicus* aged 3-4 weeks were given a low-protein diet (LP) with only 4%w/w protein for a 4-week treatment period. The rats then were divided into three groups. A regular protein diet (23%w/w protein) was given as the control group. Groups B and C continued the LP diet for four weeks and received oral doses of chicken eggshell (CE) with doses of 100 mg/kg BW and 200 mg/kg BW, respectively.

Results: The administration of CE orally at a dose of 200 mg/kgBW (group C) exhibited a significantly higher effect than the dose of 100 mg/kgBW (group B) in elevating hemoglobin and serum IGF-1 of rats on LP diet or experiencing malnutrition ($p < 0.0001$). The protein concentration of Group C is higher than Group B. The levels of hematocrit and erythrocytes of group A were significantly lower compared to group B and C, in which doses of 100 mg/kg CE and 200 mg/kg CE gave off similar results at increasing both hematocrit and erythrocytes levels ($p = 0.0513$). CE dose of 200 mg/kgBW was more effective in increasing RBP levels compared to doses of 100 mg/kgBW ($p < 0.0001$).

Conclusions: CE powder supplementation is effective in intensifying nutritional biochemical markers such as hemoglobin, IGF-1, RBP, protein, hematocrit, and erythrocyte levels.



PV107 / #298

E-POSTER VIEWING 07: MALNUTRITION

CHOLINE INADEQUATE INTAKE IN CHILDBEARING AGE LATIN AMERICAN WOMEN AS A REGIONAL PRENATAL DISADVANTAGE. PROPOSAL FOR BUILDING EVIDENCE BASED POLICIES BASED ON ELANS RESULTS.

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Background and Aims: Choline is a nutrient relatively unknown within adults and whose intake has been little studied at population level. Little is known about choline status of women in fertile age.

Methods: The ELANS was a Cross-sectional, multicenter study conducted in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Peru, Venezuela; in adolescents and adults aged 15–65 years. Food and beverage consumption was recorded during two non-consecutive household visits using 24-hour recall. The final sample comprised 9218 individuals, of whom 3704 were women from 15-49 years old. A CART algorithm was applied to evaluate the impact of the contributing factors of food intakes. The available and most used pre-natal multivitamins-supplements in each country were evaluated to identify if choline was included.

Results: Inadequate intake of choline was observed overall in ELANS countries (80%). However, the CRT algorithm applied, showed a first division of the segmentation tree of two groups of countries: Group 1: Argentina, Colombia and Ecuador (67% inadequate) and Group 2: Brazil, Chile, Costa Rica, Peru, Venezuela (87%). In both groups an increase in eggs consumption, contributed to diminish choline inadequacy. In countries of the 2 group a significant increase in adequacy can be observed in women that include fish in their diet. No multivitamin supplement included choline as a component.

Conclusions: Choline intake was inadequate in the majority of childbearing age women, and future generations might have impairments because of this inadequacy. An intervention with supplements and programs that include eggs and fish might contribute to the wellbeing of the future regional generations.



PV108 / #373

E-POSTER VIEWING 07: MALNUTRITION**NUTRITIONAL STATUS AND IMPACT ON QUALITY OF LIFE AND BURDEN OF CAREGIVERS OF PEDIATRIC PATIENTS WITH CEREBRAL PALSY**

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Background and Aims: Background: Cerebral Palsy-CP is a complex neurological condition that causes persistent changes in neuromotor and cognitive function. There are limitations in the ability to perform daily activities and self-care, becoming dependent on caregivers. **Aims:** To evaluate the nutritional status of patients with CP, quality of life-QoL and the level of burden experienced by their caregivers in the context of daily care.

Methods: Methods: A cross-sectional study was conducted at the Outpatient Clinic of Hospital São Paulo, São Paulo, Brazil, from July 2022 to October 2023. The variables found included sociodemographic data of caregivers as well as approximate QoL data (WHOQOL scale-bref, 2000) and overhead (Burden Interview, 2002). Demographic data, degree of motor impairment (GMFCS Scale, 2010), nutritional status, and route of diet were collected from patients with CP. Statistical analysis was performed using the chi-square and Student's t-tests.

Results: Results: The sample consisted of 72 pairs, the majority of caregivers were female (95%), median age (IQ25;IQ75) 34.0 (26.8;38.8) years. Patients had a median age (IQ25;IQ75) of 6.50 (4.0;10.3) years. Malnutrition was observed in 55% (41% severe) and 62% had level V motor impairment. The worsening of caregivers' QoL was noted in the physical domain, with a median (IQ25;IQ75) 1.69 (1.14;2.14) showing greater discomfort and less rest time. There was no significant difference in burden between the caregivers of malnourished patients and those of others.

Conclusions: Conclusion: This study emphasizes the need for a comprehensive approach to the health of children with CP and their caregivers in order to improve their QoL.



