N&G 2023 E – Posters Abstracts

EP001 / #75

E-Poster Topic: *AS01. Neonatal & Prematurity*

AN OBSERVATIONAL STUDY ON THE NEURODEVELOPMENT AND GROWTH OF TERM LOW-BIRTH-WEIGHT NEONATES BORN FROM JANUARY TO FEBRUARY 2021 IN ZCMC AFTER ORAL ZINC SUPPLEMENTATION

Shalima Salih Abdurajan, Leiza G Sahi, Vida T Daria, Bernadette Chua Macrohon
Zamboanga City Medical Center, Department Of Pediatrics, Zamboanga City, Philippines

Background and Aims:

Zinc is an important element which has a major role in the growth of neonates. It is essential for both tissue growth and neurological development. Infants of low-birth-weight do not have enough zinc storage, which may lead to undernourishment and poor development for these neonates. Thus, zinc supplement was provided on a number of low-birth-weight neonates while keeping a record of their growth and developmental status.

This study aimed to describe the neuro-development and growth status of low birth weight neonates given oral zinc supplementation at Zamboanga City Medical Center.

Methods:

This is a descriptive cohort study of low-birth-weight neonates recruited on the first day of life and was given oral zinc supplementation at a dose of 2.1mg/day daily for 6 weeks.

Results:

The study showed that among the neonates who received zinc supplementation, there is an increase of weight from baseline, 47 percent increase on the first monitoring at 6 weeks of age and 254 percent on the second monitoring at 9 months of age. Also, these neonates had 14percent and 40percent increase in length at six weeks and nine months of age on the first and second monitoring respectively. Females had more weight gain while neonates had higher length gain. All of the infants had no neuro-developmental concerns.

Conclusions:

Low-birth-weight neonates given zinc supplementation were able to achieve expected growth and neurodevelopment for age.

EP002 / #84

E-Poster Topic: *AS01. Neonatal & Prematurity*

GROWTH MONITORING IN A LEVEL THREE NICU

Leina Ahmed, Fazalur Rehman
Royal Oldham Hospital, Nicu, Oldham, Manchester, United Kingdom

Background and Aims:

Preterm and sick term babies admitted to neonatal intensive care units are at risk of postnatal growth restriction. Close monitoring of postnatal growth parameters is important for improving the care plan and avoiding long-term complications.

The UK-WHO neonatal Infant Close Monitoring chart is currently used in the NICU at Royal Oldham Hospital. Plotting of the head circumference (OFC) and weight is recommended on admission for all babies.

Subsequently, for preterm babies, the local policy is to measure the weight on Sundays and Wednesdays and the head circumference on Monday during the ward round or with the change of the hat for ventilated babies.

Aim

To review compliance with the current local policy regarding growth monitoring and to review the awareness of plotting instructions on the UK-WHO growth chart.

Methods:

A retrospective review of 35 growth charts of babies born and admitted to the NICU from April to January 2022.

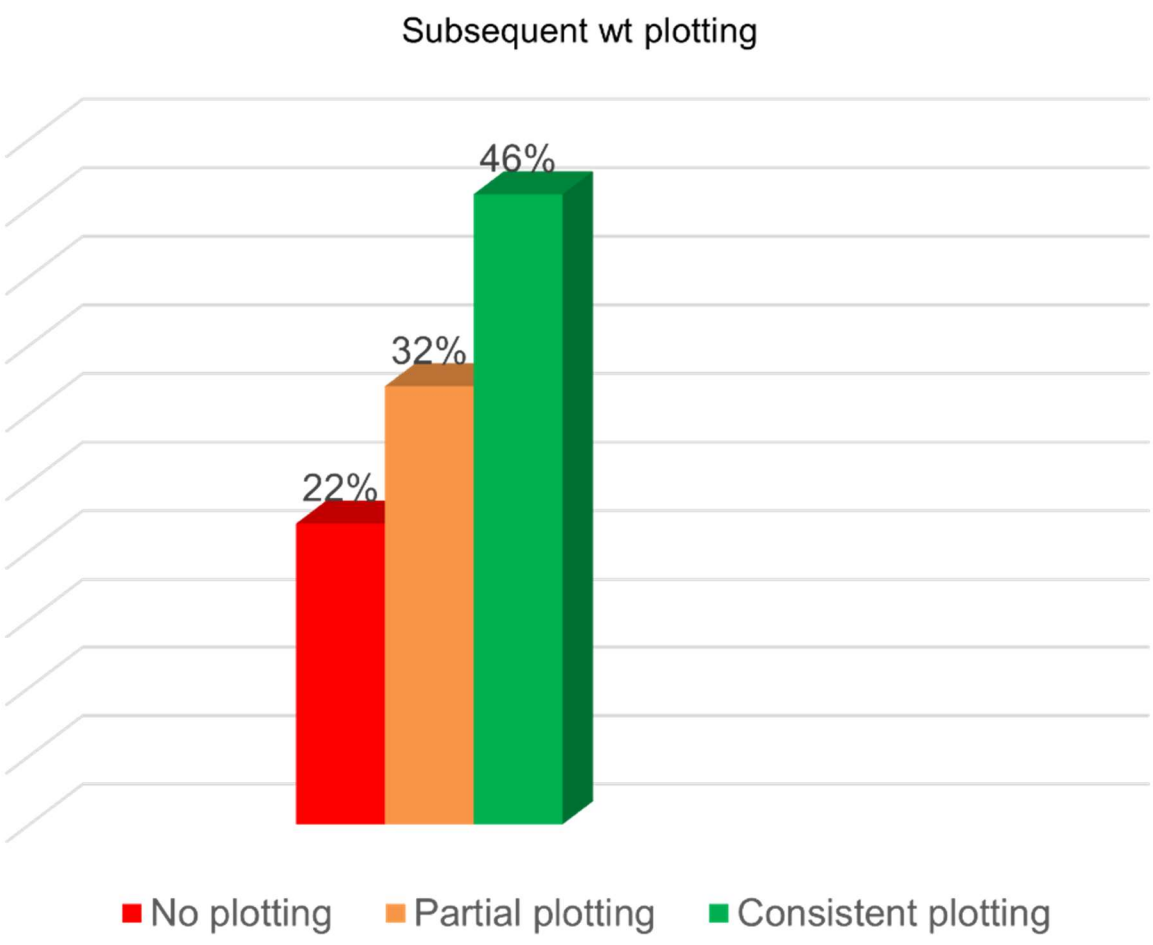
Results:

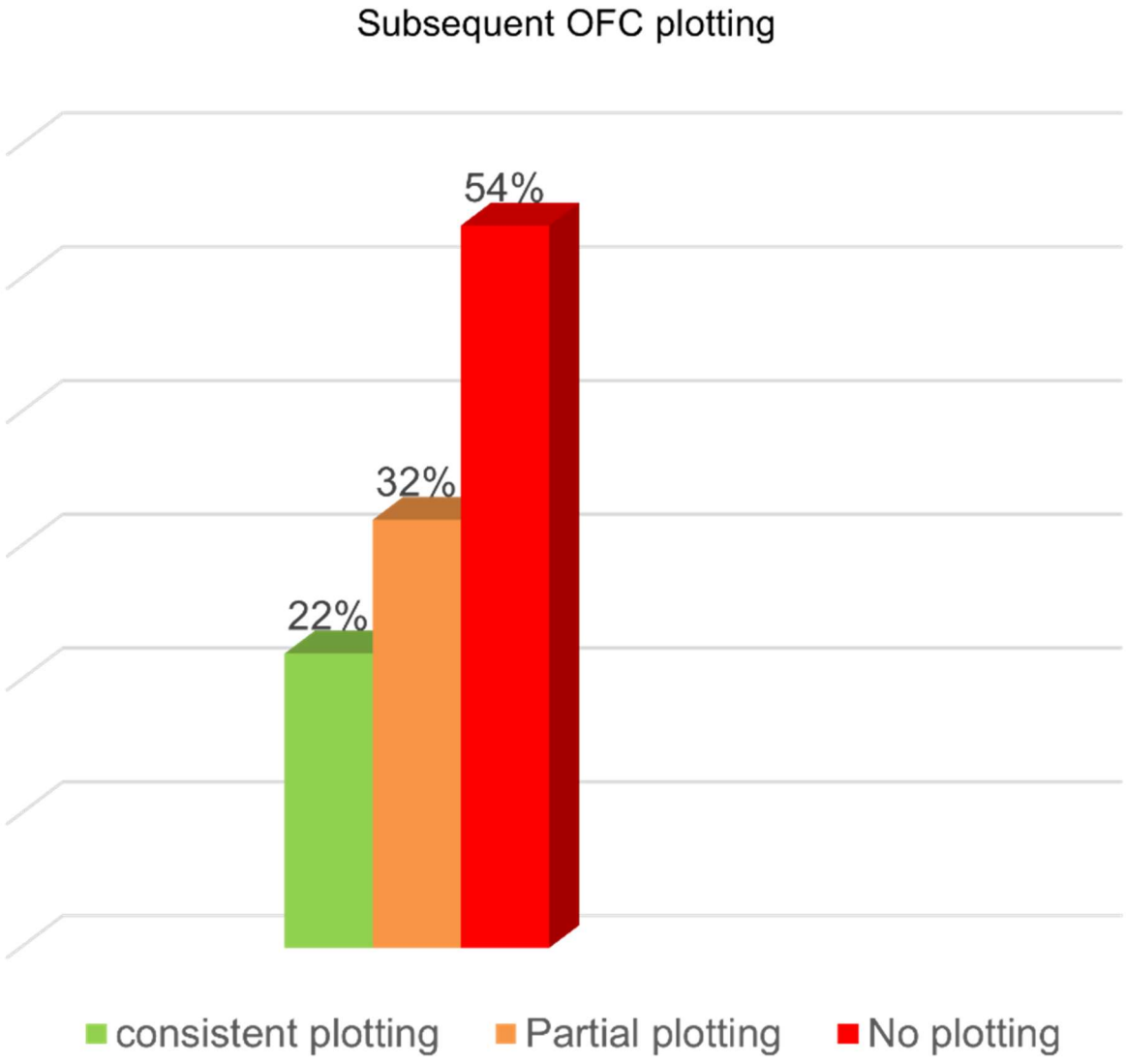
Plotting of the admission head circumference (OFC) was achieved in 40% of the charts.

Plotting of the admission birth weight was achieved in 83% of the charts.

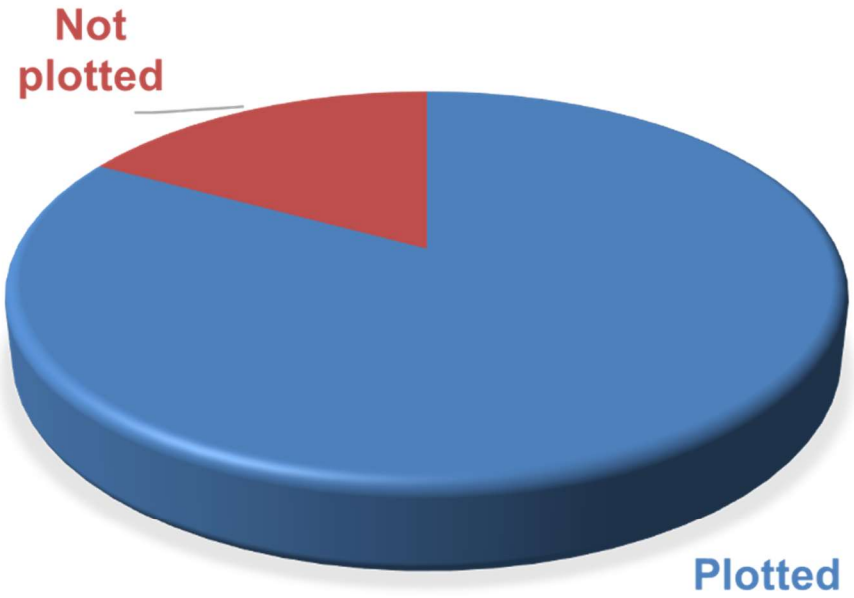
Subsequent weight plotting was consistent in 43%, partially done in 32%, and not done in 25% of the charts.

Subsequent plotting of the head circumference (OFC) was consistent in 14%, partially done in 32%, and was not done in 54% of the charts.

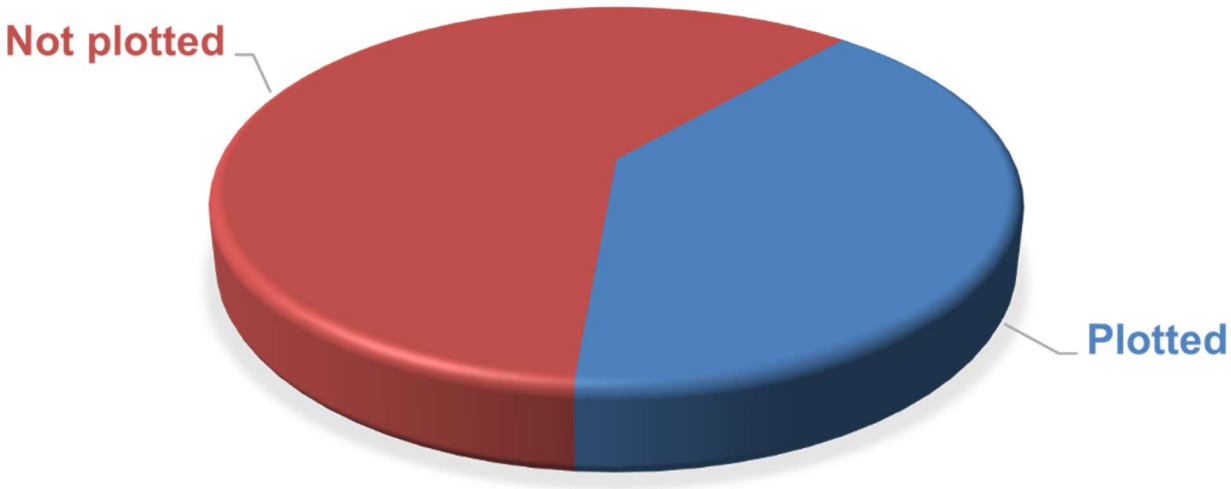

Subsequent wt plotting
46%
32%
22%
No plotting
Partial plotting
Consistent plotting


Subsequent OFC plotting
54%
32%
22%
consistent plotting
Partial plotting
No plotting

ADMISSION WT



ADMISSION OFC



Conclusions:

Overall, weight plotting has a better consistency than head circumference.

Good staff awareness of gestation correction of preterm compared to awareness of plotting instructions for term babies was noticed in all charts.

EP003 / #85

E-Poster Topic: *AS01. Neonatal & Prematurity*

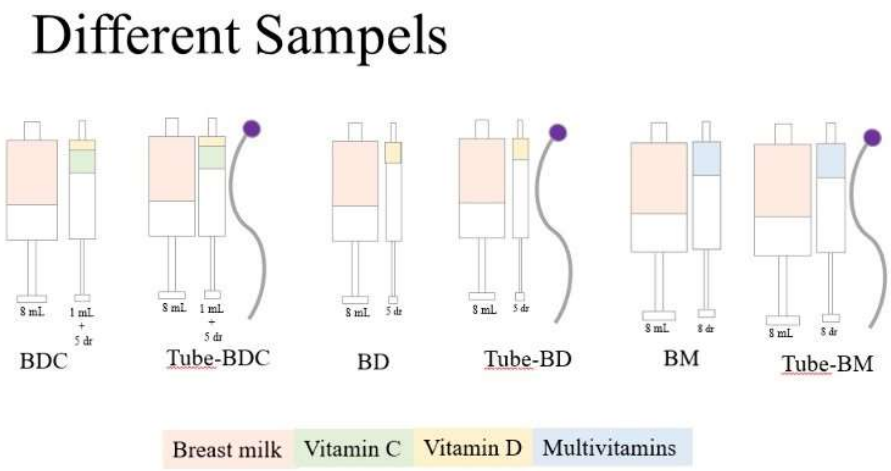
PITFALLS IN ADMINISTRATION OF VITAMIN D IN MIXTURES TO PREMATURE INFANTS –– MOST OF THE VITAMIN IS LOST THROUGH SYRINGES AND NASOGASTRIC TUBES

Eva Albinsson[1,2], Astrid Bergentz[2], Fredrik Ahlsson[2], Mattias Paulsson[2], Sverre Wikström[1]
[1]Region Värmland, Department Of Paediatrics, Karlstad, Sweden, [2]Uppsala University, Department Of Women´s And Children´s Health, Uppsala, Sweden

Background and Aims:

Extremely premature infants receive most of their nutrition through nasogastric tubes (NGT). This route, 10-40% of the fat in human milk never reaches the infant. The aim of this study was to investigate loss of vitamin-D during preparation and administration through NGT.

Methods:



A glass tube and NGT represented an infant (picture). Sixty-one samples with breastmilk from anonymous donors and different mixtures of vitamin-D; vitamin-D and vitamin-C, multivitamins and only vitamin-D, were collected in syringes and flushed through NGT. The content of vitamin-D, ordered in drops (expected value) was compared with the value detected by Ultra-high-performance supercritical fluid chromatography - mass spectrometry (SFC-MS) in the different samples after instill vitamin-D in syringes and again after administration of different mixtures of vitamin-D through NTG.

Results:

80-96% of the vitamin-D was lost during instilling vitamin-D drops in syringes. In addition, another 41-2%, depending on the mixture, of the vitamin-D was lost when administered through NGT.

Results from the SFC-MS analysis of vitamin-D (nanograms)

Syringe-samples	Expected	Mean outcome post-syringe	Difference post-syringe	Tube-samples	Mean outcome post-tube	Difference post-tube	p-value post-syringe vs post-tube
Breastmilk+vitamin-D+vitamin-C	10030	2029(±333)	20%	Tube-Breastmilk+vitamin-D+vitamin-C	1194(±274)	59%	p<0.05
Breastmilk+Multivitamins	14812	1939(±92)	13%	Tube-Breastmilk+Multivitamins	1601(±299)	83%	p<0.05
Breastmilk+vitamin-D	9917.0	353(±17)	4%	Tube-Breastmilk+vitamin-D	345(±6.4)	98%	NS

Conclusions:

We found significant losses of vitamin-D in different mixtures, mostly when prepared as drops in syringes, but also during administration. This could be of clinical importance especially for extremely premature infants already at risk for malnutrition and growth disturbances. Should direct oral administration be the preferred route?

EP004 / #468

E-Poster Topic: *AS01. Neonatal & Prematurity*

SEX DIFFERENCES IN NUTRITIONAL INTAKE IN LATE PRETERM INFANTS

Sumana Ramarao[1], Pradeep Alur[2], Simmy Vig[1], Addie Hitt[1]
[1]University of Mississippi Medical Center, Pediatrics, Jackson, United States of America, [2]Penn State Health, Pediatrics, Hershey, United States of America

Background and Aims:

Very preterm infants cannot regulate their enteral feeds. Hence, clinicians prescribe similar amounts of calories and protein, irrespective of their sex. This may lead to altered body composition later. It is unknown if preterm infants consume differently based on their sex. We studied if the volume and nutrient intakes will differ between sexes in preterm infants feeding formula ad libitum.

Methods:

A retrospective study of preterm infants (from 34 0/7 to 36 6/7 weeks of corrected gestation) who were ad-lib feeding formula milk and were free of any respiratory support for at least two days was done. Data collected: sex, gestational age, birth weight, anthropometric data, maternal data, mean nutritional intake: volume (ml/kg/d), protein (g/kg/d), and calories (kcal/kg/d) during the study period, and infant morbidity.

Results:

We included 74 female and 77 male preterm appropriate for gestational age (AGA) infants. Tables show anthropometric data, demographics, and nutritional data on AGA infants. Mean volume, protein & calorie intake was significantly higher in female infants than in male infants. Growth velocity (g/kg/d) was higher in female infants, 8.40 ± 7.66 vs. 6.1 ± 6.73 in males ($p=0.05$). Mean ad-lib feeding duration was not different between t

Characteristics	Males' N-77	Females' N= 74
Race (African-American)	78%	84%
Mode of delivery (C-section)	47%	58%
Maternal Diabetes	21%	11%
Maternal Preeclampsia	27%	28%
IVH	3%	0
ROP	0	0
NEC	1%	0
BPD	0	0

Characteristics	Male N=77	Female N=74
Birth Gestational Age	34.08	34.01
Corrected Gestational Age	35.11	34.98
Birth Weight in grams	2342.25	2081.24
Birth Weight Percentile	51.2	45.9
Birth Weight Z-score	0.177	-0.09
Weight at study in grams	2350.00	2079.99
Weight Percentile at study	35.36	28.66
Weight Z-score at study	-0.35	-0.67
Birth Head Circumference Percentile	55.28	27.8
Birth Head Circumference Z-score	0.172	-0.025
Head Circumference Percentile at study	47.33	43.77
Head Circumference Z-score at study	-0.117	-0.231
Birth Length Percentile	58.58	49.63
Birth Length Z-score	0.291	-0.063
Length Percentile at study	57.82	48.31
Length Z-score at study	0.301	-0.095
Mean volume intake ml/kg/d	135.34	145.5
Mean protein intake g/kg/d	2.9	3.07
Mean calories intake cal/kg/d	100.31	107.89
Duration of adlib feeds	6.14	5.95

he sexes.

Conclusions:

This is the first study in late preterm infants demonstrating AGA female preterm infants consumed more volume, protein, and calories than AGA male preterm infants. Sex specific nutrition studies are needed in preterm infants to understand & promote optimal body composition.

EP005 / #477

E-Poster Topic: *AS01. Neonatal & Prematurity*

INCREASE IN NATIONAL INCIDENCES OF LOW BIRTH WEIGHT AND PREMATURITY BETWEEN 2018-2021 IN MEXICO.

Monica Ancira Moreno[1], Eric Monterrubio-Flores[2], Isabel Omaña Guzman[1], Karla Muciño Sandoval[1], Alan Hernandez Solano[3]
[1]Universidad Iberoamericana, A.C., Health, Mexico, Mexico, [2]The National Institute of Public Health of Mexico, Cinys, Cuernavaca, Mexico, [3]Universidad Iberoamericana, A.C., Instituto De Investigaciones Para El Desarrollo Con Equidad (equide), Mexico, Mexico

Background and Aims:

Preterm birth (PT) is defined as newborns that have a gestational age below 37 weeks at birth and Low Birth Weight (LBW) as weight at birth less than 2500 grams (g) (1,2). LBW and PT are associated with higher neonatal morbimortality, child development and growth problems, and increased risk of long-term chronic diseases such as diabetes and cardiovascular disease. (3,4) The aims of this study are: (1) to estimate the incidence of LBW and PT in Mexico at the national, state, municipal, and regional levels and based on maternal sociodemographic characteristics between 2018 to 2021.

Methods:

We used a descriptive retrospective design to estimate the incidence of LBW and PT in Mexico, using national administrative open-access datasets. Sociodemographic characteristics considered were marginalization index, rurality, and maternal age.

Results:

At the national level, the incidence of LBW and PT increased progressively from 6.9% (2018) to 7.1% (2021) and 6.8% (2018) to 7.5% (2021), respectively. Sex differences were found in the incidence of both indicators: LBW 6.7% (2018) to 7.2% (2021) for boys and 6.9% (2018) to 7.0% (2021) for girls; PT 7.2% (2018) to 7.7% (2021) for boys and 6.4% (2018) to 7.2% (2021) for girls. Central states and Mexico City reported the highest LBW and PT regional incidence. The incidence of LBW and PT was higher as the marginalization indexes increased.

Conclusions:

LBW and PT are still public health problems in Mexico. This result shows the increased incidence in recent years and the need for new policies to prevent these perinatal outcomes.

References:https://docs.google.com/document/d/1ljRVItQ3iMPUSdvHA0KcEJW-66pjRDZC/edit?usp=sharing&ouid=115863960907065126136&rtpof=true&sd=true

EP006 / #478

E-Poster Topic: *AS01. Neonatal & Prematurity*

FPIES IN EXCLUSIVELY BREASTFED NEONATE:A CASE REPORT

Irini Christopoulou, Stauroula Nikolaou, Maria Agahokleous
Limasol General hospital, Nicu, Limasol, Cyprus

Background and Aims:

FPIES in exclusively breastfed babies is a very rare condition especially during neonatalperiod.FPIES is a non IgEmediated food allergy that affects children in the first year of life and may present with bloody stools and thought is difficult in some cases to be distinguished from NEC.

Methods:

We present a case of a9-day old term male ,exclusively breastfed,who admitted in NICU with a history of vomiting,diarrhea,weight loss(20% less than birth weight) dehydration and aseptic like condition.In admition the baby was anemic (Hgb=9mg/dl) with metabolic acidosis and a slightly increased CRP. The baby started in IV fluids ,antibiotics,stayed NBM and started on TPN.Blood cultures,urine culturestools culture ,they all didn't show any growth.In an attempt to feed the baby with breast milk initially,then breast milk after dairy-free diet of the mother , the baby's condition was deteriorated. FBC ahowed a gradually increase in eosinophilic percentage (upto 53%).

Results:

FBC showed a remarkable increase in eosinophilic percentage (up to 53%).Abdominal X-ray and ultrasound were normal. As FPIES was suspected (as the abdomen was clinically healthy),an aminoacid formula was introduced and a rapid improvement was experienced.

Conclusions:

FPIES in exclusively breast fed neonates isarare condition and should be distinguished by sepsis or NEC.

EP007 / #67

E-Poster Topic: *AS01. Neonatal & Prematurity*

STRESS RESPONSE TERM BABIES WHO SUFFERED FROM IUGR CORRELATES WITH THE ORIGIN OF ADULTHOOD DISEASES THEORIES

Manal Yousif Eldegeir[1,2], Cornelius Ani[3], Sally Grantham-Mcgrego[4]
[1]National Guard Hospital, Pediatrics, Dammam, Saudi Arabia, [2]Jisr Alata Charity orgnization, Excetive Director, kHARTOUM, Sudan, [3]Imperial Collage London, Faculty Of Medicine, Department Of Brain Sciences, London, United Kingdom, [4]Institute of child health, Child Health, lONDON, United Kingdom

Background and Aims:

Fourteen million babies are born with LBW/IUGR in developing countries. In Sudan, 15% -25% of all newborns are born with LBW, half being

We hypothesize that infants who suffer from intrauterine growth retardation will have exaggerated physiological and behavioural responses to physical stressors.

Objectives

To compare T-LBW with T-NBW on the following:

Salivary cortisol level at rest and after a physical stressor

Behavioural response to physical stressors.

Methods:

Study Design

Hospital-based matched case-control study. Cases were 65 T-LBW neonates, and controls were 67 T-NBW neonates matched for age 4-6 hours, gestational age and mode of delivery.

Measurements

Anthropometry, salivary samples for cortisol before and after heel prick, and behavioural ratings.

Results:

Results

Compared with controls, the IUGR neonates were: lighter, shorter and thinner ($p < 0.0001$), and had lower basal cortisol level ($p < 0.03$). Following stressors, IUGR neonates had lower ($p > 0.0001$) and inhibited cortisol response ($p < 0.02$), and cried less vigorously ($p < 0.0001$). All

anthropometric measures were significantly and positively correlated with behavioural responses, and pre and post-stress cortisol levels. Stunting was more strongly correlated with behavioural inhibition than wasting.

Conclusions:

Conclusion

The severity of intrauterine growth retardation correlated with behavioural and physiological inhibition. This response can support the theory of origin adulthood mismatch diseases such as diabetes, hypertension and various autoimmune diseases

EP008 / #160

E-Poster Topic: *AS01. Neonatal & Prematurity*

WHERE ARE THEY?

Dominik Johannes Grathwohl
Societe des Produits Nestlé SA, Clinical Research Unit, Vevey, Switzerland

Background and Aims:

One of the most important safety parameters in preterm born infants is growth. The Fenton Growth Charts are world-wide accepted standards for monitoring preterm growth; Fenton and Kim (2013). Frequently quoted are 15 g/kg/d as a lower limit of growth. The aim of this investigation was to show where these infants can be found on the Fenton Growth Chart.

Methods:

Mathematically weight adjusted weight gain is the first derivatives of an infant's weight trajectory divided by the actual weight. For a given age and weight, the first derivative of the Fenton growth percentile line was estimated and divided by the weight. The regions where this characteristic was smaller than 15 g/kg/d were identified.

Results:

The frequently quoted 15 g/kg/d seem to work for a gestational age less than 29 weeks. The infants born between 29 and 33 weeks cannot be found on the chart and greater than 33 weeks are below 15 g/kg/d.

Conclusions:

The limitation of this investigation is the assumption that infants grow along the Fenton percentile lines. We confirm the findings of Fenton et al. (2018) that human growth is not constant through gestation and early infancy. The frequently quoted 15 g/kg/d is of little use. We recommend interpreting growth rather longitudinally than using a single number.

EP009 / #348

E-Poster Topic: *AS01. Neonatal & Prematurity*

SAFE INFANT GUIDED NUTRITION(SIGN): A PROMISING WAY FORWARD TO ACHIEVE SUCCESSFUL BREAST AND/OR BOTTLE FEEDING; A QUALITY IMPROVEMENT PROJECT

Madhusudan Guin
William Harvey Hospital, Neonatology, Ashford, United Kingdom

Background and Aims:

Background: Independent bottle or breast feeding is a criterion of discharge for the preterm infants. Feeding practices amongst the clinicians are inconsistent, variable and at times contradictory. They prefer a volume driven tube feeding overriding the feeding response from infants. Careful cue-based feeding can establish early breast and/or bottle feeding and an early discharge from hospital.

There has been no infant feeding guideline available in the unit, resulting in confusion in initiating and advancing breast and/or bottle feeding.SIGN is a uniform feeding protocol, which highlights the safety of infant, whilst promoting responsive feeding.

Methods:

This QIP relies strongly on inter-team communication, education, knowledge sharing and diligent observation in understanding the cue-based feeding. The careful identification of feeding cues and distress signs is the cornerstone of this project. The fishbone and force field analysis were conducted. Multiple PDSA cycles were outlined to achieve the goal. “SIGN” is an algorithm-based feeding advancement tool, which objectively defines the volume of infant driven feeding. The tool helps in maintaining consistency and uniformity amongst the nurses and caregivers.

Results:

The first six months since implementation of this idea has shown significant increase in rate of breast and bottle feeding and decrease in duration of hospital stay, in an average of one week less.

Conclusions:

Cue based feeding is emerging as one of the promising evidence informed practices in recent times. Eating in SIGN is the simplest way for preemies to learn a more complex task of nipple feeding.

EP010 / #144

E-Poster Topic: *AS01. Neonatal & Prematurity*

IMPACT OF DIFFERENT THERAPY PROTOCOLS IN PRETERM INFANTS WITH INTESTINAL HYPOMOTILITY

Vesna Hajdarpasic[1], Vesna Marinkovic[1], Marija Lukac[2]
[1]Institute for Neonatology, Nicu, Belgrade, Serbia, [2]University Children's Hospital, Pediatric Surgery, Belgrade, Serbia

Background and Aims:

Intestinal hypomotility delays achievement of full enteral feeds and normalization of stooling patterns in preemies. We hypothesized that introduction of prokinetic drug in addition to enemas would improve intestinal motility. Primary outcome: time needed to achieve full enteral feeds and normal stooling pattern. Secondary outcome: introduction of minimal enteral feeding (day), necrotizing enterocolitis incidence, lenght of hospitalization.

Methods:

Retrospective study was conducted in level III NICU. Total of 127 premature infants less than 32 weeks of gestation were included in the analysis, and were allocated to 3 groups. Group 1: 33 infants treated with saline enemas twice dail until normal stooling pattern was achieved. Group 2: 34 infants treated with erythromycin for 7 days and saline enmeas twice daily. Group 3: 60 infants treated with enemas only in presence of metheorismus or absence of stool for 48 hours.