PV109 / #229

E-POSTER VIEWING 07: MALNUTRITION

USING FOOD SUPPLY DATA TO INFORM LARGE-SCALE FOOD FORTIFICATION PROGRAMS: A PROPOSED METHOD

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Background and Aims: Large-scale food fortification (LSFF) programs depend on household food consumption data to set fortification levels, but these often do not provide sufficient insights required to identify key food channels suitable for fortification consumed by the population. We developed a method to review food supply data, making use of available secondary data sources, to inform key LSFF indicators that can advise program designers and managers on design and adaptation of LSFF.

Methods: We propose a guided approach to compile systematically available food market data with these key steps: 1. Identify data sources that inform the total domestic food supply volume for human consumption and disaggregation into units defined by characteristics of the food, supply and distribution/consumption 2. Identify food supply categories and units suitable for fortification 3. Compile available raw data sources into the model template to standardize the data format and categorization 4. Calculate category totals and close data gaps by applying assumptions to define volume share for key units of food, supply and distribution categories 5. Triangulate volume estimates derived from different supply and distribution/consumption sources.

Results: We will show how different data sources can be used and merged to model fortifiable or fortified food supply as proxies for the food's potential and actual micronutrient delivery to the consumer.

Conclusions: The method provides a low-effort approach that generate a standardized format for compilations, refinement and update of food supply/distribution nodes and volumes that inform key indicators used by LSFF program stakeholders to improve design and micronutrient delivery to the consumers.



PV110 / #433

E-POSTER VIEWING 07: MALNUTRITION

ASSESSING SUPPLY CHANNELS FOR LARGE-SCALE FOOD FORTIFICATION OF EDIBLE OIL IN BANGLADESH AND INFORMING PROGRAM DESIGN AND PERFORMANCE USING A FOOD SUPPLY DESK REVIEW MODEL

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Background and Aims: Large-scale food fortification (LSFF) programs need data on food supply channels to identify adequate food vehicles and monitor consumer reach with micronutrients. Using a new systematic approach, we disaggregated data of edible oil in Bangladesh to understand fortifiable and fortified oil supply.

Methods: We applied a food supply desk review using secondary source to disaggregate data on volume for characteristics such as food types and producers. Fortification monitoring assessments provided fortification data of products. Fortifiable and fortified oil consumption per capita was calculated from supply data and compared to household consumption survey (HCS) estimates.

Results: Oil for human consumption (48% palm and 34% soyabean oil) was mainly locally processed by 10 companies, and sold as bulk, particularly palm oil, while soyabean oil was prominent among packaged products. Bulk was not or inadequately fortified, while main packaged products were fortified. Fortifiable supply per person was 7.4g/d of which <2g/d contained vitamin A and <1g/d met vitamin A standard. From HCS, fortifiable oil consumption was estimated slightly higher at 9.8g/d for NPWL women. No data were available on cooking oil type or mode of purchase (packaged/bulk).

Conclusions: Available supply data identifies key nodes for regulatory monitoring are at local producer level, while quality of packaged products produced locally or imported can also be cross-checked at market level. Data focus needs to lie on identification of supply/distribution nodes and volumes to improve fortification monitoring, while household data should provide food consumption as well as food type and selection criteria to improve estimates of micronutrient delivery.



PV111 / #379

E-POSTER VIEWING 07: MALNUTRITION

BIOMARKERS OF ENVIRONMENTAL ENTERIC DYSFUNCTION AND INFANT GROWTH IN LUSAKA, ZAMBIA: A CROSS SECTIONAL STUDY

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Background and Aims: Environmental enteric dysfunction (EED), characterized by epithelial damage, intestinal permeability, and microbial translocation, may contribute to poor growth and development outcomes in young children in low-resource settings. We sought to examine the relationship between EED and growth among infants in Lusaka, Zambia.

Methods: We conducted a cross-sectional, subgroup analysis of infants 2-10 months of age (n=110) participating in a 2x2 cluster-randomized factorial trial assessing the impact of growth charts and nutritional supplements on child growth. Serum biomarkers of EED, including intestinal fatty acid-binding protein (I-FABP), zonulin, and lipopolysaccharide (LPS), were measured via enzyme-linked immunosorbent assay (ELISA) to assess epithelial damage, intestinal permeability, and microbial translocation, respectively. Associations between log-transformed EED biomarkers and growth [length-for-age Z-score (LAZ), weight-for-length Z-score (WLZ), and weight-for-age Z-score (WAZ)] were assessed using linear regression analyses adjusted for infant, maternal, and household characteristics.

Results: Twenty percent (20%) of infants were stunted (LAZ < -2), 5.5% were wasted (WLZ < -2), and 52% were anemic [hemoglobin < 11.0 g/dL]. I-FABP and zonulin were significantly correlated with each other (0.224, p < 0.05). In adjusted linear regression models, higher I-FABP concentrations were significantly associated with lower LAZ [β (95% CI): -0.51 (-0.99, -0.04)]. No other significant associations were observed.

Conclusions: In this cross-sectional study, I-FABP, a marker of epithelial barrier integrity in the small intestine, was negatively associated with infant growth. Future studies examining the effects of EED may wish to include I-FABP. This work was supported by Sint Antonius Stichting.



PV112 / #318

E-POSTER VIEWING 07: MALNUTRITION

DIETARY & LIFESTYLE BEHAVIOURS AND RISK OF UNDERNUTRITION IN YOUNG CHILDREN IN MALAYSIA

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Background and Aims: **Background and aims:** We studied the relationship between stunting and underweight, and dietary and lifestyle behaviour factors (sleeping and screen time, physical activity) in healthy children aged 1 to 5 years in Malaysia.

Methods: **Methods:** We analysed demography, dietary and lifestyle behaviour, and anthropometric measurements in 609 children in a childhood nutrition campaign in 2020. We defined height-for-age z-score (HAZ) < -2 SD and -2 to -1 SD as stunting [S] and at risk of stunting, while weight-for-age z-score (WAZ) < -2 SD and -2 to -1 SD were defined as underweight [UW] and at risk of underweight, respectively.

Results: **Results:** 10.8% of children had feeding difficulties, 10.5% experienced poor dietary intake; 13.1% eat very little, 12.8% ate the same food every time, and 12.5% refused new food at first. 62.4% had screen time \geq 1 hour, 78.7% had < 3 hours of play/physical activity daily, 91.0% slept < 12 hours/day. Binary logistic regression showed that children with feeding difficulties (AOR [UW]: 2.94, $p < 0.01$), poor dietary intake (AOR [S]: 5.51; AOR [U]: 9.36, $p < 0.001$) and poor eating behaviours (AOR [S]: 2.14; AOR [UW]: 2.40, $p < 0.01$) were significantly associated with stunting and underweight. Children who had \geq 1 hour of screen time (AOR [U]: 0.45; AOR [UW]: 0.29, $p < 0.001$) and sleeping < 12 hours (AOR [S]: 0.36; AOR [UW]: 0.35, $p < 0.01$) were less likely to have stunting and underweight.

Conclusions: **Conclusions:** More studies are needed to establish the association between screen or sleep time and play/physical activity and nutritional status in children.



PV113 / #499

E-POSTER VIEWING 07: MALNUTRITION

TAUROURSODEOXYLIC BILIARY ACID (TUDCA) REMODELS THE CELLULAR ARCHITECTURE OF THE ENDOCRINE PANCREAS IN UNDERNUTRITED MICE

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Background and Aims: In the post-weaning period, mice subjected to a protein-restricted diet showed reduced pancreatic beta cell mass, resulting in glycemic homeostasis impairments. TUDCA recovered the mass and number of beta-cells in diabetes mice models. Here, we evaluated the effects of TUDCA on the morphology and function of the endocrine pancreas in mice subjected to post-weaning protein restriction.

Methods: Male C57Bl/6J mice at 30 days old received a control diet (14% protein - group C) or a restricted diet (6% protein - group R) for 16 weeks. In the last two weeks, 50% of each group received daily doses of 300 mg/kg intraperitoneal of TUDCA (CT and RT) or PBS (C and R). Data were analyzed by two-way ANOVA

Results: R mice showed lower weight gain, feed efficiency, plasma protein and albumin concentration and increased insulin sensitivity during the ipITT test. In RT mice, TUDCA treatment normalized insulin sensitivity without changing body weight. Islets isolated from R mice showed decreased insulin secretion at 2.8 mM and 11 mM glucose associated with a reduced beta- cell mass. Islets from the RT group secreted more insulin and presented a greater beta- cell mass, concomitantly with a reduction in the alpha- cell mass.

Conclusions: We concluded that TUDCA increases the morphometric parameters of beta cells and reduces those related to alpha cells, restoring glycemic homeostasis in undernourished mice. TUDCA could be a new therapeutic strategy for the damage caused by protein undernutrition. Financial Support: CNPq, Capes, FAPESP



PV114 / #516

E-POSTER VIEWING 07: MALNUTRITION

EFFECT OF KATUK AND TORBANGUN LEAVES SQUEEZED EXTRACT ON B-CAROTENE LEVELS OF COOKIES

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Background and Aims: Vitamin A is an important micronutrient that should be adequately consumed by postpartum mothers due to their lactational period. The highest concentration of Vitamin A in breastmilk is during the first 21 days of postpartum. Therefore, there is a need for breastfed mothers to consume foods that contain high vitamin A for their babies. Vitamin A in vegetables is in the form of β -carotene. This study aimed to assess the nutritional composition and β -Carotene levels of cookies derived from squeezed extracts of Katuk and Torbangun leaves.

Methods: Employing a Completely Randomized Design (CRD) with five treatment levels and three repetitions. The study included proximate analysis and beta-carotene testing. Data analysis used one-way ANOVA, Duncan Multiple Range Test (DMRT), and T-test.