Results:

There was no significant difference in number of days needed to reach full enteral feeds: 25 vs 26 days and normal stooling pattern: 18 vs 15 days when group 1 and 2 were compared. Yet time needed to achieve full enteral feeds and normal stooling pattern were significantly shorter when compared to group 3. No difference in secondary outcomes were registered.

Conclusions:

Erytrhromycin did not improve the patient outcome, although regular enemas appear to be effective, safe and cheap procedure in treatment of intestinal hypomotility in preterm infants

EP011 / #368

E-Poster Topic: *AS01. Neonatal & Prematurity*

MATERNAL DIETARY TOCOPHEROL INTAKE DURING PREGNANCY AND RELATIONSHIPS WITH NEONATAL GROWTH AND RESPIRATORY OUTCOMES

Madison Han[1], Kara Bown[1], Braden Fink[1], Rose Mccoy[1], Denise Torres[1], Annie Nguyen[1], Dannielle Schutz[1], Theresa Trautman[1], Matthew Vanormer[1], Rebecca Slotkowski[1], Anum Akbar[1], Taija Hahka[1], Corrine Hanson[2], Melissa Thoene[1], Ann Anderson-Berry[1]
[1]University of Nebraska Medical Center, Pediatrics, Omaha, United States of America, [2]University of Nebraska Medical Center, College Of Allied Health Professions, Omaha, United States of America

Background and Aims:

Vitamin E is a lipid-soluble nutrient with potent antioxidant capacity. Inflammatory states during pregnancy are thought to influence fetal growth and outcomes including fetal lung development. Therefore, tocopherol isoforms may play an important role in appropriate fetal respiratory development as a result of their antioxidant capacity. The purpose of this study was to evaluate the relationship between maternal dietary tocopherol intake and neonatal growth and respiratory outcomes.

Methods:

An IRB-approved study enrolled 492 mother-infant pairs at delivery. The Willet Food Frequency Questionnaire was administered to assess maternal dietary tocopherol intake during pregnancy. A Mann-Whitney U test compared median intake between neonatal outcome groups. Spearman correlations related maternal dietary tocopherol intake with infant birth measurements and continuous respiratory outcomes. A p-value <0.05 was considered statistically significant.

Results:

Median daily intake (mg) of α-tocopherol with and without supplementation were 17.2 and 10.1, respectively. Median daily intake (mg) of γ-tocopherol and total tocopherols were 8.6 and 24.7, respectively. Mothers of infants intubated upon admission vs those with non-intubated infants had significantly lower dietary intake of α-tocopherol including supplementation (15.41 vs 18.97, $p = 0.042$), and without supplementation (7.24 vs 9.88, $p = 0.009$). Maternal dietary α-tocopherol without supplementation negatively correlated with ventilation days ($R = -0.120$, $p = 0.009$).

Conclusions:

This study suggests maternal dietary tocopherol intake is associated with neonatal birth measurements and respiratory outcomes. Further research should explore a larger sample for

analysis of maternal dietary tocopherol intake and vitamin supplementation throughout pregnancy to understand their relationship with inflammatory states and neonatal outcomes.

EP012 / #234

E-Poster Topic: *AS01. Neonatal & Prematurity*

TRIGLYCERIDE LEVELS IN NEWBORNS TREATED WITH INTRAVENOUS LIPID EMULSION: COMPARING SMALL FOR GESTATIONAL AGE WITH APPROPRIATE/LARGE FOR GESTATIONAL AGE INFANTS

Lilach Hofi, Sharon Sara Kahanovich, Calanit Hershkovich–Shporen
Kaplan Medical Center, Nicu, Rehovot, Israel

Background and Aims:

Newborns in the neonatal intensive care unit often need parenteral nutrition, which includes administration of intravenous lipids emulsion (ILE). Small for gestational age (SGA) infants are at risk of developing hypertriglyceridemia during intravenous lipids administration.

Our aim was to examine the triglyceride (TG) levels in SGA infants who received ILE compared to non-SGA infants.

Methods:

A single-center descriptive retrospective cohort study based on medical records of preterm and term SGA infants born between the years 2015 and 2019. We included 165 infants who recived ILE, 56 in the SGA infants group and 109 in the non-SGA infants group. TG levels were taken at two time points: 24 hours after birth and at 30-60 days old. Demographic data, morbidity, type (SMOF lipids/ClinOleic) and duration of ILE treatment were collected.

Results:

Significant differences were found between the two groups in TG levels 24 hours after birth regardless of the ILE type (144 mg/dl (46-337mg/dl) in the SGA group vs. 85 mg/dl (31-301 mg/dl) in the non-SGA group, p=<0.001).

At 30-60 days old, significant differences remained (106 mg/dl (63-254 mg/dl) in the SGA group vs. 70 mg/dl (31-193 mg/dl) in the non-SGA group, p=0.005).

A significantly higher morbidity was found among non-SGA newborns for respiratory distress syndrome, bronchopulmonary dysplasia, and patent ductus arteriosus (p=<0.05).

A correlation was found between high TG levels at 24 hours after birth and intraventricular hemorrhage.

Conclusions:

A closer biochemical monitoring in SGA infants receiving ILE and a dedicated parenteral nutirition protocol with adjustments of the amount and rate of ILE is warranted.

EP013 / #427

E-Poster Topic: *AS01. Neonatal & Prematurity*

COMBINATION OF PARENTERAL AND ENTERAL NUTRITION IN NEONATES WITH POST-SURGICAL CONGENITAL HEART DISEASE.

Alfred Ibrahimi[1], Saimir Kuci[1], Marsela Goga[1], Altin Veshti[2]
[1]University Hospital Center Mother Teresa, Anesthesiology Intensive Care, Tirana, Albania, [2]University Hospital Center Mother Teresa, Cardiac Surgery Deparment, Tirana, Albania

Background and Aims:

Congenitally heart disease is associated with malnutrition in neonates. Malnutrition affects morbidity and mortality in postsurgical patients. Early initiation of feeding prevents proteolysis. The superiority of enteral vs parenteral feeding is well known. But in cases where enteral feeding is insufficient parenteral nutrition is necessary. We present our experience in our institution

Methods:

30 children weighing under 6 kg were divided into two groups. The first one, feeding started 12 hours after surgery, a combination with parenteral (amino acids 5% with dosage 1g/kg/day) and enteral nutrition 10 ml/kg/day breast milk, or infant formula. In the secong group, the enteral feeding was started after 48 hours of 30 ml/kg/day. Both groups received postoperatively standard iv rehydration with glucose 5% and sodium chloride 0,9%.

Results:

There was no complication (allergic reaction, diarrhea vomiting,) in the first group. There was no statistical difference in mechanical ventilatory assistance in both groups, 48.2 ± 6.7 h vs 52±5,8 hours, but the difference was in hospital stay 12 ± 3. vs 15±4 days.

Conclusions:

Neonates and Infants tolerate feeds (enteral and parenteral) immediately following congenital heart repairs. There was no difference in mechanical ventilation, and the ICU stay, but significant difference in hospital stay. We strongly recommend early parenteral and enteral feeding after cardiac surgery.

EP014 / #255

E-Poster Topic: *AS01. Neonatal & Prematurity*

DESATURASE ENZYME ACTIVITY IN PRETERM INFANTS IS DIFFERENT TO TERM INFANTS.

Hanis Hidayu Binti Kasim[1], Laurentya Olga[1], Stuart Snowden[2], Eliza Cropp[1], Albert Koulman[2], Kathryn Beardsall[1,3]
[1]University of Cambridge, Department Of Paediatrics, CAMBRIDGE, United Kingdom, [2]University of Cambridge, Medical Research Council Human Nutrition Research Cambridge, Cambridge, United Kingdom, [3]University of Cambridge Addenbrookes Hospitals NHS Foundation Trust, Neonatal Unit, Cambridge, United Kingdom

Background and Aims:

Desaturase and elongase enzymes catalyse the endogenous biosynthesis of long-chain polyunsaturated fatty acids (LCPUFAs) from lipid precursors in the diet. LCPUFAs are critical for healthy growth and development, and desaturase enzyme activity (DA) may be a rate-limiting step in maintaining levels of LCPUFAs in early life. This study aims to observe DA in early life in preterm infants compared to term controls in relation to gestational and postnatal age.

Methods:

Lipidomic analyses were conducted using blood samples from two established UK-based cohorts involving preterm (n=78) and term (n=119) infants. DA of the two groups of infants were calculated as product/precursor ratios and reported according to their postmenstrual and postnatal ages.

Results:

There were significant changes in DA in preterm infants in the first weeks of life, with increasing activity of fatty acid desaturase (FADS2) triglyceride but a reducing activity of stearoyl-COA desaturase (SCD1) and FADS2 phosphatidylcholine. In comparison to term infants, preterm have lower FADS1 ($p<0.001$) but higher FADS2 ($p<0.001$) at all postnatal ages. After establishing feeding, preterm infants had higher SCD1 compared to term infants at all ages. Trajectories of DA in preterm infants showed a similar trend as for term infants.

Conclusions:

DA in preterm term infants differs from term infants in the first ten weeks of life and may impact the production of LCPUFAs. Whether these differences persist into later life and whether this is due to different nutritional exposures or maturity warrants further investigation.

EP015 / #312

E-Poster Topic: *AS01. Neonatal & Prematurity*

POSITIVE IMPACT ON BREAST FEEDING WITH EARLY ADMINISTRATION OF BUCCAL COLOSTRUM

Babu Paturi, Kanwal Malik, Maura Daly, Deidre Bradley, Stephane Maingard
OLOL Hospital, Paediatrics, Drogheda, Ireland

Background and Aims:

Background: Early provision of colostrum to newborn as a part of oral cares to maintain hygein, positive oral coordination skill development and sense of taste and smell. This colostrum provision from mothers to their baby or babies is the first step of breast feeding which can be a positive step in continuing breast feeding their new born babies. Especially when colostrum or breast milk used in a neonate as early as possible to a neonate will be in advantageous condition through its constituents. Advantages : • Gut development • Boosting immune system • Barrier to infection • Assists with breastfeeding- short and long term gains AIM:

'To Find provision of buccal colostrum from mothers to new born babies has positive impact in continuation of breast feeding'

Methods:

Education provided to all mothers about buccal colostrum through video, poster, leaflets, data collected through feed back questionair from parents. Outcome measures through Safety cross-Daily compliance and PDSA (Plan- D0 - Study- Act). Out come of breast feeding rates were compared with pre and post introduction of provision of buccal colostrum.

Results:

Results:

Babies receiving buccal colostrum: Post-project with increased rates of combined breastfeeding on discharge (44% to 100%). No change in rate of exclusive breastfeeding was observed. Parental and staff feedback are positive.

Conclusions:

over all positive impact on breast feeding rates with possibility of continuing breast feeding post discharge is an ecouraging initial step by provision of buccal colostrum from mothers. Our future goal is to develop pathways to provide family centered care.

EP016 / #117

E-Poster Topic: *AS01. Neonatal & Prematurity*

LONGITUDINAL ANALYSIS OF CAROTENOID CONTENT IN PRETERM HUMAN MILK

Laurence Mangel[1], Adi Uretzky[2], Dror Mandel[1], Anat Schwartz[2], Kira Kaganov[2], Adi Balter[3], Yatreb Odetallh[3], Ronit Lubetzky[2]
[1]Dana Dwek Children's Hospital, Tel Aviv Medical Center, Neonatology, Tel Aviv, Israel, [2]Dana Dwek Children's Hospital, Tel Aviv Medical Center, Pediatrics, Tel Aviv, Israel, [3]IFF Health, Infant Nutrition R&d, Migdal HaEmeq, Israel

Background and Aims:

Accumulating evidence has shown that carotenoids are important for visual and cognitive development in infants. Carotenoids cannot be synthesized by humans and must be supplied by human milk (HM) to the infant. We aimed to evaluate the carotenoid content in preterm HM between week 1 and 6 post-partum.

Methods:

Healthy exclusively lactating mothers of preterm infants born at gestational age 24+2 to 29+6 weeks or with birth-weight under 1500 grams were recruited along with their infants. Each participant provided up to 7 HM samples (2-10 ml) at day 0-3 and once a week until 6 weeks and a blood sample was collected from the infant at week 6 when available. HM concentrations of the major carotenoids, lutein, zeaxanthin, beta-carotene and lycopene, were assessed and compared with those in infant blood.

Results:

Thirty-nine mother-infant dyads were included and 184 HM samples and 22 plasma samples were collected. Lutein, zeaxanthin, beta-carotene and lycopene concentrations decreased as lactation progressed, being at their highest in colostrum. HM displayed a great variability in its carotenoid content and distribution between mothers throughout lactation. Lycopene (41%) and beta-carotene (36%) were the predominant carotenoids in colostrum and up to 2 weeks post-delivery. Inversely, lutein and zeaxanthin increased with lactation to account for 45% of the carotenoids in mature HM. Lutein accounted for 61% of the carotenoids in infant plasma and for only 30% in HM.

Conclusions:

Carotenoid content of preterm HM is dynamic and varies between mothers and as lactation progresses. Infant plasma displayed a distinct distribution of carotenoid from HM.

EP017 / #126

E-Poster Topic: *AS01. Neonatal & Prematurity*

IMPACT OF FREEZING AND PASTEURISATION ON ANTIOXIDATIVE ENZYMES IN MILK OF PRETERM INFANTS' MOTHERS

Vesna Marinkovic[1], Nikoleta Lugonja[2], Milos Jesic[3], Vesna Hajdarpasic[1], Gordana Sekulovic[1]
[1]Institute of neonatology, Institute Of Neonatology, Belgrade, Serbia, [2]University of Belgrade, Institut for chemistry, technology and metallurgy, Center For Chemistry, Belgrade, Belgrade, Serbia, [3]Medical faculty, University of Belgrade, University Children's Hospital, Belgrade, Serbia

Background and Aims:

Human milk (HM) feeding has an important role in prevention of oxydative stress in preterm infants. Human milk is a complex biological fluid with an antioxidative function. Antioxidative enzymes present in HM are superoxid dismutase (SOD), glutatione peroxidase (GSH-Px) and glutatione reductase (GR).

Evaluation of antioxidative enzymes (SOD, GSH-Px, GR) in HM after heat treatment, ie pasteurisation of donor HM previously freezed for 7 days in HM bank, using spectrophotometric methods.

Methods:

Cohort study enrolled 30 mothers of preterm neonates (birth before 37 weeks of gestational age) that established lactation. Antioxidative activity of enzymes in milk samples before and after the heat treatment was measured with spectrophotometric methods. Study protocol was approved by Ethical Comittee of Institute for neonatology, all mothers gave their written consent prior to participation.

Study was supported by Ministry of education, science and tehchnological development, Serbia.

Results:

SOD, GSH-Px and GR acitivity was significantly higher in fresh mature milk samples compared to mature, frozen for seven days and then pasteurised, milk of mothers of preterm infants ($p<0,001$).

Conclusions:

Process of heat treatment and/or storage of mature milk of mothers of preterm infants reduce enzyme acitivity of HM, thereby decreasing total antioxidative capacity. This implies that it would be optimal to feed the preterm infants with fresh fortified HM whenever possible.

EP018 / #454

E-Poster Topic: *AS01. Neonatal & Prematurity*

EFFECTS OF POST-DISCHARGE FORMULA ON GROWTH AND BODY COMPOSITION AT 24 MONTHS CORRECTED AGE IN MODERATE-TO-LATE PRETERM INFANTS: FOLLOW-UP OF A RANDOMIZED CONTROLLED TRIAL

Jacqueline Muts[1], Charlotte A Ruys[1,2], Martijn J.J. Finken[1,3], Joost Rotteveel[3], Johannes B Van Goudoever[4], Chris H.P. Van Den Akker[1,2], Monique Van De Lagemaat[1,2]
[1]Amsterdam UMC, Amsterdam Reproduction And Development (ar&d) Research Institute, Amsterdam, Netherlands, [2]Amsterdam UMC, Neonatology, Amsterdam, Netherlands, [3]Amsterdam UMC, Pediatric Endocrinology, Amsterdam, Netherlands, [4]Amsterdam University Medical Center, Emma Children's Hospital, Amsterdam, Netherlands

Background and Aims:

Moderate-to-late preterm (MLP) infants (i.e. gestational age 32-36 weeks) are at risk for suboptimal neonatal nutrition and growth, with potential risks for developing overweight, diabetes, and cardiovascular disease. We compared weight and body composition at 24 months corrected age (CA) in MLP infants fed either standard term formula (STF), isocaloric but protein- and mineral-enriched post-discharge formula (PDF), or human milk (HM) between term equivalent age (TEA) and 6 months CA.

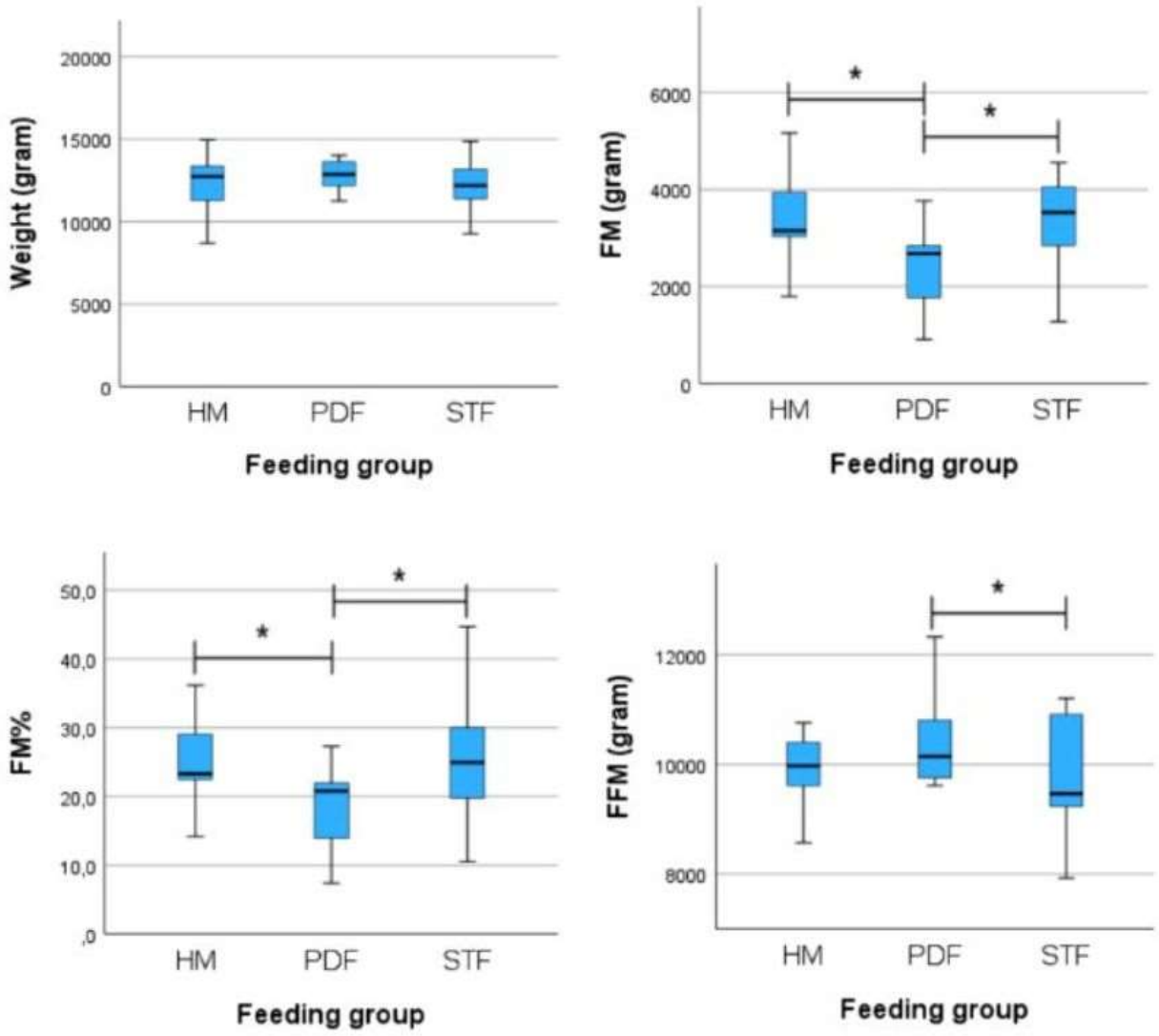
Methods:

Included MLP infants, who were exclusively formula-fed (PDF from birth/inclusion onwards) were at TEA randomly assigned to continue PDF until 6 months CA or receive STF; unfortified HM-fed infants were a reference group. At 24 months CA, air-displacement plethysmography was used to estimate fat mass (FM) and fat-free mass (FFM).

Results:

From the original study (n=157), only 34 infants (22%) underwent air-displacement plethysmography at 24 months CA follow-up, mainly due to COVID-19 restrictions. Birthweights of PDF-fed infants were similar as STF-fed but lower than HM-fed infants (2090±323 (n=11), 2358±337 (n=10), 2379±297 (n=13) g, respectively; PDF vs HM $p<0.05$).

Total body weights were similar in all three feeding groups at follow-up, although PDF-fed infants had lower FM but higher FFM (see figure; *$p<0.05$).



Conclusions:

MLP infants fed PDF for 6 months after TEA had similar weights but more favorable body composition at 24 months CA compared to infants fed STF. Our findings should be interpreted cautiously, due to the losses-to-follow-up.

EP019 / #309

E-Poster Topic: *AS01. Neonatal & Prematurity*

EVALUATION OF IODINE NUTRITIONAL STATUS DURING PREGNANCY IN NORTHERN ALGERIA

Samira Oudahmane Akdader[1], Assia Kamel[2], Zohra Hamouli-Said[2], Michael Bruce Zimmermann[3], Djamila Meskine[4]
[1]USTHB, Biology, ALGIERS, Algeria, [2]USTHB, Biology, Algiers, Algeria, [3]ETH, Nutrition, Zurich, Switzerland, [4]Hospital IBN ZIRI, Endocrinology And Metabolisme, Algiers, Algeria

Background and Aims:

Iodine is a trace element whose adequate intakes are essential during pregnancy to promote the correct growth and development of the fetus. Iodine deficiency is the cause of several disorders in foetal development and SCH is associated with an increased risk of miscarriage or premature birth. The aim of this study was to assess the iodine status and thyroid function of pregnant women in northern Algeria.

Methods:

Healthy PW (n=173) were recruited from Gynecology-obstetrics service and were divided into three groups. Spot urine and venous blood samples were collected to assess iodine status (urinary iodine concentration, UIC) and serum thyroid hormones (TSH, FT4) and anti-thyroid peroxidase antibodies (TPO-Ab) concentrations.

Results:

The median UIC for the PW in Algiers were 233 µg/L, 246.74 µg/L, 244.68 µg/L in the first, second and third trimester respectively. Median TSH and FT4 concentrations were within reference ranges during pregnancy. Among PW, 72.7%, 75.4% and 75.5% in the first, second and third trimester were TPO-Ab+. Among TPO-Ab+ PW in the first, second and third trimesters, 18.7%, 13% and 10.3% had subclinical hypothyroidism.

Conclusions:

In northern Algeria, median UICs in PW indicate iodine sufficiency. About 75% of PW are TPO-Ab + and the frequency of undiagnosed SCH in pregnant women was the prevalence high. Monitoring and surveillance of iodine fortification programs is vital to avoid both iodine deficiency and excess and raises an alarm of the potential risks of untreated thyroid disorder with an urgent need for a comprehensive national iodine status survey including other vulnerable population groups in Algeria.

EP020 / #253

E-Poster Topic: *AS01. Neonatal & Prematurity*

A-TOCOPHEROL CONCENTRATION IN BREAST MILK OF LOW-INCOME WOMEN: A PILOT STUDY

Karla Danielly Ribeiro[1], Lara Virginia Pessoa De Lima[1], Renata Ramos De Barros Cavalcanti[2], Priscila Gomes De Oliveira[1], Juliana Morais De Sousa[1], Lígia Rejane Siqueira Garcia[3], Danielle Bezerra[3], Heryka Ramalho[4], Illana Melo[5]
[1]Federal University of Rio Grande do Norte, Pos-graduate Program In Nutrition, Natal, Brazil, [2]Federal University of Rio Grande do Norte, Departament Of Nutrition, Natal, Brazil, [3]Federal University of Rio Grande do Norte, Health Sciences College Of Trairi, Santa Cruz, Brazil, [4]Potiguar University, Post-graduate Program In Biotechnology, Natal, Brazil, [5]Maurício de Nassau Faculty, Gastronomy, Natal, Brazil

Background and Aims:

Vitamin E deficiency in early childhood is associated with clinical conditions such as bronchopulmonary dysplasia and delays in the development of the central nervous system, which draws attention to the importance of a adequate maternal nutritional status that guarantees intake of vitamin E via breast milk. Thus, this study aimed to assess the concentration of α-tocopherol in breast milk and estimate the likely supply of the vitamin to the infant.

Methods:

A pilot, cross-sectional study carried out with 30 low-income lactating women, assisted by the public health of Natal, Brazil, with 60 days postpartum. For analysis of the α-tocopherol level, breast milk was obtained by manual expression of a single breast not previously sucked, being collected at the beginning and end of breastfeeding (represented by the child's final breastfeeding time), in a total of 5 mL. The α-tocopherol in milk was determined by High Pressure of Liquid Chromatography. Breast milk vitamin E (BMVE) adequacy was based on the quantity of the vitamin in the estimated intake volume (≥ 4 mg/780 mL).

Results:

The concentration of α-tocopherol present in breast milk was 259.53 (129.80) μg/dL and 80% showed probable inadequacy of vitamin E in milk (< 4 mg/780mL).

Conclusions:

These preliminary data point to a probable inadequacy of vitamin E in the analyzed milk, suggesting the importance of promoting vitamin E access to low-income lactating women.

EP021 / #181

E-Poster Topic: *AS01. Neonatal & Prematurity*

ASSOCIATION OF MUSIC THERAPY WITH WEIGHT GAIN OF PRETERM INFANTS - A SECONDARY ANALYSIS OF THE LONGSTEP RANDOMIZED CONTROLLED TRIAL.

Shachar Shalit[1,2], Shmuel Arnon[2,3], Dana Yakobson[2,4], Claire Ghetti[5], Christian Gold[5,6], Andreas Størksen Stordal[6]
[1]Meir medical center, Clinical Nutrition Unit, Kfar Sava, Israel, [2]Meir medical center, Department Of Neonatology, Kfar Sava, Israel, [3]Tel Aviv university, Sackler Faculty Of Medicine, Tel Aviv, Israel, [4]Aalborg University, Music Therapy Department, Aalborg, Denmark, [5]University of Bergen, Gamut - The Grieg Academy Music Therapy Research Center, Bergen, Norway, [6]University of Bergen, Norce Norwegian Research Centre As, Bergen, Norway

Background and Aims:

Growth is an important goal of neonatal care. It is influenced by a variety of factors and many preterm infants experience extra uterine growth restriction (EUGR). Music therapy (MT) was reported as having a favorable effect on growth in this population. Our aim was to assess the association of music therapy with weight gain parameters in data from the LongSTEP randomized controlled trial (Longitudinal Study of music Therapy's Effectiveness for Premature infants and their caregivers).

Methods:

From August 2018 to April 2020, 213 families of preterm infants (< 35 weeks gestation at birth) from 7 level III neonatal intensive care units (NICUs) and 1 level IV NICU in 5 countries were randomized to MT or standard care. Infants' weight was recorded at birth, study enrollment, and discharge. We calculated and converted weight percentiles to Z scores using the Fenton growth curves. Changes in Z score during the study period were calculated to assess the influence of MT vs. standard care.

Results:

No differences in weight Z score changes were identified between the groups ($p=0.23$). Low gestational age ($p=0.005$) and the presence of neurological morbidities ($p=0.047$) were associated with greater decrease in weight Z score representing worse growth.

Conclusions:

Music therapy intervention for preterm infants during their stay in the NICU was not associated with greater weight gain. As the LongSTEP multicenter randomized study was not powered to detect weight gain changes, further studies are needed to assess the association of MT with weight gain of preterm infants.

EP022 / #101

E-Poster Topic: *AS01. Neonatal & Prematurity*

EFFECT OF A MULTI-STRAIN PROBIOTIC ON THE INCIDENCE AND SEVERITY OF NECROTIZING ENTEROCOLITIS AND FEEDING INTOLERANCES IN PRETERM NEONATES

Marwyn Sowden[1], Mirjam Maria Van Weissenbruch[2], Andre Nyandwe Hamama Bulabula[3], Lizelle Van Wyk[4], Jos Twisk[5], Evette Van Niekerk[1]
[1]Stellenbosch University, Human Nutrition, Cape Town, South Africa, [2]Vrije University Amsterdam, Pediatrics-neonatology, Amsterdam, Netherlands, [3]ICAN, Ican, Cape Town, South Africa, [4]Stellenbosch University, Pediatrics And Child Health, Cape Town, South Africa, [5]Amsterdam UMC, Epidemiology And Data Science, Amsterdam, Netherlands

Background and Aims:

Necrotizing enterocolitis (NEC) is a multifactorial disease, causing inflammation of the bowel. The reported global incidence of NEC in premature neonates with a gestational age below 32 weeks is 2–7.6%. The exact root of NEC is still unknown, but a low birth weight and gestational age are known causes. Furthermore, antibiotic use and abnormal bacterial colonization of the premature gut are possible causes. Premature neonates often experience feeding intolerances that disrupts the nutritional intake, leading to poor growth and neurodevelopmental impairment. The aim of the study was to investigate the effect of a multi-strain probiotic formulation (Labinic^{TM}) on the incidence and severity of NEC and feeding intolerances in preterm neonates.

Methods:

We conducted a double-blind, placebo-controlled, randomized clinical trial in Cape Town, South Africa. Preterm neonates with a birth weight between 750–1500 g and <37 weeks gestation was enrolled. The standard dose of 0.2ml probiotic or placebo was administered once daily for 28 days. Daily medical and laboratory notes was documented.

Results:

None of the neonates in the probiotic group developed NEC during the 28-day study period. In contrast, five neonates in the placebo group developed NEC: stage 1A: two neonates; stage 1B, stage 2A and stage 3B: one neonate each. One neonate in the placebo group passed away due to stage 3B NEC with multi-organ failure.. Further, the use of probiotics showed a statistically significant reduction in the development of feeding intolerances, $p < 0.001$.

Conclusions:

A multi-strain probiotic is a safe and cost-effective way of preventing NEC and feeding intolerances in premature neonates.

EP023 / #185

E-Poster Topic: *AS01. Neonatal & Prematurity*

ASSOCIATIONS BETWEEN MATERNAL HEALTHY LIFESTYLE FACTORS DURING EARLY PREGNANCY AND PLACENTAL OUTCOMES: A QUANTILE REGRESSION ANALYSIS

Shevaun Teo, Celine M. Murrin, John Mehegan, Alexander Douglass, Ricardo P. Seguardo, Cecily C. Kelleher, Catherine M. Phillips
University College Dublin, School Of Public Health, Physiotherapy And Sports Science, Dublin, Ireland

Background and Aims:

The influence of maternal lifestyle behaviours on placental growth have been individually investigated, but with conflicting results, and their combined effect is under-researched.

Methods:

This analysis of the Lifeways Cross-Generational Cohort includes 202 mother-child pairs. A composite healthy lifestyle score (HLS) based on a less inflammatory diet (top 40% of the energy-adjusted Dietary Inflammatory Index (E-DII)), moderate-to-vigorous physical activity (MVPA), healthy pre-pregnancy BMI (18.5–24.9 kg/m^2), never smoker, and no/moderate alcohol intake was calculated.