Results: Among the five formulations (F1-F5), F1 product was found to be the best formulation, with a Product Value of 0.69 and an average β -Carotene content of 4.02 mg/kg. The proportion of Katuk and Torbangun extracts significantly influenced ash content, carbohydrate, and beta-carotene levels in the cookies ($p < 0.05$). Additionally, the T-test revealed a significant difference in beta-carotene content between the control and treatment groups ($p < 0.05$).

Conclusions: The most optimal formulation is F1 with an average content of β -Carotene 4.02 mg/kg. The difference in the proportion of squeezed extract of Katuk leaves and Torbangun leaves was shown to affect nutritional values such as ash content, carbohydrates, and β -Carotene cookies and was shown to have a significant difference between F0 (control) and F1 in β -carotene levels.



PV115 / #450

E-POSTER VIEWING 07: MALNUTRITION

PROTEIN RESTRICTION LEADS TO INTESTINAL DYSBIOSIS AND REDUCTIONS IN SHORT CHAIN FATTY ACIDS: IMPLICATIONS FOR THE IMPAIRED ISLETS MORPHOLOGY

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Background and Aims: Diet shapes gut microbiota, essential for gut and glucose homeostasis. We assessed cecal microbiota, short chain fatty acids levels, mRNA transporters and receptors in protein-restricted mice to explore their role in malnutrition-related nutrient regulation.

Methods: Post-weaning, male *C57Bl/6* mice were divided into control (C, 14% protein diet) and protein-restricted (R, 6% protein diet) groups for 90 days. Statistical tests were chosen based on data normality (Shapiro-Wilk) with significance at $P < 0.05$.

Results: Protein-restricted mice had cecal dysbiosis (Shannon Index = 5.77), resulting in reduced propionate ($6.7 \pm 0.6 \mu\text{M/g}$) and butyrate cecal content ($7.3 \pm 1.3 \mu\text{M/g}$) compared to C mice (12.3 ± 1.2 and $11.4 \pm 1.2 \mu\text{M/g}$, respectively). The cecum and colon of the R group showed down-regulation of SCFA transporters: monocarboxylate transporter 1 (0.62 ± 0.13 fold change of C) and sodium monocarboxylate transporter 1 (0.8 ± 0.2 fold change of C), along with SCFA receptors G protein-coupled receptors (GCPR) 41 and 43 (0.91 ± 0.3 fold change of C). Protein deprivation caused pancreatic hypotrophy ($8.0 \pm 0.3 \text{ mg/g BW}$), reduced pancreatic islet number (17.0 ± 2.0 islets/section) and area ($8130 \pm 502.8 \mu\text{m}^2$) in the R group compared to the C group ($10.4 \pm 0.7 \text{ mg/g BW}$, 28.9 ± 4.2 islets/section, and $9937 \pm 614.8 \mu\text{m}^2$). However, R islets exhibited a 52% increase in glucagon-like peptide (GLP)-1 positive area ($825 \pm 73.4 \mu\text{m}^2$) and up-regulation of GCPR 41 (1.6 ± 0.3 fold change of C) and GCPR 43 (2.0 ± 0.4 fold change of C) genes compared to C islets ($431.8 \pm 40.3 \mu\text{m}^2$, 1 ± 0.14 , and 1.0 ± 0.3 fold change of C).

Conclusions: Protein undernutrition induced gut dysbiosis and reduced SCFAs, possibly affecting pancreatic function and nutrient balance in malnourished mice.



PV116 / #334

E-POSTER VIEWING 07: MALNUTRITION

DOUBLE BURDEN OF OVERNUTRITION IN MOTHER-CHILD PAIRS DURING LACTATION: A CROSS-SECTIONAL STUDY

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Background and Aims: Childhood excess weight currently affects 37 million children under 5 years of age worldwide, representing an increase of 11% in cases since 2000. In this way, studying the determining factors for this malnutrition, such as its presence in the dyad mother-child during lactation is relevant, considering that this problem can be the result of different socioeconomic and health situations. Thus, the objective was to evaluate whether there is a difference in the occurrence of malnutrition in breastfed infants of normal weight and overweight women.

Methods: Cross-sectional study carried out with a mother-child dyad in Natal/Brazil, starting 60 days postpartum. Socioeconomic and health data were collected using an electronic questionnaire. Malnutrition in infants was assessed according to the z score using weight-for-age (W/A), length-for-age (L/A) and BMI-for-age (BMI/A) indices. Maternal BMI was classified by World Health Organization. The statistical difference between frequencies was verified by Pearson's Chi-square test.

Results: When analyzing data from 99 days, a higher proportion of overnutrition in children, assessed by W/A and BMI/A scores, was observed in overweight women, with a significant difference for W/A ($p= 0.002$) and BMI/A ($p= 0.014$), respectively.

Conclusions: The data suggest the coexistence of overnutrition in the maternal-infant dyad, reinforcing the need for expanded care to prevent excess weight during childhood.



PV117 / #337

E-POSTER VIEWING 07: MALNUTRITION

DOES MATERNAL CONSUMPTION OF ULTRA-PROCESSED FOODS COMPROMISE THE GROWTH OF BREASTFED INFANTS?

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Background and Aims: Scientific evidence demonstrates that maternal diet directly influences the composition of breast milk and genetics in the nutritional environment to which the infant is exposed, both reflecting on the offspring's growth pattern, since breastfeeding is one of the main factors responsible for child growth and development. Therefore, this study aimed to evaluate whether maternal consumption of ultra-processed foods (UPF) during lactation is associated with the development of stunting in breastfed children.

Methods: Cross-sectional study carried out with mother-child dyads in Natal/Brazil, between 30-120 days postpartum. Socioeconomic and health data were obtained through an electronic questionnaire and maternal consumption through a 24-hour recall. Foods were categorized according to processing using the NOVA classification. Stunting was assessed according to length-for-age z-score. The pairs were grouped according to quartiles of energy participation in UPF consumption ($\geq 75^\circ$ and $< 75^\circ$). Crude and adjusted binary logistic regression equations were performed.

Results: When analyzing data from 111 dyads, we observed that infants of women with higher UPF consumption had a greater chance of stunting (adjusted OR=3.89; 95% CI=1.04-14.58).

Conclusions: The data suggest that a greater participation of UPF in the maternal diet can influence child growth, compromising the malnutrition of their infants.



PV118 / #513

E-POSTER VIEWING 07: MALNUTRITION

THE CORRELATION BETWEEN IGF-1 LEVEL AND HEIGHT ON INDONESIAN CHILDREN LESS THAN FIVE YEARS OLD

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Background and Aims: Insulin-like growth factor 1 (IGF-1) is essential for fostering skeletal development and total physical development in children and adolescents. As a key mediator of the growth hormone (GH) axis, IGF-1 has the capability to be used as a biomarker for child's growth potential. This study aimed to analyze correlation between IGF-1 level, height, and height-for-age z-score.

Methods: This analysis is part of the South East Asian Nutrition Survey (SEANUTS) II Indonesia. Children less than 5 years old from several areas in Indonesia were included in this analysis. Anthropometry data were collected to determine children height dan height-for-age z-score. IGF-1 were collected using blood sample. Statistical analyses were done to analyze correlation between IGF-1 level, height, and height-for-age z-score.

Results: We collected data from 100 respondents (46 girls and 54 boys). The mean score for IGF-1 level, height, and height-for-age z-score are 52.8, 86.1, and -1.5 (respectively). There are significant correlations between IGF-1 level, height, and height-for-age z-score (p-value: 0.000). The result showed positive correlation with strong power for IGF-1 and height ($r = 0.528$) while adequate power was found on IGF-1 and height-for-age z-score ($r = 0.416$)

Conclusions: IGF-1 level affect child's height and height-for-age z-score.



PV119 / #494

E-POSTER VIEWING 07: MALNUTRITION

TAUROURSODEOXYLIC BILIARY ACID (TUDCA) IMPROVES THE EXPRESSION OF GENES ASSOCIATED WITH THE SECRETORY MACHINERY, FUNCTION, MATURATION AND DIFFERENTIATION OF PANCREATIC BETA CELLS FROM UNDERNUTRITED MICE

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Background and Aims: Protein-restricted diet during post-weaning reduced insulin secretion in mice, causing damage to glycemic homeostasis. The use of TUDCA in rodents and obese humans normalized insulin secretion. Thus, we aimed to investigate the molecular mechanisms of TUDCA on the secretory machinery of a protein-restriction diet model.

Methods: Male C57Bl/6J mice (30 days old; n=7-8/group) received control diet (14% protein: group C) or a protein-restricted diet (6% protein: group R) for 16 weeks. During the last 2 weeks, 50% of the animals per group received 300 mg/kg/day of TUDCA (CT and RT) via intraperitoneal, while the remainder received PBS (C and R). The islets of Langerhans were isolated and total RNA was extracted using the TRIzol method. cDNA was obtained and RT-qPCR was performed for gene expression analysis. The data were analyzed using Shapiro Wilk and two-way ANOVA followed by Tukey's test. Ethics protocol: CEUA 5357-1/2019.

Results: Islets from the RT group presented increased expression of genes from the SNARE complex (Syntaxin 1A, SNAP25) compared to the R group. In addition, function, transcription and differentiation genes (INS, PDX1, HNF4 α , Pax4 and Nkx2.2) of pancreatic beta cells were also increased.

Conclusions: We conclude that TUDCA induces increased gene expression of markers associated with the extrusion of insulin granules, function, maturation and differentiation of pancreatic beta cells. As future perspective based on these results, we intend to use bioinformatic analysis to better understand the molecular mechanisms underlying the effects of TUDCA in the present experimental conditions. Financial support: CNPq, CAPES, FAPESP.