Associations of maternal HLS and its individual components with measures of placental development (untrimmed placental weight (PW)) and function (birth weight:placental weight (BW:PW) ratio) were analysed by quantile regression at the 10^{th}, 25^{th}, 50^{th}, 75^{th} and 90^{th} centiles, with adjustment for potential confounders.

Results:

No associations were found between the composite HLS and placental outcomes. However, individually, a more pro-inflammatory diet was positively, and smoking and non-moderate alcohol consumption were negatively, associated with PW at the median centiles (B: 41.97g, CI: 3.71, 80.22, $p<0.05$; B: -58.51g, CI: -116.24, -0.77, $p<0.05$; B: -120.20g, CI: -177.97, -62.43, $p<0.05$ respectively). Inverse associations between low MVPA and BW:PW ratio were observed at the 10^{th} and 90^{th} centiles (B: -0.36, CI: -0.132, -0.29, $p<0.01$ and B: -0.45, CI: -0.728, -0.182, $p<0.01$, respectively). Non-moderate alcohol intake was positively associated with BW:PW ratio at the 10^{th} centile (B: 0.54, CI: 0.24, 0.85, $p<0.01$).

Conclusions:

Results suggest associations of certain lifestyle factors, but not the composite HLS, during early pregnancy with placental development and function, which varied by quantiles.

EP024 / #216

E-Poster Topic: *AS01. Neonatal & Prematurity*

ASSOCIATION BETWEEN HOUR OF LIFE ENTERAL FEEDING IS INITIATED AND CLINICAL RESPIRATORY OUTCOMES IN EXTREMELY LOW BIRTH WEIGHT INFANTS

Melissa Thoene[1], Lauren Ridgway[1], Elizabeth Lyden[2], Ann Anderson-Berry[1]
[1]University of Nebraska Medical Center, Pediatrics, Omaha, United States of America, [2]University of Nebraska Medical Center, College Of Public Health, Omaha, United States of America

Background and Aims:

As delayed enteral feeding (days) is associated with morbidity, aim of this study is to evaluate hour of life enteral feeding is initiated and association with respiratory outcomes.

Methods:

IRB-approved, retrospective review evaluated surviving infants <1000 grams in Level III intensive care unit (Nebraska, USA). CRIB II scores evaluated birth acuity and bronchopulmonary dysplasia (BPD) at 36 weeks was defined per NICHD criteria. P<0.05 = significant.

Results:

Hour of enteral feeding initiation correlated with days on vent (r=0.54, p=0.003), receiving >21% oxygen (r=0.62, p=<0.001). Adjusting for CRIB II scores, respiratory outcomes and incidence of BPD approached significance with hour of enteral feeding.

Table 1: Birth and Respiratory Outcomes in Infants <1000 Grams in Association with Timing of Enteral Feeding Initiation

	Enteral Feeding Initiation (n=37)			P-Value	*P-Value
median	<12 hours (n=17)	12-24 hours (n=16)	>24 hours (n=4)	Trend across groups	
Birth Age (weeks)	27.9	26.0	25.5	0.140	
Birth Weight (grams)	823	780	525	0.111	
CRIB II Score	10.0	13.0	14.5	0.039	
Hour of Life Enteral	8.6	16.3	43.0	<0.001	

Feeding Initiated					
Oxygen at 28 Days	11 (64.7%)	16 (100%)	4 (100%)	0.023	0.089
Days on >21% Oxygen	42	80	131	0.001	0.088
Days on Vent	8	35	52	0.030	0.588
BPD Severe	11 (64.7%) 2 (11.8%)	16 (100%) 9 (56.3%)	4 (100%) 4 (100%)	0.002	0.089
*log-transformed hour of enteral feeding introduction after adjustment for CRIB II scores					

Conclusions:

Despite no statistical significance between timing of enteral feeding introduction and respiratory outcomes after adjustment for acuity, future research should evaluate the clinical significance of these findings.

EP025 / #217

E-Poster Topic: *AS01. Neonatal & Prematurity*

BIRTH CHARACTERISTICS AND DISCHARGE OUTCOMES IN EXTREMELY LOW BIRTH WEIGHT INFANTS BASED ON TIMING OF ENTERAL FEEDING INTRODUCTION

Melissa Thoene[1], Lauren Ridgway[1], Elizabeth Lyden[2], Ann Anderson-Berry[1]
[1]University of Nebraska Medical Center, Pediatrics, Omaha, United States of America, [2]University of Nebraska Medical Center, College Of Public Health, Omaha, United States of America

Background and Aims:

Enteral feeding is modifiable for extremely low birth weight (ELBW) infants, yet introduction may be delayed. Therefore, aim of this study is to evaluate hour of life enteral feeding is initiated and association with birth characteristics/discharge outcomes.

Methods:

IRB-approved, retrospective review evaluated surviving infants <1000 grams in Level III intensive care unit (Nebraska, USA). CRIB II scores evaluated birth acuity. $P<0.05$ = significant.

Results:

Infants with earlier enteral feeding initiation had lower CRIB II scores. Adjusting for CRIB II scores, log-transformed hour of enteral feeding introduction approached significance with time to full enteral feeding (p=0.097) and linear z-score change (p=0.088).

Table 1: Birth Characteristics/Discharge Outcomes in Infants <1000 Grams in Association with Timing of Enteral Feeding Initiation

	Enteral Feeding Initiation (n=37)			P-Value
median	<12 hours (n=17)	12-24 hours (n=16)	>24 hours (n=4)	Trend across groups
CRIB II Score	11.0	13.5	14.5	0.039
Birth Age (weeks)	27.9	26.0	25.5	0.140
Birth Weight (grams)	823	780	525	0.111
Discharge Age (weeks)	40.0	44.4	47.3	0.006
Hour of Enteral Feeding Initiation	8.6	16.3	43.0	<0.001
Day to >145 mL/kg/day Enteral Feeding	9	12	22	0.352
*Weight z-score Δ	-0.6	-0.5	0.0	0.195
*Length z-score Δ	-0.5	-1.1	-1.6	0.097

*Head Circumference z-score Δ	0.3	-0.2	-2.0	0.388
*Growth grams/day	24.6	24.8	23.6	0.805
*Growth grams/kg/day	14.4	13.2	13.3	0.110
*birth to hospital discharge, 2013 Fenton growth curve				

Conclusions:

Birth acuity may impact enteral feeding initiation, however timing may be clinically associated with discharge outcomes. Therefore, continued research is necessary to evaluate the impact of this modifiable therapy.

EP026 / #107

E-Poster Topic: *AS01. Neonatal & Prematurity*

NEURODEVELOPMENTAL OUTCOMES AMONG PRETERM INFANTS FED WITH OWN MOTHER'S BREASTMILK, COMPARISON BETWEEN SINGLETONS AND TWINS

Michal Yackobovitch - Gavan[1], Sharit Atia Shmueli[2], Iris Morag[3]
[1]Schneider children's medical center, Endocrinology And Diabetes, Petach Tikva, Israel, [2]Tel Aviv University, Sackler Faculty Of Medicine, Petach Tikva, Israel, [3]Shamir Medical Center, Department Of Pediatrics, Zerifin, Israel

Background and Aims:

We aimed to examine associations between early exposure to own mother breastmilk (OMB) and neurodevelopmental outcomes among preterm infants. Our secondary objective was to compare this associations between singletons and twins.

Methods:

Retrospective cohort study that included low-risk preterm infants born at <32 weeks gestational age. Nutrition was documented on days 14 and 28of life. The Griffiths-Mental-Development-Scales (GMDS) were administered at 12 months corrected age (CA).

Results:

Preterm infants (n=131) with median gestational age of 30.6 weeks were included; 56 (42.7%) were singletons. On days 14 and 28 of life, 80.9% and 77.1% were exposed to OMB. Exposure rate was comparable, but OMB intake (ml/kg/day) was higher among singletons than twins ($P<0.05$). At both time points, OMB-exposed infants scored higher on personal-social, hearing-language and on total GMDS, than non-exposed. These differences were significant for the entire cohort and for twins ($P<0.05$). OMB intake correlated with total GMDS score for both singletons and twins. Exposure to OMB was associated with an additional 6-7 points of total GMDS score, or 2-3 additional points for every 50 ml/kg/day of OMB.

Conclusions:

The study supports the association between early exposure to OMB among low-risk preterm infants and neurodevelopmental outcomes at 12 months CA. The differential effects of OMB exposure on singletons vs. twins needs further exploration.

EP027 / #382

E-Poster Topic: *AS02. Infancy*

DIETARY DIVERSITY AND ITS ASSOCIATED FACTORS AMONG 6-24 MONTHS CHILDREN IN MALAYSIA

Yasmina Ahmad Uzhir, Zalilah Mohd Shariff, Nurzalinda Zalbahar
Universiti Putra Malaysia, Department Of Nutrition, Serdang, Malaysia

Background and Aims:

Diet diversity is a key indicator of an optimal infant and young child diet. Inappropriate complementary feeding practice increases the risk of undernutrition. As studies on dietary diversity among Malaysian children are limited, this study aimed to assess dietary diversity and determine its associated factors among 6–24-month-old children in Malaysia.

Methods:

A total of 688 children between 6 to 24 months old were conveniently sampled. A semi-structured questionnaire was used to obtain sociodemographic and breastfeeding information. Dietary diversity score (DDS) was calculated from the number of food groups consumed during the previous 24 hours. Data were analyzed using descriptive statistics and multiple logistic regression.

Results:

The mean DDS was 4.93 (SD=1.08) with about 68.8% of children achieving the minimum dietary diversity (MDD). Among the 8 food groups, legumes and nuts (8.7%) and eggs (21.4%) were the least frequently consumed. There was relatively high consumption of other food groups: Breastmilk (62.9%), other fruits and vegetables (64.2%), dairy products (65.1%), vitamin A fruits and vegetables (82.3%) and flesh foods (88.8%). Grains, roots and tubers (99.6%) were the most frequently consumed. Breastfed children (AOR=2.08, 95% CI: 1.39, 3.13), children aged 9-11 months (AOR=2.29, 95% CI: 1.38, 3.80) and 12-24 months (AOR=2.88, 95% CI: 1.88, 4.40) were more likely to achieve MDD.

Conclusions:

About two thirds of infants and young children in this study achieved MDD. Breastfeeding and child's age were significantly associated with MDD. Promoting diversity in complementary diets of young children is crucial for growth and development.

EP028 / #193

E-Poster Topic: *AS02. Infancy*

ENZYMATIC SYNTHESIS OF HUMAN MILK FAT ANALOGUES FOR INFANT FORMULA

Casimir C Akoh
University of Georgia, Food Science & Technology, Athens, United States of America

Background and Aims:

Infants need lipids for energy, proper nutrition, growth, and development. Breast milk is accepted as the best food for infant feeding. Not all mothers pruduce enough breast milk or desire to breastfeed. Infant formula is the next best alternative to breast milk. To mimic the lipid composition of human milk fat (HMF), the industry currently uses physically blended vegetable oils in infant formula fromulations. With new interest in the nutritional needs of the infant, it is possible to target these needs using specific structured lipids (SLs). Our objective was to produce SLs as infant formula fat analogues that mimic breast milk fat, in composition, using specific and non-specific lipases.

Methods:

We used various fats and oils substrates to produce infant formula fats (as SLs) with lipases as the biocatalysts. The SLs were purified and characterized. Puriifed products were used to formulate infant formula with other ingredients.

Results:

The SLs contained functional and physiologically important fatty acids that could support infant nutrition, growth, and development. The SLs have high sn-2 palmitic acid content and comparable fatty acid composition to HMF. Both docosahexaenoic acid (DHA) and arachidonic acid (ARA) in the SLs are known to be important in brain development and cognitive functions of the infant.

Conclusions:

The enzymatically produced HMF analogues could be used in liquid ready-to-eat or powdered infant formula formulations, to enhance the development and growth of infants or as nutritional supplemental lipids for pregnant mothers.

EP029 / #206

E-Poster Topic: *AS02. Infancy*

DIETITIANS IN ISRAEL SUPPORTING BREASTFEEDING

Bar Amrani
Ariel University, Nutrition Science, Rosh Aayin, Israel

Background and Aims:

During the last decade, breastfeeding prevalence in Israel decreased from 55% to 29% according to MABAT Infant Surveys 2012 and 2020 correspondingly.

Dietitians in Israel do not receive any education in breastfeeding, neither during the undergraduate degree nor after receiving their national certification as dietitians.

Aim: Estimate the skills, knowledge and attitudes of dietitians in Israel regarding breastfeeding support.

Methods:

A cross-sectional study was conducted using the IDSB-Q* based on Becker GE, Quinlan G, Ward F, O'Sullivan EJ.(2021)**. IDSB-Q was distributed, and data of 382 participants were collected

1. IDSB-Q translation to Hebrew

2. IDSB-Q design on QUALTRICS

3.IDSB-Q validation

4. IDSB-Q distribution through Israeli Dietitians Association (ATID) ,Israeli Dietitians Facebook group.

5. Ethical approval

6. Data collection and analysis

7. Results

Results:

•Demographic characteristics of dietitians in Israel are shown in Table 1.

•Most dietitians in Israel did not receive training in breastfeeding since they were certified or ever ($p<0.001$). (figure 1)

•74% of dietitians agree that they would benefit from additional training related to breastfeeding.

•Table 2 shows the breastfeeding information sources of the study population.

Conclusions:

·Dietitians in Israel don't receive training regarding breastfeeding.

·Registered dietitian (RDs) are well-suited for lactation consulting and breastfeeding promotion, RDs working with women and children will be more prepared to address breastfeeding women's dietary needs and concerns. RDs can become international board-certified lactation consultants (IBCLC) and become essential resources to improve breastfeeding rates.

·Those who will receive appropriate training will support and promote breastfeeding thus contributing to increasing the prevalence of breastfeeding in Israel.

EP030 / #444

E-Poster Topic: *AS02. Infancy*

FACTORS ASSOCIATED WITH NUTRITIONAL STATUS OF SELENIUM AND ITS REDUCED BIOMARKERS IN INFANCY: A SYSTEMATIC REVIEW

Claudia Bezerra De Almeida, Heitor Pons Leite, Tulio Konstantyner
Federal University of São Paulo, Pediatrics, São Paulo, Brazil

Background and Aims:

Reduction in selenium biomarker levels has been reported in healthy infants. However, it is not well established whether the variability of biomarkers is physiological during the first year of life. This review aims to describe the variability of selenium biomarkers and identify factors associated.

Methods:

Original studies until 2022 that measured biomarkers of selenium more than once in healthy infants were eligible. Rayyan online was used to detect duplicates, to identify and select the eligible studies, and Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) 2020 statement were used to assess and synthesize the selected studies. Sources were Medline database by a high sensibility search in PubMed.

Results:

741 records were identified, and 23 were included in the review. Seventeen studies assessed selenium biomarkers (plasma and erythrocyte selenium and glutathione peroxidase, hair and urine); 11 evaluated biomarkers according to feeding (infant formula or human milk) and 3 assessed the effects of maternal supplementation on breastfeeding infants. Biomarkers of selenium varied depending on maternal ingestion/supplementation of selenium and selenium content in the infant diet. In general, selenium levels of breastfeeding infants was maintained or increased in the first months.

Conclusions:

It is not possible to conclude that there is a physiological reduction in selenium biomarker levels during the first year of life. An abrupt reduction in selenium content in human milk appears to be associated with insufficient maternal selenium intake. Therefore, infant selenium supplementation should be considered in cases in which clinical and dietary assessments suggest selenium deficiency.

EP031 / #419

E-Poster Topic: *AS02. Infancy*

DEVELOPMENT OF INNOVATIVE DIETARY ASSESSMENT AND SUPPORT SYSTEMS FOR PREGNANT OR LACTATING WOMEN, AND THEIR CHILDREN

Elske M. Brouwer-Brolsma
Wageningen University and Research, Division Of Human Nutrition And Health, Wageningen, Netherlands

Background and Aims:

Maternal undernutrition and overnutrition are both unfavourably associated with various neonatal and maternal health outcomes. Despite the importance of a balanced nutrient status to ensure optimal maternal health and foetal development before and during pregnancy as well lactation, nutrient deficiencies among women of childbearing age are common all over the globe. So far, campaigns to promote healthier dietary choices have been of limited success. Thus, there is a need for more individual tailored dietary support instead of 'one-size-fits-all' approaches based on general recommendations. As the unique multidisciplinary Pride & Prejudice consortium, consisting of researchers in nutrition, human-technology interaction, design, and social sciences, we joined forces to develop individually tailored technology-based dietary assessment and support tools focusing on early-life.

Methods:

To optimally leverage the multidisciplinarity of the consortium, we established an overall strategy focusing on four stages of tool development, including exploration, development, evaluation, and implementation.

Results:

We are developing various tools to quantify maternal dietary intake as well as human milk quantity and quality while breastfeeding. Simultaneously, individually tailored dietary support systems for pregnant or lactating women and their children are being developed. The work-flow of several of these prototypes can already be demonstrated.

Conclusions:

By providing better quality data on dietary intake and nutrient status, our tools are expected to 1) advance future etiological research questions on early-life nutrition and maternal and child health, and 2) serve as the backbone of new dietary support tools to stimulate mothers (to be) towards healthy food choices for themselves as well as their children.

EP032 / #542

E-Poster Topic: *AS02. Infancy*

DO HIGHER ENERGY FEED RATIONS FOR SEVERELY MALNOURISHED CHILDREN INCREASE FUTURE RISK OF NON-COMMUNICABLE DISEASE? EVIDENCE FROM A QUASI-RANDOMISED CONTROLLED TRIAL

Sophie Budge[1], Marko Kerac[1], Charles Opondo[1], Moffat Nyirenda[1], Kenneth Maleta[2], Amir Kirolos[3], Natasha Lelijveld[4]
[1]London School of Hygiene & Tropical Medicine, Faculty Of Epidemiology And Population Health, London, United Kingdom, [2]Kamuzu University of Health Sciences, Epidemiology And Public Health, Blantyre, Malawi, [3]University of Liverpool, Institute Of Life Sciences, Liverpool, United Kingdom, [4]Senior Nutritionist, Emergency Nutrition Network, Kiddlington, United Kingdom

Background and Aims:

Severe malnutrition (SM) is of major global concern. Current programmes aim to reduce anthropometric deficits and mortality risk, but with a 'bigger=better' approach using high-energy therapeutic food (TF), there appears an increased risk of later non-communicable disease (NCD). We hypothesise a "Goldilocks" zone of optimal post-malnutrition growth to avoid extremes where: a) Too-slow growth (TF energy amount is too low) might result in poor recovery and/or mortality; or b) Too-rapid growth (TF energy is too high) might have short-term gains but long-term NCD risk. In a novel quasi-RCT study design, we explored the risk associated with higher-energy feeding in SM survivors in a resource-poor setting.

Methods:

Secondary analysis of the Malawi ChroSAM cohort treated for SM in 2006/7, followed up in 2013/4 (N=320). During treatment, children received TF rations by bodyweight range. However, since food came in 250g pots, the target 200kcal/kg/day was not possible: prescriptions were either a half or whole pot/day. This led to quasi-randomisation: a) Children at the lower end of the weight range effectively received more energy/kg/day (>180kcal); b) Children at the higher end received less (~160kcal). Regression analysis will explore whether higher- versus lower-energy-feeds are associated with later NCD risk markers (body fat %, waist-hip ratio, blood pressure, physical capacity, biomarkers).

Results:

Results in early March 2023 will help understand enduring effects of SM on NCD risk.

Conclusions:

Presenting both methods and results will enable analyses of similar data. Findings will inform policy/practice aiming to minimise long-term adverse outcomes and improve quality of life for survivors of SM.

EP033 / #385

E-Poster Topic: *AS02. Infancy*

RRR- A-TOCOPHEROL AND TOTAL A-TOCOPHEROL LEVELS IN HUMAN MILK ARE POSITIVELY ASSOCIATED WITH CHILD NEUROCOGNITIVE DEVELOPMENT AT 30 MONTHS OLD

Jia Pei Chan[1], Mandy Yl Ow[2], Geraldine E. Baggs[3], Yatin Berde[4], Matthew Kuchan[1], Dieu Thi Thu Huynh[2]
[1]Abbott Laboratories, Abbott Nutrition R&d, columbus, United States of America, [2]Abbott laboratories, Abbott Nutrition R&d, Singapore, Singapore, [3]Abbott laboratories, Abbott Nutrition R&d, Columbus, United States of America, [4]Cognizant Technologies Solution Pvt. Ltd., Statistical Services, Mumbai, India

Background and Aims:

Vitamin E is an essential nutrient for brain development, with α-tocopherol being the most biologically active among them. There are eight stereoisomers of α-tocopherol (RRR, RRS, RSR, RSS, and four 2S isoforms), while RRR is the only form found in nature. In this study, we aimed to characterize the profile of α-tocopherol stereoisomers in breast milk at one month postpartum and to correlate levels of these stereoisomers to child neurodevelopment outcomes at 30 months of age.

Methods:

This study utilized milk samples collected at 1 month postpartum from 57 Vietnamese women in the control group of a randomized, controlled trial. Milk α-tocopherol stereoisomer profiles were analyzed by chiral HPLC. Neurodevelopment of children at 30 months was assessed by the Bayley Scales of Infant and Toddler Development (Bayley-III). Multiple linear regression models were performed to assess the relationships between different α-tocopherol stereoisomers and Bayley Scales scores.

Results:

RRR was the predominant α-tocopherol stereoisomer (median=4.36 μM) in breast milk at one month postpartum and made up 81.3% of total α-tocopherol levels (median=5.36 μM). In multiple linear regression analyses of α-tocopherol stereoisomer levels with neurodevelopment at 30 months, RRR (Model 1: p=0.003; Model 2: p=0.027) and total α-tocopherol (Model 1: p=0.004; Model 2: p=0.047) were positively associated with Bayley-III Gross Motor Scale Score in two models. No other stereoisomers had significant associations with any neurodevelopmental scores in both models.

Conclusions:

RRR-α-tocopherol and total α-tocopherol levels in human milk at one month were positively associated with Gross Motor Scaled Score in two statistical regression models

EP034 / #97

E-Poster Topic: *AS02. Infancy*

MATERNITY CARE PRACTICES FOR MOTHERS WITH SARS-COV-2 AND THE FEEDING PRACTICES OF THEIR INFANTS

Jie Chang[1], Eleanor Lin[1], Jacqueline Arroliga[1], Phuong Diem Le[1], Annette Nasr[1], Alex Dahlen[2], Sandra Blackmon[1], Zakiyah Williams[1], Susan Crowe[1]
[1]Lucile Packard Childrens' Hospital Stanford, Maternity, Palo Alto, C, United States of America, [2]Stanford University, Medical School, Palo Alto, C, United States of America

Background and Aims:

Background: During the COVID-19 pandemic, safety concerns surrounding breastfeeding and mother-infant contact were raised. A shared decision-making approach was implemented at a tertiary children's hospital regarding room-in, skin-to-skin (STS) contact and breastfeeding for the maternity population that tested positive for SARS-CoV-2.

Aims: To investigate the safety and outcomes of breastfeeding, and inpatient lactation support for obstetric patients that screened positive for SARS-CoV-2 prior to their deliveries at Stanford Children's Hospital (SCH).

Methods:

Methods: A retrospective study by chart review and follow-up phone surveys. The comparison of breastfeeding, skin-to-skin, lactation consultation, and breast stimulation were conducted between SARS-CoV-2 positive and negative maternity populations.

Results:

Results: Forty-four SARS-CoV-2 positive mothers and their infants qualified for this study, and 90.9% (40/44) of them were able to room-in. The rate of exclusive breastfeeding and skin-to-skin were 40.9% (18/44) and 54.5% (24/44) respectively, both of which were significantly lower than the SARS-CoV-2 negative maternity populations. Only 1/44 infants tested positive for SARS-CoV-2 after 24 hours of life. The post-discharge survey found that 31.6% (12/38) of infants were breastfeeding at one-month.

Conclusions:

Conclusion: With appropriate infection prevention precautions, rooming-in, skin-to-skin, and breastfeeding were associated with 43/44 infants that were free of SARS-CoV-2 infection. Maternity care practices created in response to the COVID-19 pandemic impacted the early breastfeeding practices of the SARS-CoV-2 positive population In-person lactation support could play an important role in improving hospital breastfeeding establishment for participants.

EP035 / #499

E-Poster Topic: *AS02. Infancy*

THE INFLUENCE OF PREMATURITY ON SHORT BOWEL SYNDROME CHILDREN GROWTH DURING HOME PARENTERAL NUTRITION

Antonina Igorevna Chubarova, Elena Andreevna Kostomarova
Pirogov Russian National Research Medical University, Hospital Pediatrics, Moscow, Russian Federation

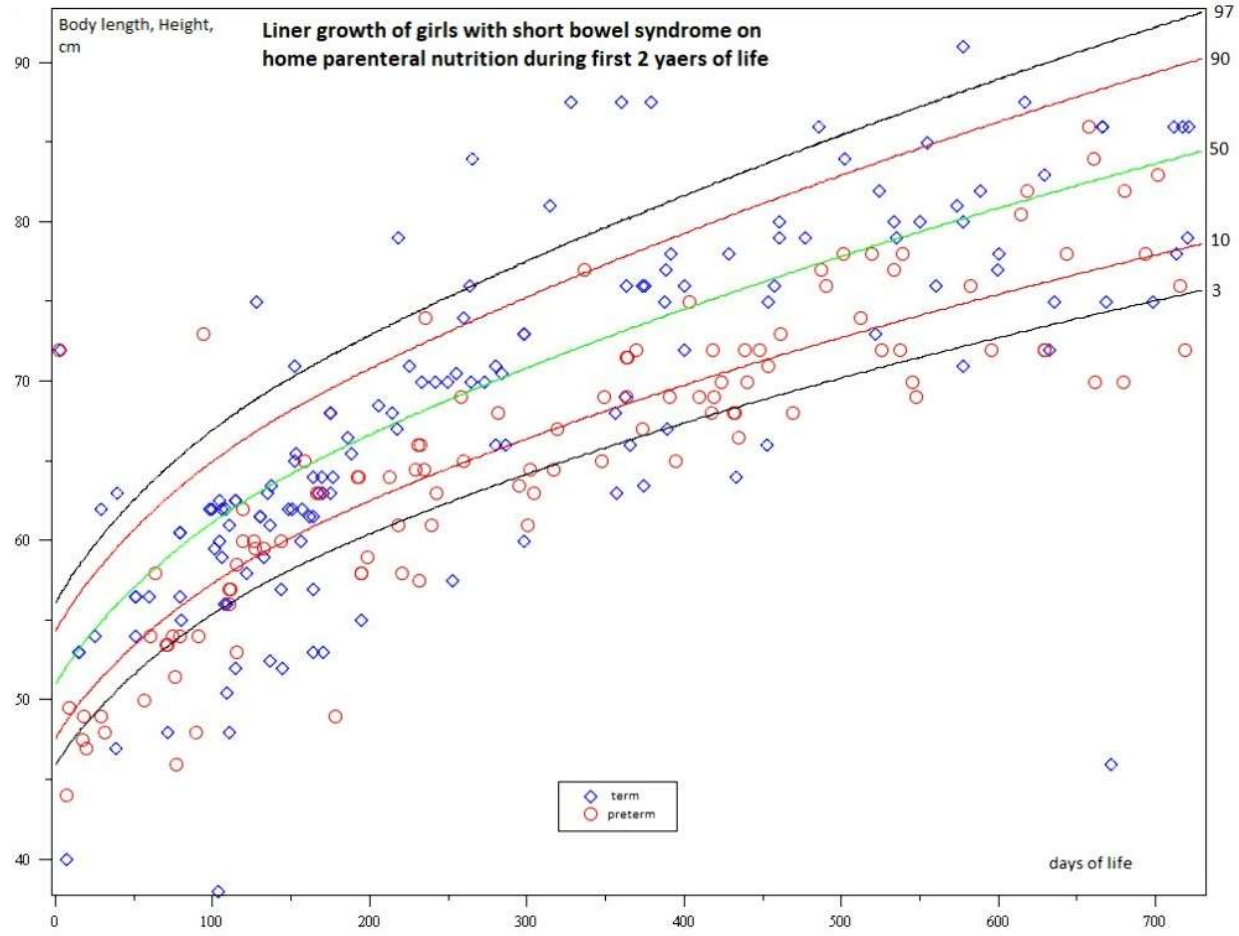
Background and Aims:

The prospective observational study was conducted to evaluate growth of children with short bowel syndrome (SBS) operated in neonatal period on home parenteral nutrition (PN) born term and preterm.

Methods:

95 children were enrolled (37 boys and 58 girls, 16 (43%) of boys and 27 (46%) girls were preterm); all were operated in neonatal period and followed up on home parenteral nutrition by the same team.The anthropometric data of 940 follow-up visits was analyzed. Anthropometric data were compared with WHO growth curves, for premature infants corrected age was used.

Results:



During 0-3 mo (mostly in the hospital) low (<3th percentile) length had 27% of girls and 19% of boys, low weight for age had 28% of girls and 7% of boys in SBS group. From 3 to 24 months the linear growth was improving every 3-mo period: only 7-0.8% of girls and 8-0.4% of boys had low length, BMI was low in less than 2% of cases since 6 mo. Separate analysis of premature infants growth demonstrated that low growth was mostly attributed to prematures (fig). From 2 to 5 years less than 0.3% of boys and girls had low height, BMI was normal (25-75 percentile) in more than 98% of mesurments.

Conclusions:

More than 99% of children with short bowel syndrome on home parenteral nutrition demonstrate good growth after 24 months. Growth delay during first months have premature babies, later on prematures with SBS can archive catch-up growth.

EP036 / #127

E-Poster Topic: *AS02. Infancy*

BABY FOOD POUCHES, EATING BEHAVIOUR AND WEIGHT STATUS IN NEW ZEALAND INFANTS AGED 7-10 MONTHS

Alice Cox[1], Anne-Louise Heath[2], Jillian Haszard[3], Cathryn Conlon[4], Kathryn Beck[4], Pamela Von Hurst[4], Lisa Te Morenga[5], Lisa Daniels[1], Emily Jones[4], Neve Mclean[2], Ioanna Katiforis[2], Kimberley Brown[4], Madeleine Rowan[2], Andrea Wei[4], Bailey Bruckner[2], Rosario Jupiterwala[4], Jenny Mcarthur[1], Rebecca Paul[4], Rachael Taylor[1]
[1]University of Otago, Department Of Medicine, Dunedin, New Zealand, [2]University of Otago, Department Of Human Nutrition, Dunedin, New Zealand, [3]University of Otago, Biostatistics Centre, Dunedin, New Zealand, [4]Massey University, School Of Sport Exercise And Nutrition, Auckland, New Zealand, [5]Massey University, Research Centre For Hauora And Health, Wellington, New Zealand

Background and Aims:

Baby food "pouches" have become increasingly popular with parents but little research on their use exists. This study investigates relationships between pouch use, eating behaviour and weight status in infants aged 7-10 months.

Methods:

Data were collected from 625 caregiver-infant pairs participating in the First Foods New Zealand study. Data on pouch use and infant eating behaviour (appetite self-regulation, food fussiness, symptoms of problematic feeding) were collected by questionnaire, including validated scales. Frequent pouch use was defined as consuming food from a pouch ≥5 times/week during the past month. Researchers measured infant length and weight, Body Mass Index (BMI) z-scores were calculated (WHO growth standards), and 'overweight' was defined as BMI z-score >2SD.