PV120 / #630

E-POSTER VIEWING 07: MALNUTRITION

TUDCA TREATMENT REDUCES HEPATIC GLUCOSE PRODUCTION AND GLUCAGON SECRETION IN MALNOURISHED MICE FED WITH HIGH-FAT DIET

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Background and Aims: Early-life protein malnutrition may lead to glycemic control disruption and type 2 diabetes. Tauroursodeoxycholic acid (TUDCA) is explored for treating obesity and pancreas dysfunction. We evaluated TUDCA's effect on hepatic glucose production and glucagon secretion in malnourished mice fed a high-fat diet (HFD).

Methods: C57Bl/6J male mice (30-75 days old) were divided into control (C) and protein-restricted (R) groups. Half of each group received HFD for 12 weeks (CH, RH). In the last 15 days, mice were injected with TUDCA (CHT, RHT) or PBS. Results analyzed by Two-way ANOVA ($P < 0.05$).

Results: CH and RH mice had glucose intolerance (52256 ± 2676 and 55706 ± 4014 mg/dL.min⁻¹), insulin resistance (2.4 ± 0.2 and 2.7 ± 0.2 K_{ITT}), and increased glucose stimulated by glucagon (16846 ± 525 and 19344 ± 647 mg/dL.min⁻¹) compared to C (33152 ± 2983 mg/dL.min⁻¹, 4.4 ± 0.2 K_{ITT}, 13111 ± 891 mg/dL.min⁻¹) and R (32097 ± 1517 mg/dL.min⁻¹, 4.0 ± 0.2 K_{ITT}, 13625 ± 781 mg/dL.min⁻¹). TUDCA improved these parameters in CHT (39830 ± 2632 mg/dL.min⁻¹, 5.0 ± 0.3 K_{ITT}, 12658 ± 622 mg/dL.min⁻¹) and RHT groups (39839 ± 2588 mg/dL.min⁻¹, 5.4 ± 0.3 K_{ITT}, 14375 ± 462 mg/dL.min⁻¹). Isolated islets from CH and RH mice exhibited increased glucagon secretion at 0.5 mM glucose (48 ± 6 and 82 ± 9 pg/islet/h, respectively) compared to C and R (23 ± 3 and 34 ± 4 pg/islet/h, respectively). TUDCA reduced this secretion in CHT and RHT islets (31 ± 4 and 12 ± 1 pg/islet/h, respectively). At 11.1 mM glucose, CH and RH islets secreted more glucagon (48 ± 4 and 62 ± 9 pg/islet/h, respectively) than C and R (19 ± 1 and 14 ± 1 pg/islet/h, respectively). TUDCA normalized this secretion in CHT and RHT islets (11 ± 1 and 7 ± 0.2 pg/islet/h, respectively).

Conclusions: Malnourished HFD-fed mice showed impaired hepatic glucose production linked to glucagon hypersecretion. TUDCA treatment normalized these parameters.



PV121 / #527

E-POSTER VIEWING 07: MALNUTRITION

EXAMINING CHILDHOOD UNDERNUTRITION IN URBAN SLUM POPULATION: A HEALTH FACILITY-BASED STUDY AMONG PAKISTANI CHILDREN UNDER FIVE

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Background and Aims: Undernutrition is a major cause of child mortality (45%) in low- and middle-income countries. It is prevalent in Pakistan, with high stunting (40.2%), underweight (30%), and wasting (17.7%) among children under five. This study utilized health facility-based data in two districts of Punjab to examine undernutrition among children from the urban slum population.

Methods: The study gathered anthropometric data from children under five visiting seven health facilities in Lahore and Rawalpindi, primarily serving urban slum populations. It assessed nutritional status using the World Health Organization Growth Reference Standards 2016, including weight-for-age, height-for-age, and weight-for-height z-scores (WAZ, HAZ, and WHZ) for identifying underweight, stunting, and wasting, respectively.

Results: The study gathered anthropometric data for a total of 135,186 children under the age of five, with 72,322 from Rawalpindi and 62,864 from Lahore. Among these children, 24.1% were underweight, with a mean \pm SD for WAZ (-0.78 ± 4.35). In the districts, 21% of children in Rawalpindi and 31.3% in Lahore were underweight. Approximately 34% (HAZ: -1.53 ± 2.96) of children were stunted, and it was noted that the stunting prevalence was higher in Lahore (43.3%) compared to Rawalpindi (31%). Comparatively, a smaller proportion of children (12.4%; WHZ: 0.27 ± 6.13) were found to experience wasting, with 11.4% in Rawalpindi and 15.7% in Lahore.

Conclusions: Higher stunting and underweight rates were found in the urban slums of Rawalpindi and Lahore, with Lahore showing the most severe undernutrition. This highlights the need for a multisectoral approach to address urban slum undernutrition.



PV122 / #197

E-POSTER VIEWING 07: MALNUTRITION

EFFECTIVENESS OF SPECIALIZED NUTRITIOUS FOODS AND SOCIAL, BEHAVIOR CHANGE COMMUNICATION INTERVENTIONS TO PREVENT STUNTING AMONG CHILDREN IN AFGHANISTAN

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Background and Aims: To assess the effectiveness of specialized nutritious food (SNF) and social behavior change communication (SBCC) strategies to prevent stunting among children under 2 years during the first 1,000 days of life in Badakhshan, Afghanistan.

Methods: We used a quasi-experimental pre-post-study design to evaluate the study outcomes. Pregnant and lactating women received a monthly ration of 7.5 kg of Super Cereal (250g/day) during pregnancy and the first 6 months of lactation. Children aged 6-23 months receive 30 sachets of lipid-based nutrient supplement medium-quantity (50g/sachet/day) monthly. We used difference-in-differences (DID) estimates to isolate the effect of the intervention on key study outcomes at endline.

Results: A total of 2,928 and 3,205 households were surveyed at baseline and endline. DID estimates adjusted for child, maternal, and household characteristics indicated a significant reduction in stunting (DID: -5%; $p=0.041$) and underweight (DID: -4.6%; $p=0.028$) among children <2 years of age. Exposure to the SBCC messages was associated with improvements in multiple IYCF practices, including early initiation of breastfeeding (DID: 19.6%, $p<0.001$), exclusive breastfeeding for children under 6 months (DID: 11.0%, $p=0.014$), minimum meal frequency (DID: 23%, $p<0.001$), minimal acceptable diet (DID: 13%, $p<0.001$), and whether a child was ever breastfed (DID: 4.7%, $p<0.001$).

Conclusions: The provision of SNF in combination with SBCC during the first 1,000 days of life were associated with improvements in key outcomes including reductions in stunting and underweight and improvements in IYCF practices among children under 2 years of age.



PV123 / #541

E-POSTER VIEWING 08: BIG DATA

ETIOLOGY OF POSTPARTUM SEPSIS AMONG RECENTLY DELIVERED WOMEN IN PAKISTAN

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Background and Aims: Untreated postpartum-endometritis escalates to postpartum-sepsis, with a 17% fatality rate. This study aimed to provide the first population-level data on the epidemiology and microbiology of endometritis in Pakistan.

Methods: A prospective-observational-cohort-study was conducted in Matiari and peri-urban areas of Karachi. Surveillance-system instituted in the study areas was utilized to recruit women within-14 days of delivery. Participants were followed on postpartum-days 0, 2, 6, 13, 20, 27, 34, 41, 48, and 59 by trained Community-Health-Workers (CHWs) after obtaining informed-consent. Women suspected to have sepsis were referred to study physicians for confirmation. Study physicians randomly examined similar number of selected-healthy women to evaluate the accuracy of CHW assessment. All women with physician-confirmed sepsis were referred for endometrial sample collection and treated according to WHO-recommendations.

Results: CHWs suspected sepsis in 1762(14.1%) of the 12509 eligible and consenting women. Physicians assessed 1451(82.34%) of the suspected sepsis cases and 1919 healthy women. CHWs identified sepsis with a sensitivity and specificity of 86% and 72%, respectively. Altogether, 466(52.1%) of the 894 women with physician-confirmed sepsis provided endometrial cultures. The most common pathogens were; E. coli (40.5%), G. vaginalis(15.3%), S. pyogenes(11.5%), and S. aureus (9.2%). Of the 10 most common pathogens, 67.6% were sensitive to combined clindamycin and gentamycin, 53.2% were sensitive to imipenem, 35.6% were sensitive to combined amoxicillin-clavulanic acid and metronidazole, and 19.4% were sensitive to combined ampicillin and metronidazole.

Conclusions: Pakistan's high postpartum sepsis rates necessitate treatment guidelines based on common pathogen susceptibility, preventive strategies are imperative to improve the outcomes of postpartum women and reduce maternal mortality in Pakistan.



PV124 / #317

E-POSTER VIEWING 09: METABOLOMICS

CANCER CELL LINE INHIBITION BY XYLITOL IN SYNGENEIC MOUSE MODEL

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Background and Aims: Background: Xylitol is a prebiotic polyol long utilized for preventive care in dentistry and is considered a natural, generally regarded as a safe food additive. Aim:- to evaluate the effects of continuous administration of xylitol (commonly used dental prebiotic) via subcutaneous osmotic pump implantation in B16F10 syngeneic mouse model.

Methods: B16F10 Syngeneic Model consisted of 6-8 weeks old C57BL/6 male mice with 5 x 10⁵ B16F10 cells (Passage 9) suspended in 100 µl PBS injected subcutaneously in the right flank. The mice were randomly assigned to 2 Groups; Group1- treatment: 10% Xylitol-loaded pumps (n=10), Group2- control Saline-loaded pumps (n=10). Alzet pumps were implanted in B16F10 injected mice once >50% of the mice develop palpable tumors. After pump implantation surgery, mice monitored and weighed 2-3x/week. Tumor sizes were measured with calipers 2-3x/week and all mice were euthanized when tumors became too large (= 20 mm on any axis, or 2000 mm³). The excised tumors were weighed and cut in half with half sent to histology and the other half for metabolomics.