Results:

In total, 79% of infants (aged 7.0-10.0 months) had used baby food pouches at some time in their life, but only 28% (n=174) were current frequent users. There was no evidence of an association between frequent pouch use and infant weight (BMI z-score; adjusted mean difference, 0.11; 95% CI -0.11, 0.33) or odds of overweight (adjusted odds ratio, 1.08; 95% CI 0.43, 2.72). Frequent pouch use was significantly associated with greater food responsiveness (standardised mean difference, 0.20 SD; 95% CI 0.00, 0.40; indicating a small effect), but not satiety responsiveness (-0.17 SD; -0.39, 0.05) or food fussiness (0.18 SD; -0.06, 0.42).

Conclusions:

Frequent use of pouches is weakly associated with greater responsiveness to external food cues, but not with weight status.

Acknowledgements: Funded by the Health Research Council of New Zealand.

EP037 / #224

E-Poster Topic: *AS02. Infancy*

NUTRITIONAL STATUS OF INFANTS UNDER SIX MONTHS OLD BORN TO MOTHERS TREATED FOR SEVERE ACUTE MALNUTRITION IN THEIR CHILDHOOD IN THE DEMOCRATIC REPUBLIC OF CONGO.

Christine Murhima'Alika Chimanuka[1], Philippe Donnen[1,2], Ghislain Balaluka Bisimwa Balaluka[1], Michèle Wilmet Dramaix[3]
[1]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [2]Université Libre de Bruxelles, Ecole De Santé Publique, Bruxelles, Belgium, [3]Université Libre de Bruxelles, Public Health, Brussels, Belgium

Background and Aims:

Malnutrition is a public health problem and affects all children under 5 years. However, few researchers focus on the nutritional status of children under six months of age. Our aim was to assess the nutritional status of children under 6 months of age born to mothers who were treated for severe acute malnutrition (SAM) in childhood.

Methods:

This is a prospective cohort study of 60 newborns, 32 of whom had mothers exposed to SAM in childhood and 28 who were not exposed. Anthropometric parameters were measured at birth and monthly during the follow-up period. Nutritional status was evaluated according to Weight-for-Height (WHZ), Weight-for-Age (WAZ) and Height-for-Age (HAZ). The scar diameter was measured after the child received the BCG vaccine. Parametric and non-parametric tests were applied to compare the different variables in two groups.

Results:

Female represented 40.6% in exposed group, 42.9% in unexposed group (p=0.86). At six months, the prevalence of stunting was 50.0% in the exposed, 42.3% in the unexposed (p=0.35). The prevalence of underweight was 18.8% in the exposed, 11.5% in the unexposed (p=0.38). The exclusive breastfeeding rate at 5 or 6 months was 21.9% in the exposed group and 23.1% in unexposed group (p=0.91). The mean of the BCG scar diameter after two months was 4.4 ± 3.0 mm in the exposed group and 5.3 ± 3.6 mm in the unexposed group (p=0.44).

Conclusions:

This study shows that infants born to mothers exposed to SAM during childhood are born with anthropometric parameters similar to those observed in their community controls.

EP038 / #337

E-Poster Topic: *AS02. Infancy*

INFANT FEEDING IN THE FIRST 1000 DAYS: DATA FROM A MULTI-LAYERED DYNAMIC COHORT STUDY IN THE DIVERSE POPULATION OF AMSTERDAM (THE SARPHATI COHORT)

Joy Hall, Joanne Ujcic-Voortman, Jacob Seidell, Arnoud Verhoeff
Public Health Service Amsterdam, Healthy Living, Amsterdam, Netherlands

Background and Aims:

There are large and largely unexplained differences in early overweight prevalence between ethnic groups. The Sarphati Cohort, a large dynamic cohort study monitors growth and development of Amsterdam born children over time. Sub-studies allow for more extensive data collection while ensuring long-term follow-up through Youth Health Care (YHC) records. One of which, Sarphati Diaries, collects extensive data on dietary intake during the complementary feeding period. AIMS, a prospective birth cohort study among 500 infants and their family members, studies the development of the gut microbiota from birth up to the age of three years, in relation to growth and nutrition.

Methods:

The Sarphati Cohort consists of multiple layers of data collected from birth until age 4 years, including YHC records and questionnaires on e.g. milk and complementary feeding, eating behaviour questionnaires (BEBQ, CEBQ-t, CEBQ). Sarphati Diaries adds on data from 3-day food diaries (3DFD) and semi-structured interviews on parental feeding practices (6/12 months). AIMS collects extensive data on dietary intake during infancy (4/6/11/14/24/36 months) through 3DFD and questionnaires.

Results:

Currently over 7.600 participants are included, of which 87 also participate in Sarphati Diaries and 198 in AIMS. Inclusion and data collection is ongoing. During the conference, we will present first results on dietary intake and parental feeding practices from the Sarphati Cohort.

Conclusions:

These data combined will give valuable insight in the complementary feeding period, a developmental phase important for establishing dietary habits and food preferences that may have a significant impact on growth trajectories.

EP039 / #176

E-Poster Topic: *AS02. Infancy*

HUMAN MILK OLIGOSACCHARIDES SUPPORT RECOVERY OF MICROBIOME FUNCTION AFTER ANTIBIOTIC USE

David R Hill, Anice Sabag-Daigle, Michael Farrow, Rachael H Buck
Abbott Nutrition, A Division Of Abbott Laboratories, Columbus, United States of America

Background and Aims:

Human milk oligosaccharides (HMO) serve as selective substrates to support the growth of beneficial microbes in the developing gastrointestinal tract. We examined the dose-dependent prebiotic activity of a diverse blend of fucosylated, acetylated, and sialylated HMOs using microbiota cultured in an in vitro model of the gastrointestinal tract.

Methods:

Stool samples were collected from healthy infant or adult participants. Participating infants were 4-6 months of age with no antibiotic use and were formula fed for at least 30 days prior to sample collection. Adult participants were 18 to 65 years with no antibiotic use in the previous 60 days. The stool samples were individually cultured using the SHIME® bioreactor system and subjected to antibiotic stress using amoxycilin and gentamicin. Matched stool samples were cultured under both control and HMO-supplemented conditions.

Results:

Bifidobacterium populations and metabolites were expanded in the presence of HMO blends in a dose-dependent manner. Antibiotic exposure resulted in suppression of Bifidobacterium populations and metabolite production. However, cultures treated with HMOs retained robust Bifodobacteria populations during antibiotic treatment and were rapidly restored to pre-antibiotic levels of metabolite production and Bifidobacterium density after antibiotic cessation in comparison to matched control cultures.

Conclusions:

HMO supplementation supported robust and dose-dependent microbial activity in both infant and adult microbiome samples. Recovery of beneficial microbial activity after antibiotic exposure was accelerated in the presence of HMOs. These results may indicate that HMOs support resilience of the Bifidobacterium population during antibiotic exposure and therefore accelerates recovery of microbiome functionality after antibiotic therapy.

EP040 / #436

E-Poster Topic: *AS02. Infancy*

THE INFLUENCE OF A MATERNAL VEGAN DIET ON CARNITINE AND VITAMIN B2 CONCENTRATIONS IN HUMAN MILK

Hannah G Juncker[1], Chris H.P. Van Den Akker[2], Pauline L Meerdink[1], Aniko Korosi[3], Frédéric M Vaz[4], Johannes B Van Goudoever[1], Britt J Van Keulen[1]
[1]Amsterdam University Medical Center, Emma Children's Hospital, Amsterdam, Netherlands, [2]Amsterdam UMC, Neonatology, Amsterdam, Netherlands, [3]University of Amsterdam, Swammerdam Institute For Life Sciences, Amsterdam, Netherlands, [4]Amsterdam University Medical Center, Department Of Clinical Chemistry And Pediatrics, Laboratory Genetic Metabolic Diseases, Emma Children's Hospital, Amsterdam, Netherlands

Background and Aims:

The maternal diet greatly influences the nutritional composition of human milk. With the rise of vegan diets consumed by lactating mothers, there are concerns about the nutritional adequacy of their milk. Two important nutrients, vitamin B2 and carnitine, are mostly ingested via animal products. We investigated the influence of a vegan diet on the vitamin B2 and carnitine concentrations in milk and serum of lactating women.

Methods:

In this case-control study, twenty-five lactating mothers following an exclusive vegan diet were comparted to 25 healthy lactating mothers with an omnivorous diet. High-performance liquid chromatography and liquid chromatography-tandem mass spectrometry were used to measure vitamin B2 and carnitine concentrations, respectively. A linear regression model was used to determine differences in human milk and serum concentrations between study groups.

Results:

Vitamin B2 concentrations in human milk and serum did not differ between study groups. For carnitine, while the serum free carnitine (C_0) and acetyl carnitine (C_2) concentrations were lower in participants following a vegan diet compared to omnivorous women ($p<0.0001$), the concentrations in human milk did not differ between study groups.

Conclusions:

A maternal vegan diet did not affect human milk concentration of vitamin B2 and carnitine. Breastfed infants of mothers following an exclusive vegan diet therefore are likely not at increased risk of developing a vitamin B2 or carnitine deficiency.

EP041 / #152

E-Poster Topic: *AS02. Infancy*

A POSSIBLE LINK BETWEEN PROTEIN INTAKE DURING THE COMPLEMENTARY FEEDING PERIOD AND NON-COMMUNICABLE DISEASES THROUGH METABOLIC AND EPIGENETIC PROCESSES

Kulnipa Kittisakmontri[1,2], Julie Lanigan[2], Susan E Ozanne[3], Lucas Pantaleao[3], Mary Fewtrell[2]
[1]Faculty of Medicine, Chiang Mai University, Paediatrics, Chiang Mai, Thailand, [2]University College London, Childhood Nutrition Research Center, Ucl Great Ormond Street Institute Of Child Health, London, United Kingdom, [3]University of Cambridge, Wellcome-mrc Institute Of Metabolic Science And Medical Research Laboratories, Cambridge, United Kingdom

Background and Aims:

Scientific evidence suggests that high protein consumption in early life may increase the risk of obesity and non-communicable diseases (NCDs), but there is limited data on potential mechanisms. We aimed to investigate metabolic and epigenetic responses to dietary protein during the complementary feeding (CF) period.

Methods:

A multicenter, prospective cohort study was performed in 145 healthy term-infants in Chiang Mai, Thailand. Demographic data, dietary intake and anthropometry were collected at 6, 9 and 12 months (M). Blood samples for insulin, IGF-1, IGFBP-3, branched-chain amino acids (BCAA) and circulating microRNAs (miR) were obtained at 12M.

Results:

There was a dose-response relationship between dairy and non-dairy animal-based protein (ABP) and infant weight gain adjusted for potential confounders. Dairy protein, mainly from formula, had greater impact than non-dairy protein. These findings were consistent with positive associations between ABP intake and serum IGF-1, IGFBP-3 and insulin. In subgroup analysis (n = 54), infants consuming dairy protein in the highest quartile had higher plasma BCAA than those in the lowest quartile. Plasma BCAA were positively associated with IGF-1, IGFBP-3 and insulin. Circulating microRNA levels were modulated by the type of milk feeding. Formula-fed infants showed down-regulation of miR-106b and up-regulation of miR-34a and miR-215. These miRNAs have been implicated previously in cellular senescence, that may contribute to increased risk of NCDs.

Conclusions:

High protein intake from ABP, especially dairy protein, was associated with higher weight gain. This study demonstrated metabolic and epigenetic responses to dietary protein from CF that could be linked to obesity and NCDs in later life.

EP042 / #173

E-Poster Topic: *AS02. Infancy*

SUBCUTANEOUS FAT NECROSIS OF THE NEWBORN: A CASE REPORT

Eka Nakhutsrishvili, Tinatin Kutubidze
TSMU G. Zhvania's Pediatric Academy Clinic, Department Of Pediatrics, Tbilisi, Georgia, Georgia

Background and Aims:

Subcutaneous fat necrosis of the newborn (SCFN) is an uncommon panniculitis of neonates. SCFN most often develops in full-term (>37 weeks gestational age) neonates who have experienced hypoxia or other perinatal stress.

A 1.5 month old girl ; P2G2, gestation-40 weeks, weight-2950 g, length-52 cm. Born in hypoxia, no mechanical ventilation was required. According to the mother, the patient developed a rash on the skin in the 3rd week after birth, she was irritated, poorly received food, consulted by a pediatrician; the condition was assessed as a food allergy and weak sucking of the newborn, changed the formula of the food with a hypoallergenic mixture. The condition remained unchanged, the patient stopped gaining weight, which is why she was hospitalized: weight 3.3 kg, gain was very low (-2 SD). The skin turgor was decreased and had the firm, mobile, erythematous nodules and plaques over the abdomen, arms, buttocks, thighs. No significant laboratory findings.

Methods:

Clinical case of a 1-month-old girl

Results:

A skin biopsy was performed. Diagnosis: Panniculitis rich from neutrophilic leukocytes and histiocytes. This case was treated with interventions fluids, analgetics and short course of oral glucocorticosteroids (1mg/kg).

Conclusions:

This case diagnosed as SCFN in a newborn, a rare disease in the neonatal period, emphasizes the importance of a histological findings for a definitive diagnosis.

EP043 / #118

E-Poster Topic: *AS02. Infancy*

MATERNAL IMMUNIZATION DURING THE SECOND TRIMESTER OF PREGNANCY INDUCES A ROBUST IGA RESPONSE IN HUMAN MILK

Laurence Mangel[1], Sharon Vanetik[2], Aya Kigel[3], Gal Friedman[2], Chen Nozik[2], Camilla Terracina[3], David Taussig[3], Yael Dror[3], Hadar Samra[3], Dror Mandel[1], Ronit Lubetzky[2], Yariv Wine[3]
[1]Dana Dwek Children's Hospital, Tel Aviv Medical Center, Neonatology, Tel Aviv, Israel, [2]Dana Dwek Children's Hospital, Tel Aviv Medical Center, Pediatrics, Tel Aviv, Israel, [3]George S. Wise Faculty of Life Sciences, Tel Aviv University, The Shmunis School Of Biomedicine And Cancer Research, Tel Aviv, Israel

Background and Aims:

Antibody response in human milk (HM) following maternal immunization with BNT162b2 mRNA vaccine is important for neonate protection during early infancy. We aimed to evaluate the antibody response of IgG/IgA/IgM at different lactation stages and to determine the optimal vaccination timing during pregnancy.

Methods:

This is a prospective cohort study conducted in Israel between April 2021 and July 2022. We recruited women post-partum who received the BNT162b2 COVID-19 mRNA-vaccine during the second or the third trimester of pregnancy. HM samples, colostrum (day 0-3), transitional milk (4-14 days), mature milk (above 14 days) were collected post-delivery.

Results:

Sixty-two lactating women were included. Late colostrum showed the highest median (IQR) antibody concentration of vaccine-specific IgG (1.098 μg/mL [0.489-2.424], IgA (46.19 μg/mL, [30.89-77.54] and IgM (0.144 μg/mL, [0.089-0.356]). Timing of maternal immunization affected the antibody response in transition and mature milk. IgA concentrations were the highest of all isotypes in women immunized during the second trimester versus the third trimester in transitional and mature milk (median [IQR], 13.8 μg/mL [10.32-22.3] vs 9.915 μg/mL [6.199-11.82], P = .01 and 13.06 μg/mL [8.232-18.41] vs 8.51 μg/mL [5.125-12.6], P = .006 respectively). IgG levels were higher when immunization occurred during the third trimester versus second trimester in transitional and mature milk (median [IQR] 0.66 μg/mL [0.538-1.167] vs 0.188 μg/mL [0.128-0.261] and 0.451 μg/mL [0.215-0.704] vs 0.125 μg/mL [0.094-0.208], P < .001, respectively).

Conclusions:

Our results suggest that maternal immunization with the BNT162b2 mRNA-vaccine during the second trimester of pregnancy provides a higher concentration of vaccine-specific IgA throughout lactation stages.

EP044 / #290

E-Poster Topic: *AS02. Infancy*

MATERNAL, INFANT AND YOUNG CHILD NUTRITION KNOWLEDGE AND PRACTICE AMONG NURSING MOTHERS WITH CHILDREN (6-24 MONTHS) IN ENUGU SOUTH LOCAL GOVERNMENT AREA, ENUGU STATE, NIGERIA

Aloysius Nwabugo Maduforo[1,2], Chimdi Tochi Nkemjika[1], Miracle Chikadibia Aloysius-Maduforo[3], Clementina Ebere Okoro[1,4], Chika I Ndiokwelu[5], Elizabeth Kanayo Ngwu[1], Justina Ndirika Chikwendu[1]
[1]University of Nigeria, Nsukka, Department Of Nutrition And Dietetics, Nsukka, Nigeria, [2]University of Calgary, Educational Research (leadership), Werklund School Of Education, Calgary, Canada, [3]University of Calgary, Faculty Of Science, Calgary, Canada, [4]FCT Primary Healthcare Board, Nutrution Section, ABUJA, Nigeria, [5]University of Calabar, Human Nutrition And Dietetics, Calabar, Nigeria

Background and Aims:

Periodically, there are need to assess the outcome of numerous nutrition intervention implemented by government and partners in the state to know the next line of action. This study assessed maternal, infant and young child nutrition (MIYCN) knowledge and practice of nursing mothers with children (6-24 months) in Enugu south local government area, Enugu state, Nigeria.

Methods:

The study adopted a health facility-based cross-sectional survey. Nursing mothers (n=350) who attended prenatal clinic in the primary healthcare facilities responded to the questionnaire. Seven health care facilities were selected for the study. A structured and validated questionnaire was used to elicit information on sociodemographic characteristics, MIYCN knowledge, and practice of the participants. The MIYCN knowledge questions were scored in percentages and was classified as: <50% = Poor knowledge, 50-69% = Fair knowledge and 70% and above = Good knowledge. The data obtained were analysed with both descriptive and inferential statistical tools. Statistical significance was accepted at $p < 0.05$.

Results:

Young children aged 6-11months were 49.1% and those aged 12-24 months were 50.9%. Nursing mothers with good knowledge on IYCN were 30% while nursing mothers with good knowledge on maternal nutrition were 24.9%. Breastfed young children were 98.3% while 82.9% were fed colostrum. Nursing mothers in the study area that exclusively breastfed their young children were 44.6%, while 42.6% initiated breastfeeding within recommended one hour after birth.

Conclusions:

There is high level of poor MIYCN knowledge and practices among nursing mothers in Enugu South.

EP044a / #509

Topic: *AS02. Infancy*

CONNECTING THE DOTS BY AI TO SELECT INGREDIENTS/SUPPLEMENTS THAT IMPROVE IMMUNE HEALTH IN EARLY LIFE

Marjolein Meijerink[1], Xavier Pinho[2], Joanne M Donkers[3], Martien P Caspers[4], Evita Van De Steeg[3], Jolanda H.M. Van Bilsen[1]
[1]TNO, Risk Assessment For Products In Development, Utrecht, Netherlands, [2]TNO, Rapid, Utrecht, Netherlands, [3]TNO, Metabolic Health Research, Leiden, Netherlands, [4]TNO, Microbiology And Systems Biology, Leiden, Netherlands

Background and Aims:

Good nutrition is critical to support and maintain a healthy immune homeostasis.Here we present a proof of concept-strategy that combines multiple bioinformatics tools to deliver a science-based substantiation of immune health effects of nutrients in early life.

Methods:

RNAseq-data were collected from the ex vivo piglet InTESTine®-model (mimicking the gut physiology of a 3 month old baby), exposed to DHA(100uM), resveratrol(100uM) or butyrate(5mM) for 6h.The RNAseq-data were subjected to bioinformatics tools to identify biological processes (using GSEA/RCR),(canonical)-pathways and upstream regulators (using IPA) that were affected by the test ingredients.

The mechanisms-of-action of the test ingredients butyrate, DHA and resveratrol were compared to the key biological processes of the adverse outcome pathways (AOPs) for cow's milk allergy (CMA) and infection-resistance (PMID:31798593;PMID:30828334;PMID:28507730) to identify 'entry points' of the ingredients to influence CMA and infection-resistance.Finally, hub-genes of CMA and infection-resistance were identified through a protein-protein interaction (PPI) analysis of the genes/proteins involved in the key biological processes.

Results:

Our results predicted that butyrate influences key mechanistic processes involved in CMA whereas DHA and resveratrol influence infection-resistance.The expression of the hub genes of CMA (n=7) and infection-resistance (n=30) was shown to be influenced by resp. butyrate (CMA) and DHA and resveratrol (infection-resistance). All predictions could be confirmed by clinical data from literature.

Conclusions:

The study established a methodology for the selection of ingredients/supplements based on transcriptomics, PPI networks and AOP frameworks of immune disorders in early life. It shows how this combination can guide a science-based selection of suitable ingredients/supplements that support immune health in early life.

EP045 / #310

E-Poster Topic: *AS02. Infancy*

HEALTH CARE PROFESSIONALS' EXPERIENCES WHEN TREATING CHILDREN WITH MALNUTRITION IN A RURAL HEALTH CARE SETTING IN CENTRAL SOUTH AFRICA

Ntsoaki Matumelo Lucia Meko, Natasha Alexandra Bico De Figueiredo, Louise Violet Van Den Berg
University of the Free State, Nutrition And Dietetics, Bloemfontein, South Africa

Background and Aims:

The rate of childhood malnutrition is a persistent issue in South Africa, where many challenges exist regarding management. Priority nutrition interventions aimed at lessening the burden of malnutrition have been identified; however, several challenges hamper progress in achieving the country's goal to reduce the prevalence of malnutrition. This study aimed to describe health care professionals' experiences during the management of childhood malnutrition in central South Africa.

Methods:

Six healthcare professionals (2 doctors, 2 dietitians, 2 nurses) working with the management of childhood malnutrition participated in the study. A descriptive qualitative study design was conducted, and data was collected using semi-structured interviews. Each interview was recorded and transcribed verbatim. Data were coded and analysed using thematic analysis.

Results:

Though three types of health professionals participated in the study, they revealed similar challenges in managing childhood malnutrition. Four themes emerged relating to experiences when managing children with malnutrition. Stock shortages of the ready to feed supplements was the first key theme identified by the participants. With the second key theme 'uncooperative parents', participants highlighted inappropriate language use by mothers, refusing to breastfeed, alcoholism and missed appointments as limitations to management. Additional themes included discrepancies in staff conduct and the emotional burden attached to working with malnourished children as additional challenges.

Conclusions:

Poor service delivery has the potential to negatively impact outcomes related to the management of childhood malnutrition. It also seems from this study as if mothers' state of mind may have an impact on treatment outcomes.

EP046 / #375

E-Poster Topic: *AS02. Infancy*

WEIGHT GAIN OF INFANTS DURING OFF-LABEL CONSUMPTION OF A PLANT-BASED TODDLER FORMULA BASED ON ALMOND AND BUCKWHEAT: A RETROSPECTIVE ANALYSIS OF A PARENT SURVEY

Kayla Marie Bridges[1], Rosan Meyer[2], Robert Dziubak[3], Fabiana Bar-Yoseph[4], Renana Mizrahi[4], Jon Vanderhoof[5]
[1]Else Nutrition USA, Inc., Medical & Scientific Affairs, Westerville, United States of America, [2]Imperial College, Pediatrics, London, United Kingdom, [3]Great Ormond Street Hospital for Children NHS Foundation Trust, Pediatrics, London, United Kingdom, [4]Else Nutrition GH, Ltd, Medical & Scientific Affairs, Tel Aviv, Israel, [5]Harvard Medical School, Pediatrics, Boston, United States of America

Background and Aims:

Due to recent formula shortages in the United States, there has been increased off-label consumer-initiated use of toddler formulas in infants. This survey aimed to evaluate reported growth in infants during parents' elective off-label use of a novel plant-protein source toddler formula.

Methods:

Data from two waves of a cross-sectional parent survey, adapted from validated tools to address usage, demographics, and weight gain, were retrospectively analyzed upon IRB waiver. Parents of 153 participants reported off-label initiation below 12 months of age. After excluding outliers and those with only one anthropometric measure, 39 participants remained.

Results:

The median age at initiation was 10 months [IQR: 8 to 11], and the median use duration was three months [IQR: 2 to 5]. Fifty-four percent (21/39) were male. Fifty-nine percent (23/39) chose this formula because of lifestyle reasons.

There was a significant difference in weight z-scores (n=39) for before/after measures: -0.13 [IQR: -0.78 to 0.89] vs 0.73 [IQR: -0.09 to 1.55], $p<0.0001$. Limited participants (n=9) had complete length data available. There were no significant differences between the average change of z-scores for length: -1.47 [IQR: -1.94 to -0.43] vs -0.65 [IQR: -1.35 to 0.22], p=0.26 and weight-for-length: 0.56 [IQR: 0.54 to 1.15] vs 0.73 [IQR: 0.12 to 2.42], p=0.3594.

Conclusions:

Analyses revealed acceptable weight gain trends following off-label use of this buckwheat/almond-based toddler formula. A well-powered safety and efficacy study, utilizing

this protein source as part of an infant-intended formulation, is required. Results need to be confirmed in a controlled clinical study.

EP047 / #389

E-Poster Topic: *AS02. Infancy*

THE ROLE OF SYMPTOM QUESTIONNAIRES TO SUPPORT THE DIAGNOSIS OF CMA IN CHILDREN – A DELPHI CONSENSUS STUDY

Rosan Meyer[1], Yvan Vandenplas[2], Imke Reese[3], Mario Vieira[4], Catalina Ortiz-Piedrahita[5], Joanna Walsh[6], Anna Nowak-Wegzryn[7], Adriana Chebar Lozinsky[8], Adam Fox[9], Vijay Chakravarti[10], Merryn Netting[11], Lars Lange[12], Carina Venter[13]
[1]Imperial College, Dept. Medicine, UK, United Kingdom, [2]Vrije Unversiteit Brussel, UZ Brussel,, Kidz Health Castle, Brussels, Belgium, [3]Private Practice, Allergology, Munich, Germany, [4]Pontifical Catholic University of Paraná and Center for Pediatric Gastroenterology, Paediatrics, Curitiba, Brazil, [5]Hospital Pablo Tobon Uribe, Medellín, Especialista En Gastroenterología, Hepatologia Y Nutrición Pediatrica, Medellin, Colombia, [6]One Norwich NHS Practices, General Practice, Norwich, United Kingdom, [7]Hassenfeld Childrens' Hospital, Department Of Pediatrics, Nyu Grossman School Of Medicine, New York, United States of America, [8]Murdoch Children's Research Institute, Department Of Allergy And Immune Disorders, Parkville, Australia, [9]Guy's and St.Thomas Hospital, Paediatric Allergy, London, United Kingdom, [10]Ramsay Rivers Hospital, Paediatric Allergy, Sawbridgeworth, United Kingdom, [11]The South Australian Health and Medical Research Institute, Allergy, Adelaide, Australia, [12]St. Marien-Hospital, Allergology, Bonn, Germany, [13]University of Colorado Denver School of Medicine Children's Hospital, Allergology, Colorado, United Kingdom

Background and Aims:

Cow's milk allergy [CMA] is one of the most common food allergies world-wide. The emergence of online CMA symptoms questionnaires, aimed at parents and/or healthcare professionals (HCP) may raise awareness about the possible diagnosis of CMA, but also increases the risk for over-diagnosis leading to unnecessary dietary restriction impacting on growth and nutrition. This publication sets out to establish the availability of these CMA symptom questionnaire and critically assesses the development and validity.

Methods:

13 HCP working in the field of CMA, from different countries were recruited to participate. A combination of a Pubmed and CINAHL literature and online review using the google search engine in English language was used. Symptoms in the questionnaires were assessed, using the European Academy for Allergy and Clinical Immunology guidelines for food allergy. Following the assessment of both the questionnaires and literature the authors followed the modified Delphi approach to generate consensus statements.

Results:

651 publications were identified, of which 29 were suitable for inclusion, with 26 being associated with the Cow's Milk-Related Symptoms Score. The online search yielded 10 available questionnaires: 7/10 were sponsored by formula milk companies, 7/10 were aimed at parents and 3 at HCP. Following the assessment of data, 19 statements were generated in 2 rounds of anonymous voting reaching 100% agreement.

Conclusions:

Online CMA questionnaires, available to parents and HCP's, are varied in symptoms, and most were not validated. The overarching consensus generated from authors is that these questionnaires should not be used without the involvement of HCP.

EP048 / #483

E-Poster Topic: *AS02. Infancy*

FACTORS ASSOCIATED WITH EXCLUSIVE BREASTFEEDING DURATION AMONG INFANTS WITH STRIDOR

Jamilah Shahdan[1], Nurul Husna Mohd Shukri[1], Khadijah Mohd Nor[2], Humairah Mohd Foad[1]
[1]Universiti Putra Malaysia, Nutrition, Serdang, Malaysia, [2]Hospital Serdang, Otorhinolaryngology, Serdang, Malaysia

Background and Aims:

Infants with stridor tend to experience difficulty in feeding due to their disruption of the sucking-swallowing-breathing sequence, however, research on breastfeeding practice is limited. This study aimed to determine the associations of stridor severity, birth outcomes, and infant feeding practices with the duration of exclusive breastfeeding (EBF) among infants with stridor.

Methods:

A total of 153 mother-child dyads who were referred to the Otorhinolaryngology Department of two tertiary hospitals participated in this study. An interviewer-administered questionnaire was conducted to collect data on infant feeding practices. Infant birth outcomes and stridor characteristics were collected from hospital medical record. Multiple linear regression was used to determine factors associated with EBF duration.

Results:

The EBF duration rate at six months was 43.8%, with an average duration of 4.50 ± 2.1 months. The majority of the infants (49%) had mild stridor, followed by moderate (35.3%), and severe 15.7% condition. Stridor symptoms started to develop in infants at the average age of 1.70 ± 1.43 months, with the medically diagnosed at the average age of 2.03 ± 2.03 months. Duration of EBF was negatively associated with the severity of stridor (ß=-0.478, p=0.001), while positively associated with gestational week at birth (ß=0.153, p=0.048) and the age started of infant formula (ß=0.532, p=0.001), complementary feeding (ß=0.398, p=0.001), and also bottle feeding, including expressed breastmilk (ß=0.150, p=0.004).

Conclusions:

The condition of stridor and infant feeding practices were associated with breastfeeding duration. Proper management and feeding guideline is crucial to help mothers of infants with stridor establishing breastfeeding.

EP049 / #159

E-Poster Topic: *AS02. Infancy*

THE INHIBITION OF BACTERIAL PATHOGEN ADHESION BY A UNIQUE BLEND OF FIVE HUMAN MILK OLIGOSACCHARIDES IS ENHANCED BY MILK A-LACTALBUMIN

Sinead T Morrin[1], David R Hill[2], Michael Farrow[2], Rachael H Buck[2]
[1]Abbott Nutrition, A Division Of Abbott Laboratories, Cavan, Ireland, [2]Abbott Nutrition, A Division Of Abbott Laboratories, Columbus, United States of America

Background and Aims:

Human breast milk contains an abundance of bioactive macronutrients, micronutrients, hormones, growth factors and cytokines. These milk bioactives are essential for neonatal growth and immune maturation. Human milk oligosaccharides (HMOs) are the third most abundant solid component of human breast milk, with well-established prebiotic and immunomodulatory functions. Human milk oligosaccharides have potent inhibitory effects against viral and bacterial pathogens with direct anti-adhesive activities of both individual HMO structures and pooled HMO isolates. A longstanding hypothesis has held that HMOs act in concert with other bioactive components in milk, and a complex matrix of milk components collectively accounts for both the range and efficacy of immune protection against infectious disease associated with breastfeeding.

Methods:

A specialized mixture of 5 HMOs representing the major fucosylated, acetylated and sialylated structures found in breastmilk were combined with bovine milk α-lactalbumin, an abundant whey protein rich in essential amino acids. Combinations of 5HMO and α-lactalbumin were assessed to prevent the attachment of infant-prevalent bacterial pathogens Listeria monocytogenes and Cronobacter sakazakii to cultured HT-29 intestinal cells.

Results:

Our results demonstrate that a combination of α-lactalbumin and 5 HMOs resulted in a significant reduction in bacterial pathogen adherence relative to either α-lactalbumin or 5 HMOs alone.

Conclusions:

The bioactivity of a blend of 5 HMOs is modified, and in some cases enhanced, in the presence of specific milk factors. Future research on the bioactivity of the complex matrix of carbohydrates, proteins, and lipids present in breastmilk and infant formula will further elucidate the mechanisms driving health outcomes in infants.

EP050 / #119

E-Poster Topic: *AS02. Infancy*

THE EFFECT OF THE COVID-19 PANDEMIC ON THE BABY FRIENDLY COMMUNITY INITIATIVE AND MATERNAL INFANT AND YOUNG CHILD NUTRITION IN KENYA

Antonina Mutoro[1], Milka Wanjohi[1], Calistus Wilunda[1], Thomas Jun[2], Antuela Tako[3], Patrick Waterson[2], Paula Griffiths[4], Elizabeth Kimani-Murage[1]
[1]African Population and Health Research Center, Nutrition And Food Systems, Nairobi, Kenya, [2]Loughborough University, School Of Design And Creative Arts, Leicestershire, United Kingdom, [3]Loughborough University, School Of Business And Economics, Leicestershire, United Kingdom, [4]Loughborough University, School Of Sport, Exercise And Health Sciences, Leicestershire, United Kingdom

Background and Aims:

We assessed the effect of the COVID-19 pandemic on the baby friendly community initiative (BFCI) activities, maternal and child health (MCH) services and maternal, infant and young child nutrition (MIYCN) practices in Kenya.

Methods:

Participants' experiences of BFCI functioning, MCH service provision and access and MIYCN during the pandemic were documented using key informant interviews (n=58), in-depth interviews (n=29), and focus group discussions (n=15) with government officials, civil society organizations and community members in BFCI implementing and non-implementing urban and rural areas.

Results:

BFCI activities including home visits and support group meetings and MCH services including nutrition counselling, growth monitoring and vaccination were negatively affected by the pandemic due to fear of contracting the virus, lack of personal protective equipment (PPEs) and movement restrictions. Food insecurity attributed to financial difficulties resulted in coping strategies such as skipping meals and negatively affected MIYCN. Positive measures to prevent COVID19 spread such as remote working enabled some mothers to adequately feed and bond with their children because they were better able to balance working and the demands of feeding young children from home.

Conclusions:

On balance, the pandemic negatively impacted the BFCI, MCH services and MIYCN. In such a context, there is a need for innovative approaches to ensure continued provision of and access to facility and community health services. Remote working support policies can be considered as a

potential strategy to improve breastfeeding and support for appropriate complementary feeding for working women but with close monitoring to assess its effects on MIYCN.

EP051 / #199

E-Poster Topic: *AS02. Infancy*

A RARE CASE OF PRIMARY INTESTINAL LYMPHANGIECTASIA IN AN INFANT

Kumar Shambhu Nath
Katihar Medical College, Pediatrics, Katihar, India

Background and Aims:

Background: Primary intestinal lymphangiectasia is a rare condition of protein losing enteropathy characterized by dilated intestinal lacteals either due to malformation or obstruction of intestinal lymphatic vessels. There is excessive protein loss in the intestine and malabsorption of both chylomicrons and fat-soluble vitamin. Clinically presents mostly as edema, hypoproteinemia, hypogammaglobinemia, other general clinical features are fatigue, abdominal pain, weight loss/ inability to gain weight, moderate diarrhea, fat soluble vitamin deficiencies due to mal-absorption.

Prevalence is unknown with equal propensity for both male and female. Generally, presents early in childhood with most diagnosis made before age of 3 years.

Aim of Study: The purpose of present case report is to provide symptoms of PIL in infancy with highlights on intervention as it very tough to do diet modification in infants.

Methods:

Case report: A 55 days old, 3.5kg male baby of non-consanguineous marriage, presents with history of gradual swelling of whole body, pale pasty foul smelling stool for 10 days with skin ulcerations. Routine examinations show normal WBC count with low serum albumin, with plenty of fat globules in stool. histopathology report confirm the clinical diagnosis.

Results:

With a challanging task of making food in such an small infant by supplementing milk with medium chain fatty acids and high protein baby shown unsatisfactory result with multiple times hospital admission.

Conclusions:

In two months old baby, this is an arduous task to make a proper diet for lymphangiectasia. An standard formula with special guideline can change the survival of such infants.

EP052 / #338

E-Poster Topic: *AS02. Infancy*

FEEDING PRACTICES DURING INFANCY AND HEALTH STATUS AMONG THE PRE-SCHOOL CHILDREN IN NORTH ESTERN PART OF INDIA

Kumar Shambhu Nath
Katihar Medical College, Pediatrics, Katihar, India

Background and Aims:

Early childhood development (ECD) has emerged as a significant change agent in achieving sustainable development supported by research. It focuses on pre-birth to below 6 year age children for their all-round development.

AIMS

To assess the feeding practices during infancy in Pre-school children in north estern part of India

To assess the current health status of such children.

To correlate health status with feeding practices.

Methods:

Cross sectional study conducted in several randomly selected play school in north eastern part of India

Study population:All the children aged between 3 to 5 years coming to play school.

Feeding practices during infancy- a predesigned, self-administered questionnaire was given to child’s parents (validity checked).

Anthropometric interpretation was corelated with the infant feeding practice.

Results:

Mother's Milk First initiated in 39% within one hour

68% baby was given mother's Milk for more than 2 year

those baby who were not exclusively breaast feed 23% was given cows milk and most of baby was given mix feeding.

complementary feed (Liquid or Semi solid) initiated within Four to Five months in 5%, from Seven months in 71% after Nine months in 4%.

overall incidence of wasting was 19% and stunting was 12%

among stunting 48%was exclusively breast feed in first 6 months however amog wasting 76% was not exclusively breast feed.

incidence of wasting was more among those children who were started complementary feed after 7months.

Conclusions:

Appropriate feeding practices in less than 6 months of age and early initiation of complimentry feeding will improve the nutritional status of children.

EP053 / #314

E-Poster Topic: *AS02. Infancy*

IMPACT OF CATCH-UP GROWTH DURING THE FIRST MONTHS OF LIFE ON GUT GENE EXPRESSION STUDIED BY A NON-INVASIVE METHOD

María Teresa Pastor-Fajardo[1,2], María Sánchez-Campillo[2], María José López-Andreo[3], Antonio Gázquez[2,4], Eva Morales[5,6], Elvira Larqué[2,4]
[1]Hospital General Universitario de Elche, Paediatrics, Elche, Spain, [2]Biomedical Research Institute of Murcia (IMIB-Arrixaca), Nutrition, Murcia, Spain, [3]University of Murcia, Biology Molecular Section, Murcia, Spain, [4]University of Murcia, Department Of Physiology, Murcia, Spain, [5]Biomedical Research Institute of Murcia (IMIB-Arrixaca), Paediatrics Investigation Group, Murcia, Spain, [6]University of Murcia, Department Of Public Health Sciences, Murcia, Spain

Background and Aims:

The first three months of life are a crucial stage for children growth and gut maturation. Catch-up growth in this period may influence in gut gene expression, but non-invasive methods to study this process are scarce. The aim of this study was to investigate the relationship between catch-up and gut gene expression at 3 months by a non-invasive method.

Methods:

61 breastfeed 3-month-old children participating in the NELA cohort were included, 23 with catch-up (CU-group) and 38 with normal weight gain (Control-group). We analyzed human gut RNA isolated from stool exfoliated cells by microarray.

Results:

No differences in prenatal factors were observed between groups. Principal component analysis showed a variability of 20.6% between groups. There were 16 differentially expressed genes between CU-group versus Control-group: 15 genes were down-regulated, 5 were genes involved in the mitochondrial respiratory chain and oxidative phosphorylation and 10 were genes of ribosomes involved in the transcription to proteins, the up-regulated gene was related to heat shock response. The most relevant processes sorted by Enrichment Score were related to cell growth and maintenance. The KEGG pathways with more percentage of genes implicated in catch-up were mostly metabolic routes and a pathway involved in maintenance of genomic stability.

Conclusions:

Children with catch-up growth at 3 months showed different gut gene expression patterns compared to controls. These changes involved mainly genes related to mitochondrial respiratory chain and ribosomes. Metabolic routes and cellular processes were revealed as the most disturbed pathways.

EP054 / #381

E-Poster Topic: *AS02. Infancy*

DRIED BLOOD SPOT-BASED METABOLOMICS REVEALS NUTRIENT AND XENOBIOTIC METABOLITES ASSOCIATED WITH CHILD GROWTH IN GUATEMALA

Brigitte Pfluger[1], Elizabeth Ryan[2], Mirella Barrientos[3], Alexis Giunta[4], Molly Lamb[5], Roberto Delgado-Zapata[3]
[1]Emory University, Rollins School Of Public Health, Atlanta, United States of America, [2]Colorado State University, Epartment Of Environmental And Radiological Health Sciences, Fort Collins, United States of America, [3]Colorado School of Public Health, Center For Global Health, Aurora, United States of America, [4]Colorado State University, Department Of Food Science And Human Nutrition, Fort Collins, United States of America, [5]Colorado School of Public Health, Department Of Epidemiology, Aurora, United States of America

Background and Aims:

Each individual has a unique and variable set of life course environmental exposures (exposome) that impact health and disease risk, and children are especially vulnerable. This 3-month study assessed the impacts of rice bran integration into household diets on nutrition and xenobiotic metabolic pathways in four communities in southwest Guatemala. We aim to examine and establish changes in the dried blood spot (DBS) metabolome during critical windows of child growth.

Methods:

Thirty mother-child pairs were enrolled and asked to incorporate distributed rice bran into the household's diet. Infants were between 6 months and 2 years old at enrollment. DBS samples obtained via finger/heel prick and infant anthropometric measurements were collected at baseline, midline, and endline. DBS samples are being run for metabolomics via untargeted and targeted methods to detect nutrient and chemical metabolites.

Results:

Our analysis is underway, and will be finished by January 2023. At enrollment, mean maternal age was 25.6 years, and average infant length-for-age and weight-for-length z-scores were -0.6. We anticipate significant positive associations with child weight-related z-scores among metabolites involved in lipid and amino acid pathways and negative associations among pesticide and air pollutant metabolites.

Conclusions:

Metabolomics approaches to studying food components and xenobiotics in DBS could unveil a suite of chemicals of concern for child health in addition to molecules with beneficial properties. Moreover, relatively few studies have utilized DBS-based metabolomics approaches, and no

study to our knowledge has utilized DBS to assess the metabolic nutrient and xenobiotic changes associated with infant growth in low- and middle-income countries.

EP055 / #536

E-Poster Topic: *AS02. Infancy*

A NOVEL INTEGRATED MULTIDISCIPLINARY EARLY LIFE-SPECIFIC PLATFORM TO TEST AND EVALUATE THE GUT HEALTH BENEFITS OF EARLY LIFE NUTRITION FOR INFANTS AND PIGLETS

Joanne M Donkers[1], Maria Wiese[2], Marjolein Meijerink[3], Martien P Caspers[2], Frank Schuren[2], Evita Van De Steeg[1], Margreet Heerikhuisen[2], Nicolette Pouw[4], Jolanda H.M. Van Bilsen[3]
[1]TNO, Metabolic Health Research, Leiden, Netherlands, [2]TNO, Microbiology & Systems Biology, Leiden, Netherlands, [3]TNO, Risk Assessment For Products In Development, Utrecht, Netherlands, [4]TNO, Biomedical Health, Leiden, Netherlands

Background and Aims:

In the first period of life, foundations of lifelong immune homeostasis and microbial colonization in the gut are established. Optimized diets during this vulnerable period may be most effective for improving health. Here, we address this window of opportunity through advanced integration of ex vivo and artificial intelligence (AI) technologies that represent the infant/piglet gut environment and use this novel platform to evaluate gut health benefits of early life nutrition ingredients.

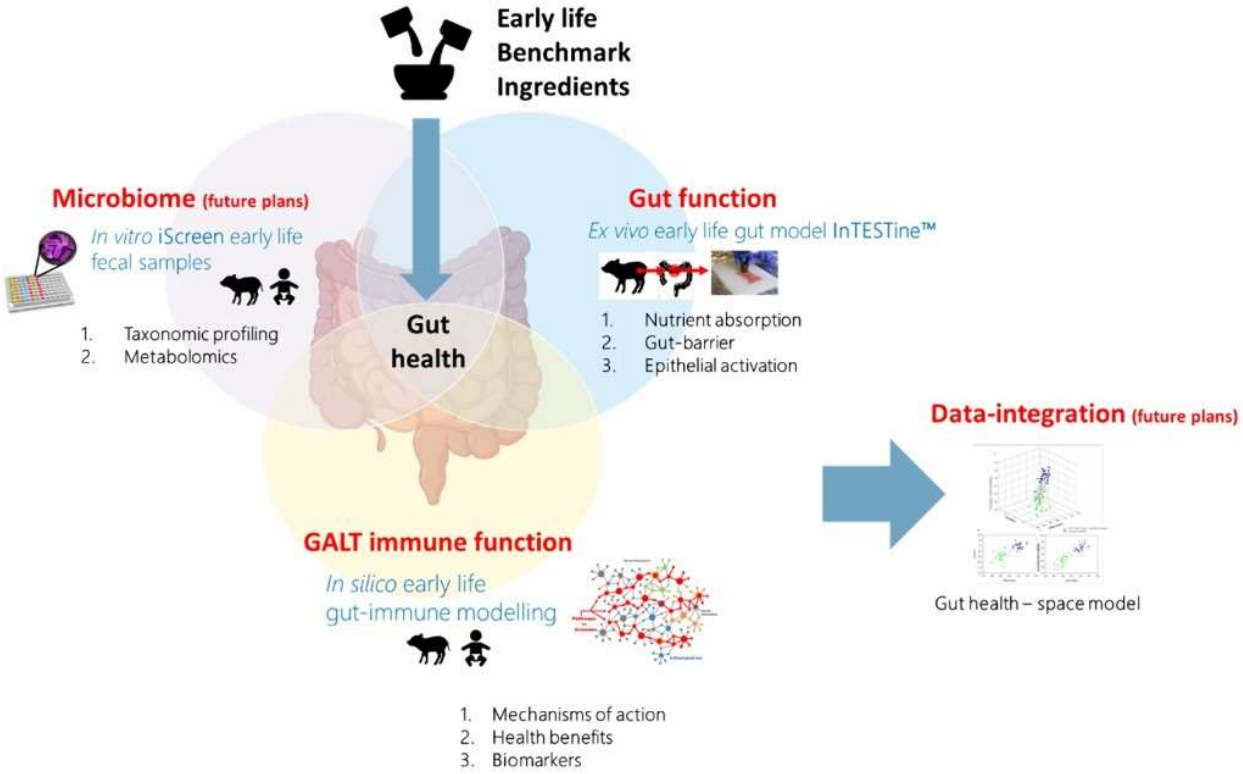
Methods:

Early life-specific gut health was modelled by integrating two technologies, 1) ex vivo human infant-like gut tissue model (early life piglet InTESTine™), and 2) AI modeling of human infant gut-immune function into a visualization tool, a 'gut health space model'. Docosahexaenoic acid (DHA) was selected as benchmark food ingredient to set-up and validate the novel research pipeline.

Results:

Six-hour exposure of pre-weaned piglet colon tissue to 50 μM DHA resulted in proper tissue functionality (transcellular/paracellular transport >2), intact tissue integrity (FITC-dextran 4000 leakage maximally 1.4%/h) and preserved tissue viability (cumulative lactate dehydrogenase release of 5.9%). Furthermore, 2174 differentially expressed genes were discovered by RNA sequencing. In line with clinical data from literature, gene set enrichment and pathway analysis indicated that DHA affects multiple mechanisms such as decreased allergy-related processes and inflammation, increased wound healing and gut barrier function.

Conclusions:



We demonstrated a novel integrated early life-specific platform to evaluate early life nutrition ingredients in order to support and improve gut health in early life. Next, we will incorporate an in vitro human infant microbiome screen (early life i-screen) into the workflow.

EP056 / #192

E-Poster Topic: *AS02. Infancy*

HUMAN MILK MACRONUTRIENT COMPOSITION DURING FIRST SIX MONTHS OF LACTATION IN EXCLUSIVELY BREASTFEEDING FILIPINO WOMEN

Jose Manuel Ramos Nieves[1], Tinu Mary Samuel[2], Yipu Chen[2], Mickaël Hartweg[2,3], Rachel B Lawenko[4], Jowena D Lebumfacil[5], Elvira M Estorninos[4], Aristea Binia[6]
[1]Nestlé Research, Institute Of Health Sciences, Vevey, Switzerland, [2]Nestlé Product Technology Center-Nutrition, Société des Produits Nestlé S.A., Nutrition Clinical Research, Vevey, Switzerland, [3]Societe des Produits Nestle SA: Nestle SA, Clinical Research Unit, Lausanne, Switzerland, [4]Asian Hospital & Medical Center, Asian Hospital & Medical Center, Muntinlupa City, Philippines, [5]Wyeth Philippines, Inc, Clinical Research Operations, Makati City, Philippines, [6]Société de Produits Nestlé S.A., Institute Of Health Sciences, Vevey, Switzerland

Background and Aims:

We aimed to evaluate longitudinal changes in macronutrient concentrations of breastmilk in a prospective, observational study of 41 exclusively breastfeeding Filipino mothers during the first months of lactation.

Methods:

Macronutrient concentrations in breastmilk were measured at visit 1 (V1, 21-26 days of age), 2 (V2, 42-47 days), 3 (V3, 2.5 to 2.75 months) and 4 (V4, 4 months) using the MIRIS human milk analyzer (MIRIS AB, Uppsala, Sweden). Concentrations at single visits and differences between timepoints were calculated and compared using a linear mixed model adjusted for visit, infant sex and mode of delivery.

Results:

Significant changes in the concentration of all macronutrients were observed during early lactation (Table 1). Carbohydrates increased by 0.119 g/100 ml (Standard Error, SE: 0.036, $p<0.005$) from V1 to V2. Total fat and energy decreased from V1 to V2 by 1.205 g/100ml (SE: 0.367, $p<0.005$) and 11.61 kcal/100ml (SE:3.274, $p=0.001$), respectively. True protein significantly decreased from V1 to V2 by 0.180 g/100ml (SE: 0.034, $p<0.001$) and also from V2 to V3 by 0.093 g/100ml (SE: 0.033, $p<0.05$). No other changes were observed and no effects of infant sex or delivery mode were significant.

Table 1: Median concentrations (Interquartile Range) of breastmilk macronutrients and energy

Total macronutrient (g/100 ml)	V1	V2	V3	V4
Infant age	*21-26 days*	*42-47 days*	*2.5-2.75 months*	*4 months*
Carbohydrates	6.98 (6.82-7.11)	7.08 (6.99-7.21)	7.17 (6.94-7.30)	7.02 (7.03-7.37)
True protein	1.22 (1.14-1.34)	1.06 (0.98-1.13)	0.96 (0.84-1.03)	0.91 (0.77-0.99)
Fat	4.73 (3.98-6.09)	3.84 (3.06-5.03)	4.10 (2.53-5.58)	3.70 (2.39-5.79)
Energy	79.28 (71.30-91.83)	69.86 (63.28-82.46)	71.73 (58.47-84.96)	68.64 (55.13-87.48)

Conclusions:

To our knowledge, this is the only study that quantified longitudinal breastmilk composition of Filipino women during the exclusive breastfeeding period. The most dynamic changes were observed during early lactation, reflecting the evolution from transitional to mature milk and the adaptive nature of human milk tailoring to infants' evolving nutritional requirements.

EP057 / #248

E-Poster Topic: *AS02. Infancy*

IMPACTS OF CONSUMPTION OF ULTRA-PROCESSED FOODS ON THE CHILD HEALTH: A SYSTEMATIC REVIEW

Karla Danielly Ribeiro[1], Priscila Gomes De Oliveira[1], Juliana Morais De Sousa[1], Débora Gabriela Fernandes Assunção[1], Elias Elias Kelvin Severiano De Araújo[2]
[1]Federal University of Rio Grande do Norte, Pos-graduate Program In Nutrition, Natal, Brazil, [2]Federal University of Rio Grande do Norte, Departament Of Nutrition, Natal, Brazil

Background and Aims:

The consumption of ultra-processed foods (UPF) has had a negative impact on the quality of the diet, increasing the risk of health problems and diseases related to overweight. Despite this, there is still little evidence that studies the impact of this consumption on child health, and it is of great importance to systematize this information.

Methods:

This search was registered in the International Prospective Register of Systematic Reviews (CRD42021236633), following the guidelines of the PRISMA in the PubMed/Medline, Scopus, Web of Science, Scielo and CAPES directory. The eligibility criteria were: diet by the NOVA classification, observational studies with infants/children and analysis of health outcomes (nutritional and diseases) associated with UPF consumption. The methodological quality was assessed using the Newcastle-Ottawa Scale (Rob 2).

Results:

The searches retrieved 8.294 studies and 10 met the eligibility criteria. The UPF consumption was 23.2% - 76.0% of energy diet. It was observed that the greater participation of UPF in the diet has been associated with increased adiposity, fetal growth-restricted, cognitive development, smaller diet quality, early weaning and satiety, metabolic alterations, diseases, and consumption of plastic originated from packaging. Only one of the included studies did not show high methodological quality.

Conclusions:

Despite the limited literature, higher UPF consumption had a negative impact on nutrition indicators and disease development. Other studies should be conducted to further investigate the impact of UPF consumption on different health indicators, especially in the lactation phase for this was the one to present the most important knowledge gap.

EP058 / #256

E-Poster Topic: *AS02. Infancy*

IS THERE A DIFFERENCE IN CHILD GROWTH ACCORDING TO MATERNAL CONSUMPTION OF ULTRA-PROCESSED FOODS?

Karla Danielly Ribeiro[1], Juliana Morais De Sousa[1], Priscila Gomes De Oliveira[1], Juliana Dametto[2], Lara Virginia Pessoa De Lima[1], Lígia Rejane Siqueira Garcia[3], Danielle Bezerra[3], Alicia Baracho[2]
[1]Federal University of Rio Grande do Norte, Pos-graduate Program In Nutrition, Natal, Brazil, [2]Federal University of Rio Grande do Norte, Departament Of Nutrition, Natal, Brazil, [3]Federal University of Rio Grande do Norte, Health Sciences College Of Trairi, Santa Cruz, Brazil

Background and Aims:

Scientific evidence indicates that nutrition in the lactation period can play an important role in child health, since the maternal diet directly influences the composition of breast milk and indirectly influences the nutritional environment in which the infant is exposed, both reflecting on the growth of the offspring. Thus, this study aimed to assess whether there is a difference in the anthropometric profile of infants according to maternal consumption of ultra-processed foods (UPF) during lactation.

Methods:

A cross-sectional study carried out with a mother-child dyad in Natal/Brazil, starting at 60 days postpartum. Socioeconomic and health data were collected through an electronic questionnaire and maternal consumption by 24-hour recall. Foods were categorized according to processing by Nova classification. The growth of infants was assessed by z-score according to weight-age, length-age and BMI-age indices. After analysis of consumption, foods were categorized according to the NOVA classification, with women being divided into two groups according to quartiles of energy share of UPF consumption (>= 75th quartile and <).

Results:

When analyzing data from 42 dyads, it was observed that children in the maternal group with the highest consumption of UPF had higher z-scores for BMI/Age and Weight/Age, p=0.049 and p=0.048, respectively.

Conclusions:

The data suggest that a greater participation of UPF in the maternal diet can influence the growth pattern, affecting indicators related to the child's adiposity.

EP059 / #352

E-Poster Topic: *AS02. Infancy*

POPULATION-LEVEL ASSOCIATIONS OF VIOLENT CONFLICT AND BIRTHWEIGHT: ANALYSES OF THE 1991-2020 PERU DEMOGRAPHIC HEALTH SURVEYS.

Emeline Rougeaux[1], Mario Cortina-Borja[2], Mary Fewtrell[1], J. Jaime Miranda[3,4,5], Jonathan Wells[1]
[1]University College London, Childhood Nutrition Research Center, Ucl Great Ormond Street Institute Of Child Health, London, United Kingdom, [2]UCL, Gos Institute Of Child Health, London, United Kingdom, [3]Universidad Peruana Cayetano Heredia, Cronicas Centre Of Excellence In Chronic Diseases, Lima, Peru, [4]Universidad Peruana Cayetano Heredia, Department Of Medicine, School Of Medicine, Lima, Peru, [5]UNSW, The George Institute For Global Health, Sydney, Australia

Background and Aims:

Studies have shown that maternal exposure to armed conflict and associated violence can negatively affect offspring health and development. This study seeks to investigate the population-level trends in mean birth weight (MBW) and low birth weight prevalence (LBW) in Peru across periods of conflict (1980-2000) and post-conflict.

Methods:

Using Demographic Health Surveys, providing data on children born in 1986-2020, MBW and LBW by year of birth were assessed using survey-weighted linear regression (as mean grams) and logistic regression (as %) analysis respectively, adjusting for confounders, and stratified by geographical area. Source of birthweight (health card versus maternal recall) was also considered.

Results:

MBW declined for children born in 1986 to 2004 by 88 grams (95% CI: 46-131g) before making a recovery by 42 g [12-73 g] to 2020). LBW remained stable in 1986-2004 at 7% (7-8%), then declined by 3% (1-4%) to 2020. Geographical areas more affected by the conflict had a steeper decline in MBW, and higher LBW in the conflict period. Further analyses of missing data and source of birthweight suggest the decline in MBW in the conflict period may have been underestimated.

Conclusions:

The Peruvian conflict was associated with a decline in mean birthweight, and a higher prevalence of LBW, which persisted for several years afterwards. The associations were stronger in regions most affected by the conflict. Though there was a recovery subsequently, this was slow and MBW may still be lower today than it would have been had conflict not occurred.

EP060 / #139

E-Poster Topic: *AS02. Infancy*

THE FIRST YEAR OF LIFE IN THE CRIBS COHORT – ASSOCIATION WITH MATERNAL HEALTH AND LIFESTYLE

Jelena Šarac[1], Dubravka Havaš Auguštin[1], Iva Šunić[1], Mario Lovrić[2,3], Natalija Novokmet[1], Saša Missoni[1,4]
[1]Institute for Anthropological Research, Centre For Applied Bioanthropology, Zagreb, Croatia, [2]Know-Center, Graz, Austria, Know-center, Graz, Austria, [3]Chemical codes d.o.o., Chemical Codes D.o.o., Zagreb, Croatia, [4]'J. J. Strossmayer' University, Faculty Of Dental Medicine And Health, Osijek, Croatia

Background and Aims:

Background: Maternal health and lifestyle before and during pregnancy influences foetal programming and can have long-term effects on child's health, together with breastfeeding patterns. Additionally, child early growth patterns can represent warning signs for obesity development.

Aim: The aim is to investigate child growth trajectories in the first year of life and link them to maternal characteristics and breastfeeding patterns, in order to detect early risk factors for obesity.

Methods:

Subjects and methods: 98 mother-child pairs from the CRIBS cohort were included in the study. Data were collected from questionnaires and medical records. Analyses were performed using R version 4.2.1 and Python version 3.8.8.

Results:

Results: CRIBS children are generally in good health and their Z-score trajectories in the first year of life are in line with the WHO standards. The results show that child weight gain in the first 6 months is associated with maternal BMI before pregnancy ($p<0.01$). Exclusive breastfeeding is dominant in the first month and highly prevalent in the first six months of a child's life in our cohort, with a more pronounced percentage in the island populations. A positive association has also been established between breastfeeding and maternal SES and mothers that report unhealthy diet have heavier children ($p<0.05$, respectively).

Conclusions:

Conclusion: The trajectories of child growth in Croatia are in line with WHO standards, suggesting that risk factors for obesity development are not within the first year of life. However,

more effective BMI monitoring and promotion of healthy diet and lifestyle before and during pregnancy is needed.

EP061 / #328

E-Poster Topic: *AS02. Infancy*

A BLEND OF NUTRIENTS AFFECTS ASPECTS OF INFANT SLEEP AND TODDLER SOCIABILITY: A RANDOMIZED CONTROLLED TRIAL

Nora Schneider[1], Mickaël Hartweg[2], Purva Rajhans[1], Jennifer Beauchemin[3], Viren D'Sa[3], Sean Deoni[3]
[1]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Brain Health Department, Lausanne, Switzerland, [2]Societe des Produits Nestle SA: Nestle SA, Clinical Research Unit, Lausanne, Switzerland, [3]Brown University, The Warren Alpert Medical School, Providence, United States of America

Background and Aims:

Aim is to present the effect of a nutrient blend (docosahexaenoic acid, arachidonic acid, iron, vitamin B12, folic acid, and sphingomyelin from a uniquely proceed whey protein concentrate enriched in alpha-lactalbumin and phospholipids) on sleep and behavior in children.

Methods:

N = 81 enrolled infants were randomized into investigational (N = 42) or control group (N = 39). Infant sleep (BISQ), infant and toddler behavior (IBQ-R and TBAQ), and social-emotional development (ASQ:SE-2) were assessed repeatedly up to 2 years of life.

Results:

Children in the investigational group slept more during the day at 12 months (2.9 vs. 2.4 hours, +0.5 hours; p = 0.044) and showed less night awakenings at 6 months (2.2 vs. 1.3, -40%; p = 0.046), while total night sleep hours were similar between groups. Significantly reduced social fear at 24 months (p = 0.046) and trends towards improved high intensity pleasure (score 6.5 vs 6.2 at 12 months) and reduced sadness (score 3.4 vs 3.7 at 3 months) were observed in favor of the investigational group. No group differences were detected for overall social-emotional development.

Conclusions:

Less night awakenings and longer day time naps in infants have been linked to better memory performance (1). Increased social fear, an aspect of sociability linked to hesitation, distress, or shyness in novel social situations, during toddlerhood has been associated with higher risk for anxiety behaviors in later childhood (2,3). Our findings support the positive impact of a nutrient blend on infant sleep and toddler sociability in term-born, well-nourished children.

EP062 / #545

E-Poster Topic: *AS02. Infancy*

THE INFLUENCE OF MOTHERS` GENETIC PREDISPOSITION TO OBESITY ON THE LEPTIN LEVEL IN BREAST MILK AND ITS CONSUMPTION BY INFANTS WITH DIFFERENT GROWTH RATE

Nataliya Shilina[1], Elena Sorokina[2], Tatiana Legonkova[3], Ekaterina Netunaeva[1], Ksenia Shpakovskaya[4], Ekaterina Pyrieva[1]
[1]Federal Research Centre of Nutrition, Biotechnology and Food Safety, Laboratory Of Age-based Nutritiology, MOSCOW, Russian Federation, [2]Federal Research Centre of Nutrition, Biotechnology and Food Safety, Laboratory Of Demography And Nutritional Epidemiology, MOSCOW, Russian Federation, [3]Smolensk State Medical University, Department Of Propaedeutics Of Childhood Diseases And Faculty Pediatrics, Smolensk, Russian Federation, [4]Federal Research Centre of Nutrition, Biotechnology and Food Safety, Department Of Propaedeutics Of Childhood Diseases And Faculty Pediatrics, Smolensk, Russian Federation

Background and Aims:

Pattern of growth in infancy is important for future health. The study of detailed mechanisms of early growth stays actual. Our aim was to study the influence of mothers` genetic predisposition to obesity on the leptin level in breast milk (BM) and its consumption by infants with different growth rate.