Results: The xylitol treatment group survival period was substantially better than the control group. Tumor size was reduced by approximately 35% by volume. Histological sections suggested reduced infiltration and angiogenesis, consistent with previous research. The metabolomic analysis demonstrates that xylitol reduces tumor production of histamine, NADP⁺, ATP, and glutathione thereby improving host immune response with ROS.

Conclusions: The results of this study suggest that xylitol has potential as an adjunct to oncological treatment and is being further investigated along with monoclonal antibody (Opdualag).



PV125 / #367

E-POSTER VIEWING 09: METABOLOMICS

MATERNAL METABOLITES ARE ASSOCIATED WITH MATERNAL AND OFFSPRING MENARCHE AGE: A STUDY OF RACIALLY AND ETHNICALLY DIVERSE MOTHER-CHILD DYADS FROM THE BOSTON BIRTH COHORT

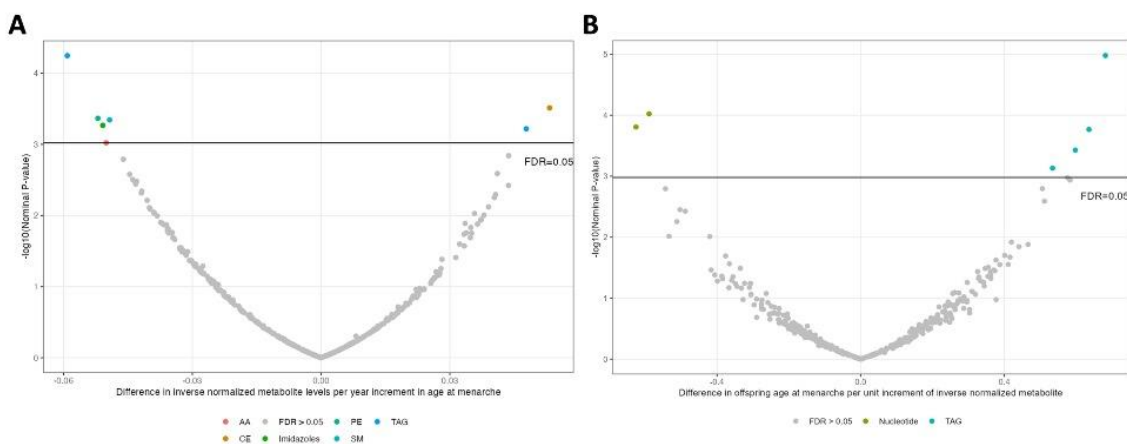
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Background and Aims: There is a secular trend toward earlier menarche onset around the world, but the underlying metabolic antecedents are still not understood. The aim of this study is to identify maternal metabolome signatures around pregnancy that are associated with menarche age in mothers (retrospectively) and their offspring (prospectively) in a diverse sample of women.

Methods: This analysis included 1301 women from the Boston Birth Cohort who were enrolled 24-72 hours after delivery, when we collected maternal plasma sample for metabolome and information on maternal age at menarche (range 7-18y) via a standard questionnaire. We also collected menarche age from 80 female offspring of these mothers during follow up. We used linear regression to examine the association between age at menarche and inverse normalized metabolites. We adjusted for maternal year of birth, place of birth, education, smoking status, Mediterranean diet score, pre-pregnancy BMI, hypertensive disorders, and diabetes.

Results: Of the 1301 study women, 64% identified as Black and 21% as Hispanic. Maternal age at delivery was 28.3±6.6y and age at menarche was 12.9±2.0y. Of the 389 metabolites, a 1-y increment in menarche age was associated with 7 metabolites in mothers (**Figure A**) and 6 metabolites in the offspring (**Figure B**). Nucleotide metabolites showed inverse associations, while TAG metabolites showed positive associations with menarche age, in both mothers and their offspring.

Figure. Associations of maternal and offspring's age at menarche with maternal metabolites during pregnancy in models adjusted for maternal year of birth, place of birth, education, smoking status, Mediterranean diet score, pre-pregnancy BMI, hypertensive disorders, and diabetes. Colored dots represent metabolites associated with age at menarche at Benjamin-Hochberg FDR=0.05. (A) Association of 1-year increment in mother's age at menarche with maternal metabolites; (B) Association of per unit increment in inverse normalized metabolite with offspring's age at menarche.



Conclusions: In this racially and ethnically diverse cohort from Boston, maternal metabolites measured shortly after pregnancy are associated with menarche age in mothers and in their offspring. Our findings help inform metabolic pathways underlying intergenerational differences in menarche age.