Methods:

103 mother-infants pairs were involved in the study and mothers gave informed consent for research. BM was obtained at 10-14 day of lactation. Leptin level was determined in defatted BM by ELISA. Women were genotyped for rs9939609 FTO gene polymorphism by real time PCR. At the age of 1 month infants were divided into 2 groups according to delta Z-score “weight for length” (WLZ) (ANTHRO): 1 - infants with delta WLZ <0.6 and 2 - infants with delta WLZ >0.6.

Results:

Higher level of leptin (2.92±0.32 vs.1.93±0.36 ng/ml, p=0.042) was found in the BM of mothers in group 2.The frequency of allele A of the rs9939609 in mothers was 27%. After delivery, in mothers - carriers of TT genotype the highest BMI ($p_{TT/AT}$=0.039) as well as the highest content of leptin in their BM was reveled (3.1±0.3 ng/ml, 0.61±0.4 ng/ml and 1.16±0.4 ng/ml, for TT, AT, AA genotypes, respectively, $p_{AA/TT}$=0.004, $p_{AT/TT}$=0.018).

Conclusions:

Consumption of leptin with BM seems important for high growth rate in early infancy. Higher weight gain during pregnancy in mothers-carriers of TT genotype of rs9939609 that have,

according to the literature, lower BMI as compared to carriers of A allele, possibly guarantees high level of leptin in BM.

EP063 / #304

E-Poster Topic: *AS02. Infancy*

MIXED MILK FEEDING PATTERNS AND GROWTH OUTCOMES DURING THE FIRST YEAR OF LIFE IN ASIAN INFANTS

Liandre Frances Van Der Merwe[1], Outi Sirkka[1], Oon Hoe Teo[2], Lynette Pei-Chi Shek[3], Wei Wei Pang[4]
[1]Danone Nutricia, Specialized Nutrition Unit, Utrecht, Netherlands, [2]KK Women's and Children's hospital, Department Of Pediatrics, Singapore, Singapore, [3]Khoo Teck Puat - National University Children's Medical Institute, National University Health System, Division Of Allergy And Immunology, Singapore, Singapore, [4]Yong Loo Lin School of Medicine, National University of Singapore, National University Health System, Department Of Obstetrics And Gynaecology, Singapore, Singapore

Background and Aims:

Varying definitions have been used to categorize mixed milk feeding (MMF) patterns in studies focused on feeding and infant growth, posing a challenge when making comparisons and interpretations. Furthermore, MMF encompasses vastly heterogeneous and evolving feeding behaviors that are difficult to standardize longitudinally.

We previously described a new approach for studying MMF patterns across the 1st year, using a multivariate clustering algorithm. Here, we describe infant growth patterns across the identified feeding clusters in the VENUS trial (n=539; NCT01609634; Singapore).

Methods:

Using a linear mixed effects model including several infant and maternal covariates (e.g. delivery mode, ethnicity, maternal BMI and education level) we estimated associations between the different feeding clusters and growth outcomes longitudinally, including weight, length and BMI z-scores.

Results:

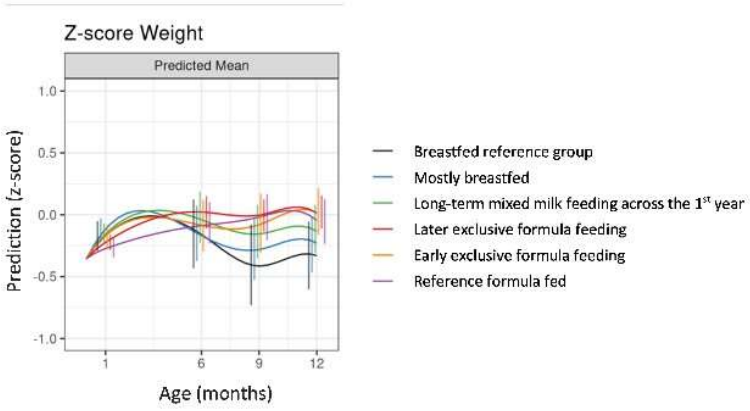


Figure 1: Weight gain trajectories of infants across the 1st year of life, by milk feeding cluster

Mean weight z-scores per cluster all fell within ±0.5SD of the WHO standard (Figure 1). No significant differences in BMI were observed at 12 months. The cluster division explained a statistically significant amount of variation in growth trajectories, over and above the variation already explained by included covariates. The order suggests a dose effect: the more breastfeeding in a cluster, the closer the growth pattern resembles that of the breastfed reference group.

Conclusions:

All MMF clusters were associated with adequate growth compared to WHO standards; no increased risk of overweight was observed at 1 year of age. Conclusions on a causal effect of feeding characteristics should be made with caution as residual confounding cannot be excluded.

EP064 / #354

E-Poster Topic: *AS02. Infancy*

A PERSPECTIVE ON THE ROLE OF TODDLER NUTRITION ON OVERWEIGHT AND CARDIOMETABOLIC HEALTH OUTCOMES

Outi Sirkka[1], Ardy Van Helvoort[1,2], Marieke Abrahamse-Berkeveld[1]
[1]Danone Nutricia, Specialized Nutrition Unit, Utrecht, Netherlands, [2]Maastricht University Medical Center+, Nutrim School Of Nutrition And Translational Research In Metabolism, Maastricht, Netherlands

Background and Aims:

Nutrition during the first 1000 days may modulate future disease risk. Yet the period of late infancy/toddlerhood (age 6 months up to 2 years) is less studied.

Methods:

Recent studies investigating the role of dietary macro- and micronutrient intakes during toddlerhood (including late infancy) in relation to the risk of overweight (incl. obesity) or cardiometabolic outcomes were reviewed.

Results:

The identified studies included mainly observational and/or a wide age range. The main findings were as following; Protein: in several studies, high protein intake was associated with overweight development, particularly among at-risk infants. Overweight risk from high protein intake seemed to differ between breast- and formula-fed infants and depend on the source of protein (animal/dairy vs. plant). Fat: association between fat intake and overweight was inconsistent and differed in some studies according to child's age/growth pattern. Fat quality was found to modify blood lipid parameters in some studies. Carbohydrates/fibre: Carbohydrate quality, particularly sugar-sweetened beverage intake, was associated with overweight. In some studies, whole-grain fibre (subtypes) intake was associated with a lower risk of overweight or cardiometabolic outcomes. Micronutrients: no studies related to the specific health outcomes among healthy toddlers were identified.

Conclusions:

Observational studies suggest a potential role for particularly protein intake/quality and carbohydrate quality on overweight during childhood. The effects of fat and fibre quality should be further investigated. The period of late infancy and toddlerhood shows a research gap and further well-designed studies on this topic are required.

EP065 / #150

E-Poster Topic: *AS02. Infancy*

RISK FACTORS FOR THIAMINE RESPONSIVE DISORDERS AMONG INFANTS AND YOUNG CHILDREN HOSPITALIZED FOR THIAMINE DEFICIENCY DISORDERS IN NORTHERN LAO PDR

Taryn J Smith[1], Xiuping Tan[1], Charles D Arnold[1], Dalaphone Sitthideth[2], Philip R Fischer[3], Indi Trehan[4], Laurent Hiffler[5], Sengchanh Kounnavong[2], Sonja Hess[1]
[1]University of California Davis, Institute For Global Nutrition, Davis, United States of America, [2]Ministry of Health, Lao Tropical And Public Health Institute, Vientiane, Laos, [3]Mayo Clinic, Department Of Pediatric And Adolescent Medicine, Rochester, United States of America, [4]University of Washington, Department Of Pediatrics And Department Of Global Health, Seattle, United States of America, [5]Cellular Nutrition Research Group, ., Lagny sur Marne, France

Background and Aims:

Thiamine deficiency is a significant public health concern in Lao PDR. This study aimed to explore risk factors associated with thiamine responsive disorders (TRD) among young children hospitalized with signs and symptoms suggestive of thiamine deficiency disorders (TDD).

Methods:

Children (21 days – <18 months of age) hospitalized for signs and symptoms suggestive of TDD were treated with thiamine (100mg daily for ≥3 days) and their clinical and recovery status monitored at regular intervals for up to 72 hours. Three pediatricians independently reviewed case reports for each child and assigned a TRD score (TRD or non-TRD). Regression modelling was used to assess predictors associated with TRD.

Results:

Overall, 423 children were assigned a TRD status (mean±SD age 4.3±3.4 months; 61.0% male; 70.2% exclusively/predominantly breastfed; 60.8% TRD). Breastfed children were 3.6 times more likely to be TRD compared to non-breastfed children (p=0.001), and children with higher weight-for-age and weight-for-length z-scores were 1.2-1.3 times more likely to be TRD (p=0.004 and p=0.0005, respectively). Children living in households with mild, moderate or severe food insecurity were 1.2-1.9 times more likely to be TRD compared to children living in food secure households (p=0.05). Maternal or household head occupation as a skilled worker was associated with a lower risk of TRD compared to occupation as a farmer (p=0.07).

Conclusions:

In this study population, there was a high prevalence of TRD that was associated with a range of nutritional and socioeconomic factors. Multi-sectoral interventions that target women's nutrition are required to prevent thiamine deficiency among children in this setting.

EP066 / #334

E-Poster Topic: *AS02. Infancy*

EVALUATING THE AMSTERDAM INFANT MICROBIOME STUDY (AIMS): A PROSPECTIVE BIRTH COHORT STUDY ON THE DEVELOPMENT OF THE MICROBIOME IN RELATION TO GROWTH AND NUTRITION

Joanne Ujcic-Voortman, Luuk Haring, Marjolein Timmermans, Joy Hall, Arnoud Verhoeff
Public Health Service Amsterdam, Healthy Living, Amsterdam, Netherlands

Background and Aims:

There is increasing attention for the role of the human microbiome in the development of overweight/obesity. AIMS is a prospective multi-ethnic birth cohort study among 500 infants on microbiome development in relation to growth and nutrition. From pregnancy until infant age of 3 years, biosamples from several body sites are collected with self-collection kits. Midwifes aid in recruitment and sample collection at birth. Questionnaires and 3-day food diaries (3DFD) are used to assess information on health, nutrition, and other relevant factors. AIMS is a sub-study of the Sarphati Cohort, allowing for long-term follow-up on growth trajectories through Youth Health Care records.

Methods:

We evaluated AIMS through semi-structured qualitative interviews with participants and midwifes, and analysed response and compliance rates. Interviews were transcribed, double-coded and analysed (MAXQDA). Using Shotgun Metagenomics we assessed whether sampling procedures yielded reliable microbiome analysis results.

Results:

Participants and midwifes were positive about AIMS. The extensive data collection scheme was acceptable. Participant burden was highest for 3DFD: too time consuming and detailed. Compliance was high (60%-100%) and drop-out low (6%). Response rates were relatively low among non-Dutch and lower educated mothers. Midwifes reported recruitment to be challenging in these groups. Microbial DNA was successfully extracted in 148 out of 204 samples, yet unsuccessful for skin samples. Metagenomics sequencing yielded satisfactory results.

Conclusions:

Participant satisfaction and compliance rates are high. More attention is needed for introducing 3DFD. Biosample quality is satisfactory, except skin samples. The protocol was amended: skin sample collection is eliminated, more accessible communication materials, higher incentives.

EP067 / #207

E-Poster Topic: *AS02. Infancy*

THE EFFECT OF VITAMIN B12 SUPPLEMENTATION ON LEUKOCYTE TELOMERE LENGTH IN MILDLY STUNTED NEPALESE CHILDREN: A RANDOMIZED CONTROL TRIAL

Manjeswori Ulak[1,2], Ingrid Kvestad[3,4], Ram Krishna Chandyo[5], Catherine Schwinger[1], Sudha Basnet[2], Merina Shrestha[2], Suman Ranjitkar[2], Per Magne Ueland[6], Adrian Mccann[6], Tor A Strand[1,4]
[1]University of Bergen, Department Of Global Public Health And Primary Care, Bergen, Norway, [2]Institute of Medicine, Tribhuvan University, Department Of Pediatrics, Kathmandu, Nepal, [3]NORCE Norwegian Research Centre, Regional Centre For Child And Youth Mental Health And Child Welfare, Bergen, Norway, [4]Innlandet Hospital Trust, Deparment Of Research, Lillehammer, Norway, [5]Kathmandu Medical College, Department Of Community Medicine, Kathmandu, Nepal, [6]Haukeland Hospital, Bevital As, Bergen, Norway

Background and Aims:

Vitamin B_{12} is essential for DNA synthesis and genome stability. Deficiency of vitamin B_{12} is associated with telomere shortening, genomic ageing and increased risk of chronic disease and mortality. The aim of this study was to determine the effect of vitamin B_{12} supplementation on leukocyte telomere length in infants at risk of vitamin B_{12} deficiency.

Methods:

The study was a randomized controlled trial enrolling 600 Nepalese infants aged 6 -11 months, who were supplemented with 2 µg (2-3 recommended daily allowances) vitamin B_{12} or placebo daily for one year. Leukocyte telomere length (LTL) was measured in 497 participants at end supplementation. LTL was measured by PCR based assay. The mean LTL were compared between the treatment arms in the full sample and in predefined subgroups based on markers of vitamin B_{12} status, hemoglobin, and growth indices.

Results:

Leukocyte telomere length (LTL) at end-study did not differ between the vitamin B_{12} and placebo group, with a relative mean difference (95% CI) of 0.007 (-0.026 to 0.041) units. There were no associations between LTL any of the vitamin B_{12} biomarkers and no effect of vitamin B_{12} on LTL in any subgroup.

Conclusions:

Providing daily vitamin B_{12} for a year during infancy in a population at risk of vitamin B_{12} deficiency does not affect leukocyte telomere length.

EP068 / #414

E-Poster Topic: *AS02. Infancy*

A SYSTEMATIC REVIEW OF BREAST MILK MICROBIOTA COMPOSITION AND THE EVIDENCE FOR TRANSFER TO AND COLONISATION OF THE INFANT GUT

Carolien A Van Loo-Bouwman[1], Christine A Edwards[2], Janna A Van Diepen[3], Marieke H Schoemaker[3], Susan E Ozanne[4], Koen Venema[5], Catherine Stanton[6], Vittoria Marinello[2], Ricardo Rueda[7], Matthieu Flourakis[8], Angel Gil[9], Eline M. Van Der Beek[10]
[1]Yili Innovation Center Europe, Bronland 12 E-1, Wageningen, Netherlands, [2]University of Glasgow, Human Nutrition, School Of Medicine, Dentistry, And Nursing, College Of Medical, Veterinary, And Life Sciences, Glasgow, United Kingdom, [3]Reckitt/Mead Johnson Nutrition Institute, Medical And Scientific Affairs, Nijmegen, Netherlands, [4]University of Cambridge, Wellcome-mrc Institute Of Metabolic Science And Medical Research Laboratories, Cambridge, United Kingdom, [5]Maastricht University, Department Of Human Biology, Centre For Healthy Eating & Food Innovation,, Maastricht, Netherlands, [6]Teagasc Food Research Centre, Cork, Dublin, Ireland, [7]Abbott Nutrition, R&d Department, Granada, Spain, [8]ILSI Europe, Av. E. Mounier 83, Brussels, Belgium, [9]University of Granada, Department Of Biochemistry And Molecular Biology Ii, Granada, Spain, [10]University of Groningen, Department Of Pediatrics, Groningen, Netherlands

Background and Aims:

The intestinal microbiota plays a major role in infant health and development. However, the role of the breastmilk microbiota in infant gut colonisation remains unclear. The aim is to evaluate the composition of the breastmilk microbiota and systematically review the evidence for transfer to/colonisation of the infant gut.

Methods:

Searches were performed using PUBMED, OVID, LILACS, and PROQUEST from inception until 18th March 2020 with a PUBMED update to December 2021. 88 full texts were evaluated before the final critique based on study power, sample contamination avoidance, storage, purification process, DNA extraction/analysis, and consideration of maternal health and other potential confounders.

Results:

The risk of skin contamination was reduced mainly by breast cleaning and rejecting the first milk drops. Sample storage, DNA extraction, and bioinformatics varied. Several studies stored samples under conditions that may selectively impact bacterial DNA preservation, others used preculture reducing reliability. Only 15 studies, with acceptable sample size, handling, extraction, and bacterial analysis, considered transfer of bacteria to the infant. Three reported bacterial transfer from infant to breast milk.

Conclusions:

Despite consistent evidence for the breastmilk microbiota, and recent studies using improved methods to investigate factors affecting its composition, few studies adequately considered transfer to the infant gut providing very little evidence for effective impact on gut colonisation.

EP069 / #58

E-Poster Topic: *AS02. Infancy*

FEEDING AND BEHAVIOR IN HIGH-RISK INFANTS: DEVELOPMENTAL IMPACT AND OUTCOMES

Harry Voulgarakis
St. Josephs University, Child Study, New York, United States of America

Background and Aims:

Many infants present with complex feeding challenges. Even in typically developing infants, some studies estimate as high was 40-50%, will expereince feeding challenges. This incidence is significantly higher, estimated at 80 to 90%, in high-risk infants. Common issues including prematurity, medical conditions, oral motor deficits, as well as neurodevelopmental disorders can exacerbate these challenges alongside their already compromised development. This can have a notable impact on young children's growth and development throughout the first year of life and beyond and have been shown to prolong NICU stays. Fortunately, there is a growing body of research to suggest that both behavioral and biomedical interventions can reduce the long-term effects and assaociated challenges.

Methods:

The current paper/presentation will review assessment methods including physical examination and evaluation, parent and caregiver rating scales, provider input, as well as more recently developed measures to provide a thorough assessment of feeding challenges and needs both in and outside of neonatal intensive care. Databases were scoped specifically within the last five years to generate a systematic list of evidence-based strategies to manage feeding challenges in high risk infants.

Results:

Rating scale assessment, physical evaluation, contingency management, desensitization, fading, parent mediated interventions, and individualized management and care have all been proven effective at mitigating challenges associated with infant feeding behaviors. Evidence for each of these strategies as well as practical approaches will be discussed.

Conclusions:

Various interventions have proven effective at managing feeding challenges in high-risk infants. However, proactive evaluation, collaboration among providers/families, and continued research is required to advance our understanding of long-term impacts on behavior and development.

EP070 / #547

E-Poster Topic: *AS03. Childhood & Adolescence*

EFFECT OF PROBIOTICS ON IMMUNE RESPONSES FOR THE MANAGEMENT OF ACUTE RESPIRATORY AND SARS-COV-2 INFECTION IN CHILDREN AND ADOLESCENTS: A REVIEW

Rina Agustina[1,2], Dwi Susanti[3,4], Mira Mutiyani[3,5], Triska S Nindya[3,6], Deviana A.S Siregar[2], Fhadilla Amelia[2], Rizana Fajrunni'Mah[7], Anuraj H Shankar[8,9], Karina R Ekawidyani[10]
[1]Department of Nutrition, Faculty Of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, [2]Human Nutrition Research Center, Indonesian Medical Education and Research Institute (HNRC-IMERI), Faculty Of Medicine, Universitas Indonesia, Jakarta, Indonesia, [3]Doctoral Program in Nutrition, Faculty Of Medicine, Universitas Indonesia, Jakarta, Indonesia, [4]Department of Public Health and Preventive Medicine, Faculty Of Medicine, Universitas Airlangga, Surabaya, Indonesia, [5]Department of Nutrition, Poltekkes Kemenkes Bandung, Bandung, Indonesia, [6]Department of Nutrition, Faculty Of Public Health, Universitas Airlangga,, Surabaya, Indonesia, [7]Politeknik Kesehatan, Kementerian Kesehatan Jakarta Iii, Jakarta, Indonesia, [8]Oxford University Clinical Research Unit - Indonesia, University Of Oxford, Jakarta, Indonesia, [9]Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University Of Oxford, Oxford, United Kingdom, [10]Department of Community Nutrition, Faculty Of Human Ecology, Ipb University, Bogor, Indonesia

Background and Aims:

Children and adolescents exhibit reduced immunity to respiratory tract infections (RTI) due to the effects if immaturity or puberty on the immune system. Because probiotics can modulate immune function, we reviewed the effects of probiotics in children and adolescents on the immune response to acute RTIs, including SARS-CoV-2, and to vaccinations.

Methods:

We searched published and indexed articles in PubMed, Proquest, and Ebsco using the keywords probiotic, immune response, adolescent, SARS-CoV-2, respiratory infection, vaccin*, and child*.

Results:

The effects of probiotics on the immune response to acute RTIs and vaccination in children and adolescents were heterogeneous due to differences in probiotic strains, dosages, timing and duration of administration. Probiotic strains of Lactobacillus paracasei CBA L74, L. brevis KB290, and L. rhamnosus GG ATCC 53103 (LGG)) may reduce the risk of acute RTIs with effect size range of 0.17-0.47. Moreover, probiotic strains of B.lactis Probio-M8, Streptococcus salivarius 24SMBc, and S. oralis 89a can act as therapeutic adjuvants for acute RTI. Probiotic strains, including LGG alone, combined strains (LGG, L. rhamnosus LC705, B. breve Bbi99, Propionibacterium freudenreichii ssp. Shermanii JS), and L. paracasei ssp increased antibody levels after influenza and pneumonia vaccination in children. To date, there is no published data describing the effectiveness of probiotics treatment for acute COVID-19 or seroconversion rates after SARS-CoV-2 vaccination in children and adolescents.

Conclusions:

Probiotics may potentiate the immune response of children and adolescents following vaccination and act as adjuvants for therapy by improving clinical symptoms, reducing duration of hospitalization for acute RTIs, and increasing remission in outpatients.

EP071 / #103

E-Poster Topic: *AS03. Childhood & Adolescence*

EATING OR ANXIETY DISORDER, OR NOT?

Philippe Louis Alliet[1], Sophie Verelst[1], An Backaert[2]
[1]Jessa Hospital, Dept Of Paediatrics, Hasselt, Belgium, [2]St Trudo Hospital, Dept Of Paediatrics, St Truiden, Belgium

Background and Aims:

An eleven year old girl presented with a history of decreased food intake and food phobia, resulting in gradual weight loss. Symptoms started after a choking hazard while eating a croissant. Since that event, she has been eating very slowly and avoids the intake of solid foods. Hypercaloric drinks were prescribed with the advice to gradually increasing and normalising her food intake. In the past medical history, an IgE mediated allergy against pollen, pets, house dust mite and against food allergens such as egg, fish and shellfish was diagnosed. The latter presented as anaphylaxis. These food allergens were avoided in the diet.

Methods:

She was thought to have an eating or anxiety disorder and sent for an upper endoscopy to rule out eventual other underlying disorders.

Results:

The introduction of the usual pediatric endoscope was impossible. The introduction of the smallest endoscope (diameter 0.5 cm) showed an oesofageal substenosis at 10-15 cm with concentric rings and a whitish exudate. The endoscopic suggestive diagnosis of eosinophilic oesophagitis was histologically confirmed.

Conclusions:

The differential presentation forms of eosinophilic oesophagitis and the importance of a good history in the differential diagnosis of anorexia are discussed.

EP072 / #277

E-Poster Topic: *AS03. Childhood & Adolescence*

THE SAFETY, FEASIBILITY AND EFFECTIVENESS OF KETOGENIC DIET ON PEDIATRIC PATIENTS WITH BRAIN CANCERS: SYSTEMATIC-REVIEW

Hanan Rasheed Almutairi[1], Madhumita Dandapani[1], Fiona Mccullough[2], Richard Grundy[1]
[1]University of Nottingham, Medical School, Oncology, RD, United Kingdom, [2]University of Nottingham, Bioscience, Clinical Nutrition, RD, United Kingdom

Background and Aims:

limited clinical data suggest positive effects of ketogenic diet on cancers, due to the high demand of glucose by cancer cells and that KD may weaken these cells by limiting their access to glucose. This systematic review is therefore aimed at exploring further the impact of using KD with paediatric with brain tumour.

Methods:

A systematic search was carried out using databases, for relevant literature published in English from 1995 to 2022. Quantitative observational and interventional studies involving children with BC following any type of KD were selected.

Results:

Results: Eight publications, involving 11 patients, six were males, with a median age of 5.3 years. Nine of the eleven patients followed the classic KD (CKD) with MCT oil, ratio from 2:1 to 3.5:1, remaining subjects used modified Atkins or a low carbohydrate diet. After medical and nutrtion evaluations, we can say that KD was safe with non-severe side-effects, well tolerated in both orally and enteral fed patients. Six of patients showed a positive tumour response, five patients experienced improvement in neurological skills, four patients reported improvement in growth SD. Six patients reported overall survival (OS) with the median of 17.6 months.

Conclusions:

Conclusions: KD can be a safe, feasible and promising dietary intervention for paediatric patients with BC. A dietitian being part of the multi-disciplinary team should be recommended. Generally, the majority of nutrtion therapy AEs could be solved by fine-tuning the diet. However, the effects on tumours prognosis and survival rate remain unclear and need further study.

EP073 / #530

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION OF DIETARY INTAKE WITH MICRONUTRIENT DEFICIENCY IN INDIAN SCHOOL CHILDREN - A CROSS SECTIONAL STUDY

Shally Awasthi[1], Divas Kumar[1], Abbas Ali Mahdi[2], Barkha Gupta[3], Girdhar Gopal Agarwal[4], Anuj Kumar Pandey[1], Avivar Awasthi[5], A R Somashekar[6], Mushtaq A Bhat[7], Sonali Kar[8], B N Mahanta[9], Joseph L Mathew[10], Suma Nair[11], C M Singh[12], Kuldeep Singh[13], Anish T S[14]
[1]King George's Medical University, Paediatrics, Lucknow, India, [2]King George's Medical University, Biochemistry, Lucknow, India, [3]HUL R&D centre, Nutritional Claims & Medical Affairs, Gurugram, India, [4]University of Lucknow, Statistics, Lucknow, India, [5]Kasturba Medical College, Endocrionology, Manipal, India, [6]M. S. Ramaiah Institute of Medical Sciences, Paediatrics, Bangalore, India, [7]Sher-i-Kashmir Institute of Medical Sciences, Paediatrics, Srinagar, India, [8]Kalinga Institute of Medical Sciences, Community Medicine, Bhubaneswar, India, [9]Assam Medical College, Medicine, Dibrugarh, India, [10]Post Graduate Institute of Medical Sciences, Paediatrics, Chandigarh, India, [11]DYPU School of Public Health, Public Health, Navi Mumbai, India, [12]All India Institute of Medical Sciences, Community And Family Medicine, Patna, India, [13]All India Institute of Medical Sciences (AIIMS), Jodhpur, Pediatrics, Jodhpur, India, [14]Government Medical College, Community Medicine, Thiruvananthapuram, India

Background and Aims:

Adequate nutrition is necessary during childhood and early adolescence for adequate growth and development. The objective was to assess the association between dietary intake and blood levels of calcium, iron, zinc, selenium, folate and vitamin B12 in urban school going children aged 6-16 years in India.

Methods:

Multicentric cross-sectional study enrolled participants from randomly selected schools across ten cities. Three-day dietary intake data was collected using 24-hr dietary recall method. On basis of nutritional adequacy ratio, intake was dichotomized into adequate or fairly-adequate vs inadequate. Blood samples were collected to assess levels of micronutrients.

Results:

From April 2019 to February 2020, 2428 participants having 50.2% females, were recruited from 60 schools. Inadequate intake for calcium was 86.5% (2101/2428), iron 92.0% (2233/2428), zinc 75.6% (1836/2428), selenium 30.2% (733/2428), folate 35.3% (857/2428) and vitamin B12 83.9% (2036/2428). Inadequate intake had a statistically significant association with crude odds of biochemical deficiency. Controlling for gender and socioeconomic status, the odds of biochemical deficiency with inadequate intake for calcium was [Adjusted Odd Ratio (AOR)=1.24(95%CI 0.97-1.59)], iron [AOR=1.32(95%CI 0.97-1.80)], zinc [AOR=4.08(95%CI 2.23-7.47)], selenium [AOR=3.63(95%CI 2.70-4.89)], folate [AOR=1.78(95%CI 1.45-2.18)] and vitamin B12 [AOR=1.31(95%CI 1.02-1.69)].

Conclusions:

Since there is significant association between the inadequate intake and biochemical deficiencies of micronutrients, therefore interventions should promote recommended dietary intake, to ensure optimal growth and development.

EP074 / #175

E-Poster Topic: *AS03. Childhood & Adolescence*

HIGH DOSE ORAL VITAMIN D SUPPLEMENTATION FOR PREVENTION OF INFECTION IN CHILDREN 0-59 MONTHS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Janet Adede Carboo, Linda Malan, Robin Claire Dolman-Macleod, Martani Johanni Lombard
North-West University, Centre Of Excellence For Nutrition, Potchefstroom, South Africa

Background and Aims:

Vitamin D (vitD) plays a role in immune function, and its deficiency has been associated with a number of infections, notably respiratory tract infections. However, data from intervention studies investigating the effect of high dose vitD supplementation on infection prevention have been inconclusive. Aim: to evaluate the evidence on the efficacy of vitD supplementation above the standard dose (400 IU) in preventing the incidence of infections in healthy children < 5 years.

Methods:

Electronic database search was performed. Meta-analyses of outcomes were performed using Review Manager. We included randomised control trials that supplemented vitD > 400 IU compared to placebo, no treatment or standard dose.

Results:

Seven trials consisting of 5,748 children were included. We found no significant effect of high dose vitD supplementation on the incidence of upper respiratory tract infection (URTI) (OR: 0.83, 95%CI: 0.62-1.10). Subgroup analysis revealed a protective effect of daily over bolus vitD supplementation against pneumonia incidence (OR: 0.27, 95%CI: 0.07-0.97). There was a 57% (95% CI: 0.30-0.61), 56% (95%CI: 0.27–0.07), and 59% (95%CI: 0.26–0.65) reduction in the odds of influenza/cold, cough and fever incidence respectively with the daily supplementation of vitD > 1000 IU. No effect was found on bronchiolitis, bronchitis, otitis media and diarrhoea/gastroenteritis incidence, primary care visits for infections, hospitalisations, and mortality.

Conclusions:

We did not identify a benefit of high dose vitD supplementation in preventing URTI, but it reduced influenza/cold, cough, and fever incidence. Daily but not bolus supplementation was beneficial for preventing pneumonia incidence. No adverse effects were reported.

EP075 / #395

E-Poster Topic: *AS03. Childhood & Adolescence*

ALTERED METABOLISM AND BODY COMPOSITION IN CHILDHOOD CANCER SURVIVORS AFTER HAEMATOPOIETIC STEM CELL TRANSPLANTATION

Amanda Casirati[1], Alberto Somaschini[2], Emanuele Cereda[1], Monica Muraca[3], Vera Morsellino[3], Riccardo Caccialanza[1], Riccardo Haupt[3]
[1]Fondazione IRCCS Policlinico San Matteo, Clinical Nutrition And Dietetics Unit, Pavia, Italy, [2]San Paolo Hospital, Division Of Cardiology And Cardiac Intensive Care Unit, Savona, Italy, [3]IRCCS Istituto Giannina Gaslini, Epidemiology, Biostatistics Unit And Dopo Clinic, Genova, Italy

Background and Aims:

Haematopoietic Stem Cell Transplantation (HSCT) is a crucial treatment for several childhood malignancies. However, conditioning regimen before HSCT is associated with metabolic dysfunction and abnormal body composition in childhood cancer survivors (CCS). Nevertheless, it is not clear whether these effects are affected by gender, which was the aim of this study.

Methods:

At least 2 years since the end of treatments, data of CCS with hematologic or solid tumours were collected on: body mass index Z-score(BMI-Z); fat mass(FM) and Fat-to-Lean mass Ratio(FLR) from DEXA measurements; serum ALT and IGF-1 levels. Variables were reported as median[25th-75thpercentile] or percentages and compared with Fisher's exact and Mann-Whitney test.

Results:

We assessed 154 CCS(82M/72F); median age and BMI-Z were 12.8[11.2-14.8] years and 1.4[0.5-2.4], respectively. According to the analysed variables, in females undergoing HSCT(n=18), treatment was associated with increased FM(40%[36-49] vs. 36%[32-40],p=0.011), FLR(0.66[0.57-0.94] vs. 0.56[0.48-0.67],p=0.011) and decreased IGF-1(-0.5[-2.1-0.3] vs 0.8[-0.7-1.1],p=0.047) compared to non-HSCT females, whereas no association was detected with higher ALT levels. On the contrary, in males undergoing HSCT(n=24), treatment was associated with higher ALT levels(18[16-31] vs. 15[12-19],p=0.004), but neither with increased FM and FLR, nor with decreased IGF-1 as compared to non-HSCT males.

Conclusions:

The unfavourable metabolic late effects of HSCT were different in CCS according to gender. Specifically, males presented hepatic dysfunction, whereas females were characterized by fat gain, impaired metabolism and altered body composition, possibly due to other concurrent factors, such as hormonal puberty alterations. Further longitudinal studies with larger samples

are required, to confirm these preliminary observations and develop specific preventive nutritional interventions.

EP076 / #396

E-Poster Topic: *AS03. Childhood & Adolescence*

DOES CRANIAL RADIOTHERAPY CAUSE ENDOCRINE AND METABOLIC LATE EFFECTS IN CHILDHOOD CANCER SURVIVORS? A SINGLE-CENTRE EXPERIENCE.

Amanda Casirati[1], Alberto Somaschini[2], Monica Muraca[3], Vera Morsellino[3], Riccardo Caccialanza[1], Riccardo Haupt[3]
[1]Fondazione IRCCS Policlinico San Matteo, Clinical Nutrition And Dietetics Unit, Pavia, Italy, [2]San Paolo Hospital, Division Of Cardiology And Cardiac Intensive Care Unit, Savona, Italy, [3]IRCCS Istituto Giannina Gaslini, Epidemiology, Biostatistics Unit And Dopo Clinic, Genova, Italy

Background and Aims:

Growth hormone deficiency (GHD) impairs growth and contributes to the development of Non-Alcoholic Fatty Liver Disease (NAFLD) and related dyslipidaemia. Cranial radiotherapy (CRT) has been related with hypothalamicpituitary function impairment. Aim of this study was to investigate whether CRT is associated to late endocrine and metabolic effects in childhood cancer survivors (CCS) previously irradiated.

Methods:

Data of CCS who underwent radiotherapy were collected at least 2 years since the end of therapies. Z-score (Z) of height (H), body mass index(BMI) and waist circumference(WC) were calculated; serum alanine aminotransferase(ALT) and triglycerides(TG) chosen as signs of NAFLD and dyslipidaemia; GHD prevalence detected. According to irradiation site(CRT vs non-CRT), a comparison of continuous(mean±SD) and discrete(n) variables was performed respectively by t-test and Chi-square test.

Results:

We enrolled 107 CCS(59males) aged 5.8±3.5 years at diagnosis, irradiated for hematologic cancer(17), solid tumour(39) and central nervous system tumour(51). BMI-Z was 1.42±1.45 and WC-Z 1.49±1.63. Patients treated with CRT(66) presented higher incidence of GHD(30 vs. 1,$p<0.001$), lower values of H-Z(-0.66±1.38 vs. 1.19±1.24,$p=0.002$), higher levels of ALT(22±19 vs. 16±4 U/l,$p=0.018$) and TG(94±52 vs. 74±35 mg/dl,$p=0.037$) compared to those who received radiotherapy in another site.

Conclusions:

GHD is a frequent complication of CRT and affects growth promotion as well as regulation of lipid metabolism. CRT may also indirectly cause liver damage as the liver is a target tissue of GH. Regular endocrine and lifestyle follow-up of irradiated CCS already during treatment is

required to both prevent and treat short stature and metabolic disorders in the early stages still amenable to successful intervention.

EP077 / #511

E-Poster Topic: *AS03. Childhood & Adolescence*

GUT MILEAU AND PSYCHOLOGICAL IMPACT

Shrinivas Chakravarthi
MIOT, Paediatrics, Chennai, India

Background and Aims:

Aim to examine the association between gut microsomes and psychological impact in children

Methods:

Systematic reviews in pubmed and Google scholar information data till June 2021

Results:

We found 20 article out of total 1200 items,

finding which involves bacterial species,order, phyla's,their belonging families,alpha and beta diversity were not conclusive.At genus level increased abundance of EGGERTHELLA was found in ADHD,ODORIBACTER found in AUTISM,

BACTEROIDES Is found in impulse behaviour

Conclusions:

The cause and mechanism of association of gut microbiata and ADHD and AUTISM is highlighted in this systemic review.

The effect of expressions is due to neurotransmitter, dopamine metabolism,inflammatory modulation and release of inflammatory cytokines.

EP078 / #220

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATIONS BETWEEN DIETARY INTAKE OF TOTAL, PLANT-, AND ANIMAL-PROTEIN WITH LINEAR GROWTH (HAZ) IN INDONESIAN CHILDREN AGED 0.5 – 12 YEARS OLD

Dian Novita Chandra[1,2], Aria Kekalih[2,3], Cecile Povel[4], Swee Ai[4], Listya Tresnanti Mirtha[2,3], Luthfi Arif[2], Ilse Khouw[4], Rini Sekartini[2,5]
[1]Faculty of Medicine, Universitas Indonesia, Department Of Nutrition, DKI Jakarta, Indonesia, [2]Faculty of Medicine, Universitas Indonesia, Seanuts Ii Indonesian Study Team, DKI Jakarta, Indonesia, [3]Faculty of Medicine, Universitas Indonesia, Community Medicine Department, DKI Jakarta, Indonesia, [4]FrieslandCampina, Frieslandcampina, Amersfoort, Netherlands, [5]Faculty of Medicine, Universitas Indonesia, Departement Of Child Health, DKI Jakarta, Indonesia

Background and Aims:

Stunting is an ongoing issue in low- and middle-income countries, including Indonesia. Protein is required for the growth of children. The aim of this study was to determine the association between the intake of total, plant-, and animal-protein with height-for-age Z score (HAZ) in Indonesian children.

Methods:

Anthropometric assessment (length/height), dietary intake from a single 24-hour food recall, and socio-demographic variables data were taken from 3017 eligible subjects aged 0.5-12.9 years old from the second South East Asian Nutrition Surveys (SEANUTS II) that was conducted in 21 Indonesian districts in 2019-2020. The association between HAZ with the intake of total, plant-, and animal-protein was analyzed by adjusting for several socio-demographic factors (model 1) and micronutrients (model 2). Protein intake was adjusted to energy with the Willett residual method.

Results:

HAZ was not associated with total protein intake in either model. Animal-protein intake was associated with HAZ (beta 0.007, CI 0.004 to 0.011) in model 1, but the association became borderline significant after adjustment for micronutrients. There was a trend for a negative association between HAZ and plant-protein in all models (model 1: beta -0.009, CI -0.014 to -0.004; model 2: beta -0.006, CI: -0.012 to -0.001).

Conclusions:

The association with HAZ in Indonesian children differed per protein source, animal or plant. The positive association between HAZ and animal-protein could at least partly be explained by animal-source foods (including dairy i.e. formula and UHT milk) being rich in micronutrients such as zinc, iron, calcium, and vitamin D.

EP079 / #453

E-Poster Topic: *AS03. Childhood & Adolescence*

VALIDATION OF THE SCALE OF PARENTING ON TEENAGER IN INDONESIA: CONFIRMATORY FACTOR ANALYSIS

Rizqy Amanatul Husna Pamungkas, Erfi Prafiantini, Dian Novita Chandra
Faculty Medicine Universitas Indonesia, Department Of Nutrition, DKI Jakarta, Indonesia

Background and Aims:

Adolescence is the period towards adulthood that involves the development of social and behavioural characteristics. Parenting style is one of the determinants of character and habit-building. Either father or mother's parenting has its own style. Therefore, it is important to describe the parenting style of the father and mother separately. The scale of parenting questionnaire is one of the instruments measuring parenting style. However, there is still a lack of literature regarding the validation of the scale of parenting in Indonesia. This paper aims to determine the validity of the scale of parenting using confirmatory factor analysis.

Methods:

This is a cross-sectional study, involving adolescents 15-18 years-old as participants. The questionnaire consists of a total of 38 items and it can be filled out by the adolescent. The validity was analyzed using JASP 0.16.4.

Results:

A total sample was 231 who filled out the scale of parenting of mother, and 218 for the scale of parenting of father. The result showed model has acceptable fit indices. The scale of parenting of the mother has 15 valid items, while the scale of parenting of the father has 17 valid items. The valid items are considered by the acceptable value of Standardized Factor Loading (SLF), Average Variance Extracted (AVE) and Construct Reliability (CR) = 0.6-0.7; ≥ 0.5; ≥ 0.7 respectively.

Conclusions:

The scale of parenting in Indonesia can be used to measure parenting style among adolescents with some valid items based on confirmatory factor analysis. Suggested reducing the items in the scale of parenting for Indonesian adolescents.

EP080 / #186

E-Poster Topic: *AS03. Childhood & Adolescence*

THE MANY FACETS OF PICKY EATING ENCOUNTERED IN AN INTERDISCIPLINARY FEEDING CLINIC FOR CHILDREN

Terri Chiong, Li Nien Tan, Marion Aw, Siau Hwei Ng, Chui Ying Wong, Jocelyn Tan
National University Hospital, Paediatrics, Singapore, Singapore

Background and Aims:

To describe the characteristics of children with "picky eating" referred to an interdisciplinary feeding clinic and identify if there were any underlying etiology for it.

Methods:

Retrospective chart review of first-visit consults from January 2020 to July 2022. Feeding and caregiver behaviours were assessed using standardised questionnaires and by direct observation. Caloric intake and oromotor skills were assessed by dieticians and speech therapists respectively.

Results:

Fifty-nine percent (152/259) of referrals were for picky eating, with the median (range) age at presentation 28 (3-163) months. The underlying etiology identified was selectivity (n=128), delayed oromotor skills (n=10), reduced feeding interest (n=5), poor appetite (n=4) and oral aversion (n=1). No underlying etiology was identified in 4. Sixty-nine (45%) children with selective feeding had comorbidities such as autism (n=59), attention-deficit-hyperactivity (ADHD) (n=2), and medical conditions (n=8) e.g. eosinophilic esophagitis. The remaining 60 children were "otherwise-well". Having autism or behavioural issues was associated with increased odds (5.3, CI: 1.9-14.8) of selectivity.

Of the "otherwise-well" picky eaters, 42% had inadequate caloric intake and 23% had failure to thrive. Caregivers were indulgent (31.7%), responsive (13.3%), controlling (8.3%) and variable (5%) in their approach. Caregivers often reported feeling helpless (43%).

Conclusions:

Picky eating in young children is a symptom with several possible underlying etiologies. It is associated with nutritional consequences for the child and emotional burden on caregivers. Being able to recognize what can be managed in primary care (poor appetite) and what may need referral for specialist intervention (selectivity, delayed feeding skills) would be important.

EP081 / #124

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION BETWEEN SEVERE ACUTE MALNUTRITION IN CHILDHOOD AND HEMATOLOGICAL DISORDERS IN ADULTHOOD: THE LWIRO FOLLOW-UP STUDY IN THE EASTERN DEMOCRATIC REPUBLIC OF THE CONGO

Pacifique Lyabayungu Mwene-Batu[1], Aline Bedha[2], Burume Zigashane Adrien[3], Philippe Donnen[4], Tony Shindano[2], Bisimwa Balaluka Ghislain[1]
[1]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [2]Université Catholique de Bukavu, Faculté De Medecine, Bukavu, Congo, Republic of, [3]hopital provincial général de référence de Bukavu, Pediatrics Department, Bukavu, Congo, Republic of, [4]Université Libre de Bruxelles, Ecole De Santé Publique, Bruxelles, Belgium

Background and Aims:

Little is known about the long-term hematological effects of severe acute malnutrition (SAM) in low-income countries. Our study explored the association between childhood SAM and hematological disorders in young adults 11 to 30 years after post-SAM nutritional rehabilitation

Methods:

We investigated 97 adults (mean age 32 years) treated for SAM during childhood in eastern DRC between 1988 and 2007. These participants were compared to 97 aged- and sex-matched control adults living in the same community without a history of SAM. Our outcomes of interest were hematological profile and disorders in adulthood, assessed by their different biological markers. Logistic and linear regressions models were sued to estimate the association between SAM in childhood and risk of hematological abnormalities

Results:

Compared with unexposed, exposed had a higher mean number of white blood cells [+840 (179 to 1501), p=0.013], neutrophils [+504 (83 to 925), p=0.019] and platelets ($*10^3$) [11.9 (8.1 to 17.9), p=0.038] even after adjustment for food consumption in adulthood. No difference was observed in terms red blood cell and hemoglobin levels. With regard to the risk of hematological disorders, in contrast to unexposed, exposed had a risk of hyperleukocytosis approximately three times higher [adjusted OR (95% CI): 2.98 (1.01 to 8.79), p=0.048]. No difference was observed in terms of anemia and thrombocytopenia between the 2 groups

Conclusions:

SAM during childhood is associated with hematological abnormalities in adulthood. This is one more reason that reinforces the need for policy makers to prevent SAM.

EP082 / #138

E-Poster Topic: *AS03. Childhood & Adolescence*

EDEMA MELTING LENGTH AND THERAPEUTIC FAILURE AS FACTORS ASSOCIATED WITH LONG-TERM MORTALITY AFTER BASIC TREATMENT OF SEVERE ACUTE MALNUTRITION : LWIRO COHORT FOLLOW-UP, DRC

Jean Corneille Zubulu Lembebu[1], Philippe Donnen[2], Bisimwa Balaluka Ghislain[1], Mwenebatu Lyabayungu Pacifique[1], Samuel Lwamushi Makali[1], Christine Murhima'Alika Chimanuka[1]
[1]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [2]Université Libre de Bruxelles, Ecole De Santé Publique, Bruxelles, Belgium

Background and Aims:

The long-term outcome of subjects treated for Severe Acute Malnutrition (SAM) in childhood remains poorly documented. We aimed to trace former subjects treated for childhood SAM 11 to 30 years after nutritional rehabilitation and identify factors associated with long-term mortality

Methods:

We extracted from the archives of the Lwiro Pediatric Hospital, South Kivu, Democratic Republic of Congo (DRC), 1981 records of subjects admitted for SAM between 1988 and 2007 of which 1590 were retained. The mean age at admission was 46 months. From December 2020 to June 2021, these subjects were identified in their home village in the health zone of Miti-Murhesa and Katana. For deceased subjects, the year of death was collected. A multivariate Cox proportional hazards regression was used to identify factors associated with long-term death

Results:

A total of 514 subjects were found and 119 had died. Of the deceased people, most of them were under 10 years old at the time of death. In addition, most of deaths occurred seven years following discharge from hospital. The risk of death was higher among subjects with therapeutic failure (a hospital stays ≥ 45 days) and among those with a late edema melting (≥ seven days) with respective hazards risks of 1.98 (1.03; 3.79) and 4.07 (1.29; 12.80)

Conclusions:

Good follow-up after discharge is imperative to ensure the success of SAM management in the medium and long term. However, this follow-up should be more intensive in subjects with therapeutic failure and late edema melting during hospitalization

EP083 / #263

E-Poster Topic: *AS03. Childhood & Adolescence*

ARM CIRCUMFERENCE AND WEIGHT-FOR-HEIGHT Z-SCORE FOR THE EVALUATION OF SEVERE ACUTE MALNUTRITION: A RETROSPECTIVE COHORT STUDY IN EASTERN DEMOCRATIC REPUBLIC OF CONGO.

Gaylord Amani Ngaboyeka[1], Bisimwa Balaluka Ghislain[1,2], Anouk Neven[3], Mwenebatu Lyabayungu Pacifique[2], Richard Kambale[4], Francis Mulume[1], Orreste Battisti[5], Michelle Dramaix[3], Philippe Donnen[6]
[1]Université Catholique de Bukavu, Ecole Regionale De Sante Publique, Bukavu, Congo, Republic of, [2]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [3]Université Libre de Bruxelles, Ecole De Santé Publique, bruxelles, Belgium, [4]Université Catholique de Bukavu, Faculté De Médecine, Bukavu, Congo, Republic of, [5]Université de Liège, Faculté De Médecine, Liège, Belgium, [6]Université Libre de Bruxelles, Ecole De Santé Publique, Bruxelles, Belgium

Background and Aims:

Little is known about the use of mid-upper arm circumference for age (MUACZ) and the relationship between WHZ (weight-for-height Z-score) and MUAC in an area endemic for severe acute malnutrition (SAM).

To analyze the concordance between the diagnostic criteria of SAM in a region presenting these characteristics.

Methods:

We analyzed a database of children admitted from 1987 to 2008 for the management of SAM in Eastern Democratic Republic of Congo. Anthropometric indicators (z-score) were calculated and classified into 3 categories according to WHO standards. Cohen's kappa coefficient (κ) was calculated to assess the concordance between these indicators.

Results:

Out of the 9969 selected children aged 6 to 59 months, 30.2% had nutritional edema, 70.1% had a height-for-age (HAZ) z-score <-2. With the classic combination WHZ and MUAC, 36% of children with SAM had both criteria at the same time and MUAC alone being the indicator that recruits more children with SAM (77%) compared with 65% with WHZ only. By replacing MUAC with MUACZ, 34% of SAM children had both WHZ and MUACZ. MUACZ alone recruits more children with SAM (88%) compared with 46% with WHZ alone. Finally, for the diagnostic concordance between these criteria, WHZ and MUAC had a moderate concordance [κ (95% CI) = 0.408 (0.392-0.424)], the WHZ and MUACZ had a weak concordance [κ (95% CI) =0.363(0.347-0.379)] and MUAC and MUACZ a good concordance [κ (95% CI) = 0.604 (0.590-0.618)].

Conclusions:

Adjusting MUAC for age increases its ability to recruit children suffering from MAS in our region.

EP084 / #269

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION BETWEEN DIAGNOSTIC CRITERIA FOR SEVERE ACUTE MALNUTRITION AND HOSPITAL MORTALITY IN CHILDREN AGED 6 TO59 MONTHS IN DEMOCRATIC REPUBLIC OF CONGO:THE LWIRO COHORT STUDY

Gaylord Amani Ngaboyeka[1], Bisimwa Balaluka Ghislain[2], Anouk Neven[3], Mwenebatu Lyabayungu Pacifique[4], Richard Kambale[5], Petit Passy Kingwayi2[3], Christian Chiribagula Zalinga[6], Orreste Battisti[7], Michelle Dramaix[3], Philippe Donnen[8]
[1]Université Catholique de Bukavu, Ecole Regionale De Sante Publique, Bukavu, Congo, Republic of, [2]Université de Kaziba, Faculty Of Medicine, Bukavu, Congo, Republic of, [3]Université Libre de Bruxelles, Ecole De Santé Publique, bruxelles, Belgium, [4]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [5]Université Catholique de Bukavu, Faculté De Médecine, Bukavu, Congo, Republic of, [6]Université Catholique de Bukavu, Public Health, Bukavu, Congo, Republic of, [7]Université de Liège, Faculté De Médecine, Liège, Belgium, [8]Université Libre de Bruxelles, Ecole De Santé Publique, Bruxelles, Belgium

Background and Aims:

Few studies have assessed the relationship between weight-for-height (WHZ) and mid-upper arm circumference (MUAC) with hospital mortality considering confounders. This study aimed to investigate these relationships in a region endemic for severe acute malnutrition (SAM)

Methods:

This was a retrospective cohort based on a database of children admitted most of them for undernutrition from 1987 to 2008 in South Kivu, eastern DRC. Our outcome was hospital mortality. To estimate the strength of the association between mortality and nutritional indices, we constructed multivariate models from binomial regression.

Results:

A total of 9969 children aged 6 to 59 months were selected with a median age of 23 months. 40.9% had SAM including 30.2% with nutritional edema.Thirty five point two percent had both SAM and chronic malnutrition. The overall hospital mortality was 8.0%.In univariate analyses, children with a WHZ<-3 had an almost 3 times higher risk of dying than children without SAM.WHZ was more associated with hospital mortality than MUAC(this risk was 2 times higher for children with MUAC <115) or MUACZ (this risk of death was 2.1times higher for children with MUACZ <-3).Multivariate models confirm the results, for WHZ [RR (95% CI) =2.5(2.0-3.1), p<0.001]; for MUACZ [RR(95% CI)=1.2(1.03-1.5),p=0.025] and for MUAC [RR(95% CI)=1.0(0.8-1.2),p=0.918]. The risk of death was also increased by the presence of edema for each anthropometric indicator.

Conclusions:

In our study, WHZ was the indicator more associated with hospital death compared with MUAC or MUACZ. As such, we recommend that all criteria shall continue to be used for admission to therapeutic SAM programs.

EP085 / #123

E-Poster Topic: *AS03. Childhood & Adolescence*

SCREENING TOOLS FOR HEALTH BEHAVIOURS IN PRIMARY HEALTHCARE SETTINGS: A SYSTEMATIC REVIEW

Dimity Dutch[1], Lucinda Bell[1], Dorota Zarnowiecki[1], Brittany Johnson[1], Elizabeth Denney-Wilson[2], Rebecca Byrne[3], Heilok Cheng[2], Chris Rossiter[2], Alexandra Manson[1], Kamila Davidson[4], Rebecca Golley[1]
[1]Flinders University Caring Futures Institute, College Of Nursing And Health Sciences, Adelaide, Australia, [2]The University of Sydney, Faculty Of Medicine And Health, Sydney, Australia, [3]Queensland University of Technology, School Of Exercise And Nutrition Sciences, Faculty Of Health, Brisbane, Australia, [4]Queensland University of Technology, School Of Public Health And Social Work, Faculty Of Health, Brisbane, Australia

Background and Aims:

Valid and reliable screening tools for measuring health behaviours (diet, physical activity, sedentary behaviour and sleep) in children that can be used in primary healthcare settings are needed to support the early identification of poor behaviours and target strategies to support nutrition and growth across the life course. This systematic review aimed to examine the effectiveness, acceptability and feasibility of health behaviour screening tools used in primary healthcare settings.

Methods:

A systematic search was undertaken of studies published in English in five databases prior to July 2022. Eligible studies identified screening tools for health behaviours (dietary, physical activity, sedentary or sleep-related behaviours) used in primary healthcare settings in children <16 years, or those reporting the acceptability, feasibility or implementation strategy of the screening tool. Screening and data extraction were conducted in duplicate and results narratively synthesised.

Results:

Twenty-two studies reporting on 14 unique screening tools were identified. Only four screening tools measured all domains of diet, physical activity, sedentary and sleep behaviour. Practitioners reported screening increased practitioner knowledge and self-efficacy and increased rates of behaviour screening, counselling and documentation. Administration of screening varied across studies, including mode, timing and parent or practitioner completion. Implementation strategies described included practitioner training and integration into electronic medical records. Practitioners and parents identified various benefits and challenges to screening.

Conclusions:

Child health behaviour screening tools in primary healthcare have potential as an effective strategy to support nutrition and healthy growth. Research investigating parent, child and practitioner views on screening, and effectiveness are needed.

EP086 / #237

E-Poster Topic: *AS03. Childhood & Adolescence*

SCHOOL NEIGHBORHOOD BUILT FOOD ENVIRONMENT IN URBAN LEBANON IS OBESOGENIC: DATA FROM A GROUND TRUTHING STUDY

Aya El Sammak[1], Christelle Akl[1], Nehmat El-Helou[1], Gloria Safadi[1,2], Marie-Elizabeth Ragi[1], Jalila El Ati[3], Hala Ghattas[1,4], The Scale Research Group[1,3,5,6,7,8,9,10,11,12]
[1]American University of Beirut, Center For Research On Population And Health, Faculty Of Health Sciences, Beirut, Lebanon, [2]Lancaster University, Division Of Health Research, Lancaster, United Kingdom, [3]National Institute of Nutrition and Food Technology, Nutrition Surveillance And Epidemiology In Tunisia Research Laboratory, Tunis, Tunisia, [4]University of South Carolina, Department Of Health Promotion, Education, And Behavior, Columbia, United States of America, [5]Institute of Tropical Medicine, Department Of Public Health, Antwerp, Belgium, [6]University of Tunis El Manar, Faculty Of Medicine, Tunis, Tunisia, [7]Saint Joseph University of Beirut, Engineering And Technology, Sciences, Beirut, Lebanon, [8]Lebanese International University, School Of Engineering, Beirut, Lebanon, [9]MoISA—Univ Montpellier, Cirad, Ciheam-iamm, Inrae, Institut Agro, Ird, Montpellier, France, [10]American University of Beirut, Department Of Computer Science, Faculty Of Arts And Sciences, Beirut, Lebanon, [11]American University of Beirut, Department Of Agriculture, Faculty Of Agricultural And Food Sciences, Beirut, Lebanon, [12]London School of Hygiene and Tropical Medicine, Faculty Of Epidemiology And Population Health, London, United Kingdom

Background and Aims:

Childhood overweight and obesity are on the rise in low- and middle-income countries, with rates reaching 32.1% among children in Lebanon. School neighborhood food environment might be a major driver of childhood obesity with limited evidence available in LMICs. This study aims to describe this environment in urban Lebanon.

Methods:

A random sample of 34 primary schools in Greater Beirut, Lebanon, was selected. The built food environment around schools was assessed through ground-truthing and geographic information system technology. Food outlets and food advertisements within an 800-meter road-network buffer of each school were mapped and classified by typology according to an adapted NOVA classification system. Fieldwork was conducted from Jan-Mar 2022.

Results:

Overall, schools were surrounded by 3,254 food retailers and 2,010 food advertisements. The median outlet count was 68/school (IQR=28-157) and food advertisement count was 47/school (IQR=19-96) (Figure 1). Most outlets consisted of traditional corner stores (n=1,108), followed by fruit and vegetable markets (n=493) and traditional bakery shops (n=341). The majority of advertisements promoted ultra-processed foods including chips and salty snacks (28%),

carbonated beverages (17%), and chocolate and sweets (14%).

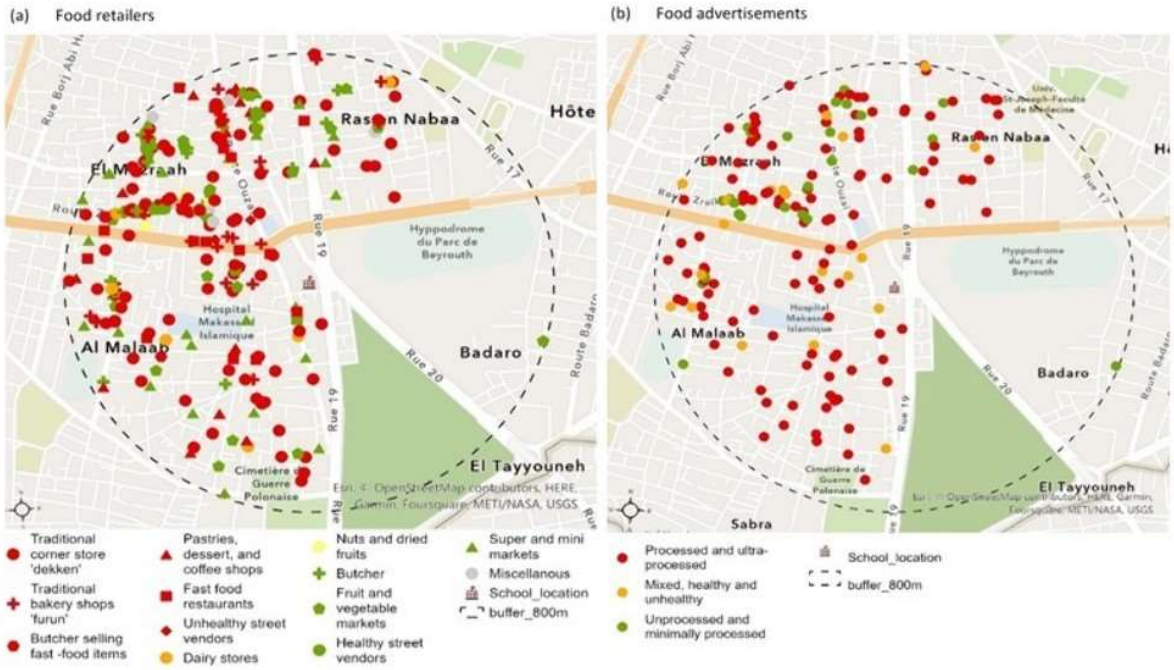


Figure 1 – Sample map of school neighborhood food environments in Greater Beirut, Lebanon (2022): Availability of (a) food retailers and (b) food advertisements around one school.

Conclusions:

School-aged children are predominantly exposed to an obesogenic environment in school neighborhoods, with potential repercussions on diet diversity, and overweight in Lebanese children. Further elucidating these relationships will inform interventions to improve children's food choices, and reduce obesity in similar urban LMIC contexts.

EP087 / #231

E-Poster Topic: *AS03. Childhood & Adolescence*

MEASURING ADOLESCENTS' FOOD EXPOSURES USING A WEARABLE CAMERA: EXPERIENCES AND LESSONS LEARNED FROM LEBANON

Nehmat El-Helou[1], Gloria Safadi[1,2], Chaza Akik[1], Christelle Akl[1], Aya El Sammak[1], Shady Elbassuoni[3], Jalila El Ati[4], Hala Ghattas[1,5], The Scale Research Group[1,3,4,6,7,8,9,10,11]
[1]American University of Beirut, Center For Research On Population And Health, Faculty Of Health Sciences, Beirut, Lebanon, [2]Lancaster University, Division Of Health Research, Lancaster, United Kingdom, [3]American University of Beirut, Department Of Computer Science, Faculty Of Arts And Sciences, Beirut, Lebanon, [4]National Institute of Nutrition and Food Technology, Nutrition Surveillance And Epidemiology In Tunisia Research Laboratory, Tunis, Tunisia, [5]University of South Carolina, Department Of Health Promotion, Education, And Behavior, Columbia, United States of America, [6]Université de Sherbrooke, Department Of Family Medicine, Sherbrooke, Canada, [7]Institute of Tropical Medicine, Department Of Public Health, Antwerp, Belgium, [8]University of Tunis El Manar, Faculty Of Medicine, Tunis, Tunisia, [9]MoISA—Univ Montpellier, Cirad, Ciheam-iamm, Inrae, Institut Agro, Ird, Montpellier, France, [10]American University of Beirut, Department Of Agriculture, Faculty Of Agricultural And Food Sciences, Beirut, Lebanon, [11]London School of Hygiene and Tropical Medicine, Faculty Of Epidemiology And Population Health, London, United Kingdom

Background and Aims:

Assessing food environment exposures is challenging due to the high burden and low accuracy of self-reports. Technology-based tools, such as wearable cameras, have gained popularity in engaging adolescents in collecting more accurate, objective, and representative data. Despite the opportunities offered by these tools, challenges remain in terms of their usability and acceptability especially in low-income settings. This study reports on adolescents' experiences in capturing food exposures using wearable cameras in Lebanon, and provides lessons learned for similar contexts.

Methods:

Thirteen adolescents wore cameras, strapped over their clothes, that automatically captured continuous footage of food exposures in their daily trajectories, to and from school, with various technological safe-guards in-built to minimize risks. Machine learning models were used to retain a sub-set of face-blurred images containing only food-related images. In-depth interviews explored adolescents' usability, acceptance, and challenges with the cameras. Interviews were audio-recorded, transcribed and thematically analysed.

Results:

Most adolescents had an overall positive and fun experience, with some alluding to difficulties with wearing/removing the camera. Participants reported varied reactions from people with whom they interacted while wearing the cameras including support, suspicion, and concern towards the wearable device. The majority stated that they did not/were unable to keep the

camera on as per the study protocol due to battery-related issues, fears related to privacy, forgetfulness, and technical problems.

Conclusions:

This study found adolescents' experiences with wearable cameras to be mainly positive and highlighted common problems that arise during data collection. We provide important lessons learned for future studies.

EP088 / #531

E-Poster Topic: *AS03. Childhood & Adolescence*

PEDI-R-MAPP: THE DEVELOPMENT OF A NUTRITIONAL AWARENESS DIGITAL TOOL FOR USE IN PAEDIATRIC CONSULTATIONS

Catarina Fandinga[1], Luise V. Marino[2], Karla Palframan[1], Leanne Rees[1], Tegan Mills[1], Kaitlin Fitzgerald[1], Sally-Ann Denton[1], Sian Phillips[1], Naomi Scanlan[1], Isabelle Brady[1]
[1]University Hospital Southampton NHS Foundation Trust, : Department Of Dietetics/ Slt, Southampton, United Kingdom, [2]University Hospital Southampton NHS Foundation Trust, Paediatric Intensive Care Unit, Southampton, United Kingdom

Background and Aims:

The Pedi-R-MAPP nutrition awareness tool was developed using a modified Delphi consensus. The study purpose was to evaluate the validity of using Pedi-R-MAPP as a structured approach in outpatient nutrition consultations.

Methods:

Paediatric dietitians (n=15) consented to participate in this prospective study. Each dietitian was provided 50 unique test numbers. Dietitians gained verbal consent from caregivers to use Pedi-R-MAPP during the consultation. Dietitians recorded whether they agreed-disagreed with the tool's end summary assessment. If disagreed, a feedback note was logged.

Results:

A total of 462 children were enrolled in the study with the following conditions; 18.4%(n=85) allergy, 28.7%(n=133) congenital heart disease, 13.9%(n=64) cystic fibrosis, 2.5%(n=12) general, 9.5%(n=44) gastroenterology, 13.2%(n=61) complex needs, 3.5%(n=16) metabolic and ketogenic, 2.5%(n=12) neonatology and 7.8%(n=36) primary ciliary dyskinesia. For 87%(n=402) of tests completed, paediatric dietitians were in overall agreement with the summary advice in the tool, with 13%(n=60) disagreeing with the advice.

Conclusions:

The results of this study suggest specialist dietitians agree with the Pedi-R-MAPP tool recommendations. Pedi-R-MAPP aims to support the technological transformation fast-tracked by the COVID-19 pandemic by providing a structured approach to remote nutrition focused assessments, identifying follow-up frequency and requirements for in-person assessment. It provides a structured process and may help to improve early recognition of declining nutrition status in children enabling early intervention to promote better nutrition outcomes.

EP089 / #473

E-Poster Topic: *AS03. Childhood & Adolescence*

PRADER-WILLI SYNDROME AND NORMAL BODY WEIGHT – IS IT POSSIBLE?

Juliana Ferenczova
PJ Safaric University, Pediatric Department, Kosice, Slovak Republic

Background and Aims:

Prader - Willi syndrome (PWS) is a genetic syndrome with typical clinical course. From prenatal period characterised with decreased fetal movements to severe hypotonia with the difficulty feeding in early infancy. After the 2nd year of life with increased the body weight and decreased growth velocity. Later in life, excessive eating led to central obesity resulting in the chronic complications like hypertension, diabetes type 2 and sleep apnoe syndrome.

Methods:

Case report

Results:

The patient was born with weight and length (3000g/ 50 cm). Immediately after the birth severe hypotonia was present, PWS was diagnosed at 14 months. At 2 years he had 86 cm (50.P.) and 11 kg (25.P.), facial dysmorphy (almond shape-eyes, thin upper lip), mild hypotonia and hypoplastic scrotum with bilateral testicular retention and without congenital heart defect. Hormonal profile was within the reference range. He underwent surgical bilateral orchidopexy. During next 1 and half years, the significant decrease of the growth velocity was present. The treatment with recombinant growth hormone (rHGH) started at 3.5 years (89 cm (3.P.). During the next years he experienced the appropriate growth and weight gain with normal BMI. The rHGH therapy was finished at 16.3 years. He achieved 178 cm and 65 kg, BMI 20.5. The most important factor helping to achieve normal body weight was everyday physical activity.

Conclusions:

The author documents an atypical course of patient with PWS during childhood and adolescent period without obesity, which is typical clinical symptom of this syndrome.

The author states there is no conflict of interest.

EP090 / #435

E-Poster Topic: *AS03. Childhood & Adolescence*

THE IMPACT OF NUTRITIONAL INTERVENTIONS IN OVERWEIGHT AND OBESE CHILDREN WITH ASTHMA

Cristian Gheonea[1], Carmen Niculescu[1], Rebecca Cristiana Serban[1], Loredana Selaru[1], Doina Anca Plesca[2]
[1]University of Medicine and Pharmacy of Craiova, Paediatrics, Craiova, Romania, [2]University of Medicine and Pharmacy "Carol Davila" Bucharest, Paediatrics, Bucharest, Romania

Background and Aims:

Overweight and obesity in children with asthma is associated with worse clinical outcomes, whilst both asthma and overweight/obesity prevalence in the paediatric population is constantly growing We performed an analysis to evaluate the efficiency of the nutritional interventions used in a Regional Active Surveillance Centre for Children with Asthma and Their Families.

Methods:

The database of the Centre including 326 patients (age 7,8+/-4,3 yrs., 189 boys) was analysed for the following outcomes: 1) anthropometry 2) adherence to one-to-one educational intervention (by self-reporting diary and/or questionnaire); 3) lung function; 4) exacerbations requiring systemic corticosteroids, and 5) asthma control (evaluated by Paediatric Asthma Control Test). We applied a Summary of Findings table to summarize the key results of various interventions used systematically in the Centre and to assess their effects.

Results:

The body mass index (BMI) z-score decrease after the intervention (i.e. 0,16 +/- 0,07; p = 0,004) was negatively associated with physical activities and lung function at baseline. The reduction in BMI z-score was significantly corelated to the reduction in the percentage fall in FEV1 in exacerbations of children that lost weight (r = 0,55; p = 0,02) and PACT, but not the number of exacerbations.

Conclusions:

Although the relatively small sample size might hamper the ability to quantify some outcomes, the data collected detected key changes in weight status and asthma control, thus providing novel data to support the need for future larger trials to further investigate the efficacy of weight loss interventions in overweight/obese asthmatic children.

EP091 / #322

E-Poster Topic: *AS03. Childhood & Adolescence*

NUTRIENT ADEQUACY OF FOOD COOKED IN THE HOUSEHOLD KITCHEN IN RURAL INDIA: A CROSS-SECTIONAL STUDY

Tanvi Goel, Vijay Kumar Silan, Sanjay Kumar Jha
BPS GMC (W) Khanpur Kalan, Sonipat, Haryana, India, Community Medicine, Sonipat, India

Background and Aims:

Food availability is a must to address malnutrition. However nutritional adequacy is equally important. In India, the household is the basic unit of food consumption. Nutrient adequacy at the household level is reflected in the health of all household members. So, this study aimed to assess the nutrient adequacy of food cooked in the household kitchen in rural India.

Methods:

This community-based cross-sectional study was conducted among 90 households in village Juan, Haryana selected by systematic random sampling from July 2021 to June 2022. Data regarding food consumed at the household level were collected using the inventory method of dietary assessment and a general physical examination of all the household members aged 6 months to 19 years (n=129) was done after written informed consent. Data were analyzed using SPSS version 20.

Results:

Out of 90 Households, the majority were lactovegetarian (52%) and had adequate (>RDA) calories (80%), proteins (97.8%), and fats (86.7%). Whereas households with adequate iron and folic acid intake were only 34.4% and 20%, accounting for anemia in one-fourth (26.1%) of children (6 months-9 years) and in more than half (56.6%) of adolescents. Around one-third of children (6 months-9 years) were found underweight (30.4%), stunted (28.3%) and 21.7% were wasted.

Conclusions:

Despite having an adequate quantity of food in the majority of households, a high prevalence of anemia and malnutrition was observed. So, it is not just the quantity, but also the quality, and the source of food that are crucial for an individual's health.

EP092 / #472

E-Poster Topic: *AS03. Childhood & Adolescence*

ROLE OF CARB COUNTING IN MANAGEMENT OF TYPE1 DM

Niga Hama Rashid
pediatric teaching hospital of Sulaimanyah, Pediatric, Sulaimanyah, Iraq

Background and Aims:

Abstract

Carbohydrate (Carb) counting is a meal planning approach for patients with diabetes mellitus that focuses on carbohydrate as the primary nutrient affecting postprandial glycemic response, More recently, short acting insulin analogues and insulin pumps have made the role of carb counting important and popular. Carb counting can be used in conjunction with a meal plan to set carbohydrate targets at each meal and snack. It is also used, to estimate carbohydrate intake and adjust insulin around mixed meals and snacks using insulin to carbohydrate ratio. This effectively addresses the variable eating habits of most children and adolescents. The method may be adapted for patients who use a conventional insulin regimen and may meet the needs of patients who use multiple daily injections (MDI) or an insulin pump.

Methods:

its an observational- analytical- case control study

Results:

Evidence suggests that carb counting may have positive effects on metabolic control and on reducing glycosylated haemoglobin (HbA1c). Moreover, it might reduce the frequency of hypoglycaemia. In addition, Carb counting can make food planning flexible and enjoyable for patients, and the meal planning approach is very important for the physical growth and psychological development of children with diabetes. This paper describes the importance of carb counting for childhood diabetes as well as some of the special aspects associated with it.

Conclusions:

In conclusion, in children and adolescents with T1D, carb counting may have a positive effect on metabolic control, might reduce hypoglycaemia events, improves quality of life, and seems to do so without influencing body mass index.

EP093 / #441

E-Poster Topic: *AS03. Childhood & Adolescence*

THE NEED FOR TARGETED NUTRITION EDUCATION FOR OLDER ADOLESCENTS THE DESERTED AGE GROUP

Kristy Howells[1], Tara Coppinger[2]
[1]Canterbury Christ Church University, School Of Psychology And Life Sciences, Faculty Of Science, Engineering And Social Sciences., Canterbury, United Kingdom, [2]Munster Technological University, Department Of Sport, Leisure And Childhood Studies, Faculty Of Business And Humanities, Cork, Ireland

Background and Aims:

Globally, health systems, policy and research have neglected older adolescents (16-18 year olds) with most targeted campaigns tailored for younger children or adults (1). Yet, older adolescence is a key life stage where habitual healthy lifestyles could be developed (2). This paper examines older adolescents' understanding and experiences of nutrition education.

Methods:

Ninety-three participants (39 males; 54 females) (mean age=16.9 (SD 0.4) years), from three low socio-economic secondary schools in England, completed an online version of the Short Form Food Frequency Questionnaire (SFFFQ) (3) in order to generate a diet quality score (DQS). Additional questions focused on their perceived healthiness and how they felt nutrition education were promoted to them.

Results:

Participants' overall DQS was low (9 (±1.96): males= 9.36 (±1.97), females= 9.12 (±2.01)). There were significant interactions between sex, perceived healthiness levels and fat scores ($F=2.532$, $p=0.048$). Among males, those who rated themselves as having poor health had, in fact, eaten the recommended intakes of fat (1.00 ±0.00). This is in comparison to females who rated themselves as having poor health and ate more than the recommended intakes of fat (2.60 ±0.89). Most (90%; n=80) participants did not report school as a place that promoted nutrition education.

Conclusions:

It is recommended as a public health measure and as an educational policy matter that schools implement more targeted nutrition education. Further insight is needed into male older adolescents' health literacy to ensure they fully understand, appraise and use information to make decisions about their health to support their transition into adulthood (4).

EP094 / #336

E-Poster Topic: *AS03. Childhood & Adolescence*

INCREASED FRUIT AND VEGETABLE INTAKE OVER THREE YEARS IS RELATED TO THE WEIGHT STATUS OF PRIMARY SCHOOL CHILDREN

Ana Ilić[1], Ivana Rumbak[1], Ružica Brečić[2], Irena Colić Barić[1], Martina Bituh[1]
[1]Faculty of Food Technology and Biotechnology, University of Zagreb, Department Of Food Quality Control, Zagreb, Croatia, [2]Faculty of Economics and Business, University of Zagreb, Department Of Marketing, zagreb, Croatia

Background and Aims:

Importance of daily fruit and vegetable intake is well known for maintaining weight status in adults. Therefore, the aim of this study was to estimate the longitudinal relationship between change in weight status and change in fruit and vegetable intake in healthy primary school children.

Methods:

The study was conducted on 139 children (52% boys) aged 8 years from primary schools in the city of Zagreb. 53% of children participated in the three-year school-based multicomponent intervention aimed at increasing fruit and vegetable acceptance and consumption. Fruit and vegetable (FV) intake and anthropometric measurements were conducted before (2018/2019 school year) and after the intervention (June 2020/2021 school year). FV intake was measured using a validate food frequency questionnaire. Anthropometric measurements were performed according to the standard protocol and z-scores for body mass index (BMI) were obtained using AnthroPlus software.

Results:

Children in the intervention group consumed significantly more FV after the intervention compared with the control group (Δ98.8 g vs. Δ-31.7 g; $p<0.001$) and had a significantly lower BMI z-score (Δ-0.26 vs. Δ-0.19; $p<0.001$). In the intervention group, the change in FV intake was weakly correlated with the change in BMI z-score ($r=-0.173$; $p<0.001$), while this correlation was not found in the control group ($r=0.088$; $p=0.491$).

Conclusions:

In conclusion, increased fruit and vegetable intake over time may influence the change in the weight status of children. Therefore, it is necessary to establish proper eating habits in children, with emphasis on sufficient fruit and vegetable intake.

EP095 / #83

E-Poster Topic: *AS03. Childhood & Adolescence*

PROBIOTIC SUPPLEMENTATION IN HEALTHY PRE-SCHOOLERS: WHO, WHAT AND WHEN?

Nicola Irwin, Marian J Currie, Deborah Davis
University of Canberra, Faculty Of Health, Bruce, Australia

Background and Aims:

Probiotics have been shown to prevent or treat a number of paediatric health problems; however, not much is known about how probiotics are used in the community. This study aimed to describe the prevalence and predictors of probiotic supplementation in healthy pre-school-aged children, the species and strains of probiotic most commonly used and the age at which children are first exposed to probiotics.

Methods:

Parents of 4 and 5-year-old children living in the Australian Capital Territory were invited to participate in an observational, cross-sectional study by completing a web-based survey between February and May 2020.

There were 469 responses concerning 494 children eligible for analysis. Prevalence was categorised as lifetime and recent exposure. Predictors were determined through multiple logistic regression modelling.

Results:

Almost half (47.4%) of the children had lifetime exposure to probiotics and 14.9% had recent exposure. The strongest predictors of lifetime or recent exposure in children were lifetime or recent probiotic use in the parent (lifetime OR 13.3; 95% CI 7.4–24.1; recent OR 13.3; 95% CI 5.7–30.8). Lacticaseibacillus rhamnosus and Bifidobacterium animalis subsp. Lactis were the most frequently reported species and Lacticaseibacillus rhamnosus GG the most frequent strain. Initial exposure to probiotics occurred before the age of two years in 65% of the cohort.

Conclusions:

This study illustrates the high prevalence of probiotic exposure among healthy pre-school-aged children in the Australian Capital Territory and emphasises the relationship between parental and childhood exposure to probiotics. The long-term effects of early or prolonged exposure to probiotics are not well understood.

EP096 / #321

E-Poster Topic: *AS03. Childhood & Adolescence*

MINIMUM DIETARY DIVERSITY SCORES TO INDICATE FOOD DIVERSITY, NUTRIENT ADEQUACY, AND FOOD PATTERNS AMONG ANEMIC AND NON-ANEMIC PRECONCEPTION WOMEN IN SLEMAN, YOGYAKARTA.

Bernadette Josephine Istiti Kandarina[1], Wulan Karlina Nangley[1], Siti Helmyati[2], Mohamad Ridwan Ansari[3]
[1]Universitas Gadjah Mada, Departement Of Biostatistic Epidemiology And Population Health, Yogyakarta, Indonesia, [2]Universitas Gadjah Mada, Departement Of Health Nutrition, Yogyakarta, Indonesia, [3]Universitas Gadjah Mada, Center For Tropical Medicine, Yogyakarta, Indonesia

Background and Aims:

Background: Indonesian preconception women are a vulnerable group concerning the underachieving nutritional status. Preconceptal maintenance reduces risk of nutrition related problems in pregnancy. In order to optimize nutrient requirements and prevent anemia, the regulation and practice of healthy varying eating patterns is necessary. Aims: To analyze dietary diversity and eating patterns of anemic and non-anemic preconception women based on MDD-W.

Methods:

Methods: This study used a cross-sectional design. Sample size included 110 preconception women aged 19-29 in Sleman, Yogyakarta, by quota sampling methods. Interviews collected respondents' characteristics, anemia status was obtained by measuring Hb levels and complete blood counts. Food diversity and dietary patterns were concluded using Food Recall 1x24h and MDD-W score. Data analysis utilized Independent Sample T-test and Microsoft excel.

Results:

Result: No significant difference between the anemic and non-anemic groups was observed. Consumption of diverse foods was lacking and did not reach recommended MDD-W limits, namely daily consumption of 5 food groups. Socio-economic status and knowledge were passable, 93.6% were occupied, and 94.4% were high school and college graduates. Nevertheless, healthy diet nor eating various foods was habitual.

Conclusions:

Conclusion: Dietary diversity and eating patterns of anemic and non-anemic preconception women were lacking based on MDD-W, with repetitive food patterns and insufficient iron heme sources

EP097 / #522

E-Poster Topic: *AS03. Childhood & Adolescence*

MARKED AND SUSTAINED IMPROVEMENT IN CHILD DEVELOPMENTAL OUTCOMES IN RURAL UGANDA- ANALYSIS OF A RANDOMIZED CONTROLLED MATERNAL EDUCATION TRIAL 8 YEARS ON

Paul Kakwangire[1], Grace Muhoozi[2], Moses Ngari[3], Nicholas Matovu[4], Ane Cecilie Westerberg[5], Per Ole Iversen[1], Prudence Atukunda[6]
[1]University of Oslo, Department Of Nutrition, Oslo, Norway, [2]Kyambogo University, Department Of Family Life And Consumer Studies, Kampala, Uganda, [3]KEMRI Wellcome Trust, Research, Nairobi, Kenya, [4]Queen's University Belfast, Public Health, Belfast, United Kingdom, [5]Oslo University Hospital, Department Of Obstetrics, Oslo, Norway, [6]University of Bergen, Psychology, Bergen, Norway

Background and Aims:

Nutrition and stimulation interventions may promote early childhood development, but little is known about the long-term benefits of such interventions, particularly in low- and middle-income countries. Here we report on a follow-up study in rural Uganda eight years after a cluster-randomized maternal education trial conducted when their children were 6-8 months.

Methods:

Mothers in the intervention group in the original trial were educated in nutrition, hygiene, oral health and child stimulation (ref.1: www.med.uio.no/imb/english/research/projects/chnudev-study/). In the current study, we assessed child processing and cognitive abilities using Kaufman Assessment Battery for Children Second Edition (KABC-II) and attention and inhibitory control using Test of Variables of Attention (TOVA). We used T-tests, chi-squared tests and multi-level regression to compare developmental scores between the two study groups adjusting for clustering. Analyses were by intention-to-treat.

Results:

The original trial included 511 mother-child dyads (intervention 263, control 248), whereas in the current study, 361 (71%; intervention 185, control 176) were available for analysis.

The intervention group scored higher than the controls (all p-values < 0.001) on all five KABC-II subscales as well as on the median global score (difference: 14, 95%CI: 12 to 16, p<0.001). Similarly, for all five TOVA variables, the intervention group scored higher than the control on both visual and auditory tasks (all p-values <0.05).

Conclusions:

The intervention group consistently scored markedly higher on both psychometric tests. Thus, even eight years after the original low-cost maternal education intervention, the developmental benefits that we observed at two and three years of age (ref.1), are sustained.

EP098 / #180

E-Poster Topic: *AS03. Childhood & Adolescence*

NUTRITIONAL STATUS OF CEREBRAL PALSY INDIVIDUALS WITH FEEDING DIFFICULTIES AND CAREGIVERS' QUALITY OF LIFE

Sakinah Kamal[1], Nur Hana Hamzaid[1], Sazlina Kamaralzaman[1], Shobha Sharma[2], Noor Akmal Shareela Ismail[3], Nurul Izzaty Hassan[4], Phei Ming Chern[5], Nurul Hazirah Jaafar[6], Ghazali Yusri[7], Hasnah Toran[8]
[1]Universiti Kebangsaan Malaysia Fakulti Sains Kesihatan Kampus Kuala Lumpur, Center For Rehabilitation Sciences And Special Needs (icarehab), Federal Territory of Kuala Lumpur, Malaysia, [2]Universiti Kebangsaan Malaysia (UKM), Center For Healthy Aging And Wellness, Faculty Of Health Science, Federal Territory of Kuala Lumpur, Malaysia, [3]Universiti Kebangsaan Malaysia (UKM), Department Of Biochemistry, Faculty Of Medicine, Federal Territory of Kuala Lumpur, Malaysia, [4]Universiti Kebangsaan Malaysia (UKM), Department Of Chemical Sciences, Faculty Of Science & Technology, Federal Territory of Kuala Lumpur, Malaysia, [5]Cheras Rehabilitation Hospital, Department Of Rehabilitation Medicine (paediatric), Federal Territory of Kuala Lumpur, Malaysia, [6]International Islamic University Malaysia (IIUM), Department Of Nutrition Sciences, Kulliyah Of Allied Health Sciences, Kuantan, Pahang, Malaysia, [7]Universiti Teknologi Mara (UiTM), Akademi Pengajian Bahasa, Selangor, Malaysia, [8]Universiti Kebangsaan Malaysia (UKM), Faculty Of Education, Federal Territory of Kuala Lumpur, Malaysia

Background and Aims:

Feeding difficulties among individuals with cerebral palsy are common that may impact their nutritional status and the quality of life of the caregivers. The aim of this study is to determine the nutritional status among individuals with cerebral palsy (CP) and to observe caregivers' quality of life.

Methods:

This study was conducted at a government rehabilitation hospital, community-based rehabilitation (CBR) and a Spastic Centre (NGO) in Klang Valley, Malaysia. A total of 71 individuals with cerebral palsy with GMFCS levels IV and V who experienced feeding difficulties were recruited. PedsQL CP (version 3.0) was used to assess the quality of life of the caregivers.

Results:

Majority (60.6%) of subjects were male, 85.9% were from GMFCS level IV and 40.8% were categorized as underweight according to the CP growth chart. The lowest score of PedsQL CP was the Movement and Balance domain (5.34 ± 10.87), followed by the School activities domain (8.15 ± 18.65) and the Eating activities domain (17.25 ± 21.51). A moderate positive correlation was seen between GMFCS classification and Eating and Drinking Ability Classification System (EDACS) classification, $r(69) = .322$, $p < .05$.

Conclusions:

Severe GMFCS classification has been associated with feeding difficulties. Our finding suggests the development of a nutritional module to help caregivers improve the nutritional status of their children together with a multidisciplinary team approach in a clinical/community setting. The authors would like to thank the Centre of Rehabilitation and Special Needs Studies (iCaRehab), the Faculty of Health Sciences, Universiti Kebangsaan Malaysia, for the awarded grant (GUP-2022-050).

EP099 / #202

E-Poster Topic: *AS03. Childhood & Adolescence*

PICKY EATERS: A GLANCE AT THE PRACTICE OF HEALTH CARE PROFESSIONALS IN CASE MANAGEMENT

Mohd Shah Kamarudin[1], Mohd Razif Shahril[2], Hasnah Haron[2], Masne Kadar[1], Nik Shanita Safii[3], Nur Hana Hamzaid[1]
[1]National University of Malaysia, Center For Rehabilitation & Special Need Studies (icarehab), Faculty Of Health Sciences, Kuala Lumpur, Malaysia, [2]National University of Malaysia, Center For Healthy Ageing & Wellness (h-care), Faculty Of Health Sciences, Kuala Lumpur, Malaysia, [3]National University of Malaysia, Center For Community Health Studies (reach), Faculty Of Health Sciences, Kuala Lumpur, Malaysia

Background and Aims:

Picky eaters (PE) are frequently characterised as lacking in food diversity, having food neophobia, and having strong preferences for certain foods. These children are commonly referred to health care professionals (HCP) for malnutrition or eating behaviour concerns. However, the PE definition, case management, and guidelines for helping these children are unclear. Therefore, this study examines HCPs' knowledge of PE, their case management, and guidelines for assisting PE children.

Methods:

Nine nutritionists and six occupational therapists (15 HCPs) from Klang Valley participated in online Focus Group Discussion (FGD) sessions.

Results:

The responses were then transcribed and analysed using an inductive method to identify themes which are: 1) HCP approach in defining PE (based on children's dietary characteristics; characters' behaviour during a meal; and food preparation and presentation), 2) PE Detection (PE assessment tools; and verbal reference and referral by professional), 3) Factors Influencing PE (personal factors; environmental and social economy influence; and parents factors), 4) Guidelines and reference used (no specific guidelines, mainly focus on managing weight; multi-disciplinary approach; and success of the intervention measure by body weight status and frequency of the food intake) and 5) HCP factors that influence case management (knowledge; experience; and perception).

Conclusions:

In conclusion, the approach in defining PE varies from one HCP to another, and there is no standard case management method for PE children whilst parents play an important role in the success of intervention implemented.

The authors thank the Director General, Ministry of Health Malaysia; Fundamental Research Grant Scheme (FRGS/1/2021/SKK06/UKM/03/3); and all study participants.

EP100 / #241

E-Poster Topic: *AS03. Childhood & Adolescence*

DEVELOPMENTAL DYNAMICS BETWEEN NUTRIENT INTAKE AND BRAIN MATURATION FROM INFANCY TO TODDLERHOOD

Alexandros K. Kanellopoulos[1], Nora Schneider[1], Fabio Mainardi[2], Sanja Budisavljevic[1], Maryann Rolands[3], Sean Deoni[4,5]
[1]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Brain Health Department, Lausanne, Switzerland, [2]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Data Science Group, Lausanne, Switzerland, [3]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Nutrition Science Group, Lausanne, Switzerland, [4]Warren Alpert Medical School at Brown University, Department Of Pediatrics, Providence, United States of America, [5]Warren Alpert Medical School at Brown University, Department Of Radiology, Providence, United States of America

Background and Aims:

In recent years, myelin imaging has been increasingly used to study the impact of nutrition on brain development. While individual dynamics for nutrient intake and myelin trajectories have been investigated across childhood, the longitudinal interaction between both remains unexplored in healthy children. This work investigates the developmental dynamics of nutrient-myelin interactions from infancy to early childhood, using myelin imaging as a marker for whole brain maturation.

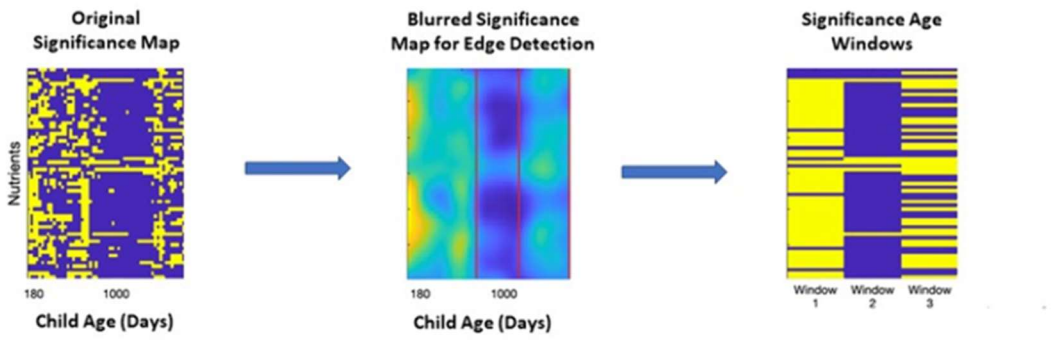
Methods:

Brain neuroimaging and dietary nutritional intake information from 293 children (aged 6-60 months) from a longitudinal birth cohort were analyzed. A sliding window approach investigated the longitudinal association between nutrient intake and brain myelination over a continuous set of age windows. Image processing techniques were applied to determine age windows with unique nutrient-myelin association profiles (Fig.1A).

Results:

Three nutrient-myelin window correlations were identified: window 1 (6-20 months), window 2 (20-30 months) and window 3 (30-60 months). These windows are aligned with reported myelin and white matter dynamic changes in the first five years of life. Specific nutrient-myelin correlations in different age windows were observed, for example, amino acids were more frequently positively associated with myelin at later ages (windows 2 and 3), while minerals and vitamins were more frequently observed in earlier development (window 1) (Fig.1B).

A)



B)

	Window 1 (N=56)	Window 2 (N=20)	Window 3 (N=35)
Macronutrients	Carbohydrate, Protein, Dietary fiber, Total fat	Carbohydrate	Carbohydrate, Protein
Micronutrients (vitamins)	Vit E as alpha-tocopherol, Folic acid, Folate, Food folate, Niacin, Retinol, Beta-cryptoxanthin, Vit A, Vit B1, Vit B12, Vit B2, Vit B6, Vit C, Vit D, Vit K, Choline	/	Retinol, Vit C, Choline
Micronutrients (minerals)	Calcium, Iron, Magnesium, Phosphorus, Potassium Selenium, Zinc	/	/
Other compounds	Gangliosides, Oligofructose, Sphingomyelin Lycopene Theobromine Cholesterol	Sphingomyelin	Gangliosides, Oligofructose, Sphingomyelin
Fatty acids	Hexadecenoic (Palmitoleic, 16:1), Octadecenoic (Oleic, 18:1), Docosenoic (Erucic, 22:1), Total monounsaturated fatty acids, Octadecadienoic (Linoleic, 18:2), Octadecatrienoic (alpha-linolenic acid, 18:3), Eicosatetraenoic (ETA, 20:4), Docosapentaenoic (DPA, 22:5), Docosahexaenoic (DHA, 22:6), Total polyunsaturated fatty acids, Butanoic acid (4:0), Hexanoic acid (6:0), Octanoic acid (8:0), Decanoic acid (10:0), Dodecanoic acid (12:0), Tetradecanoic (14:0), Hexadecanoic (16:0), Octadecanoic (18:0), Total saturated fatty acids,	Eicosatetraenoic (ETA, 20:4), Docosapentaenoic (DPA, 22:5),	Hexadecenoic (Palmitoleic, 16:1), Eicosenoic (20:1), Octadecatetraenoic (18:4), Eicosatetraenoic (ETA, 20:4), Eicosapentaenoic (EPA, 20:5), Docosapentaenoic (DPA, 22:5), Docosahexaenoic (DHA, 22:6), Total polyunsaturated fatty acids,
Phospholipids	Phosphatidylcholine Phosphatidylinositol Phosphatidylserine Phosphatidyethanolamine	Phosphatidylcholine Phosphatidylinositol	Phosphatidylcholine Phosphatidylinositol Phosphatidylserine Phosphatidyethanolamine
Amino acids	/	Alanine, Aspartic acid, Cysteine, Glutamic acid, Glycine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Proline, Serine, Tyrosine, Valine	Alanine, Aspartic acid, Cysteine, Glutamic acid, Glycine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Proline, Serine, Threonine, Tyrosine, Valine

Figure 1: A) Sliding window approach for identification of nutrient-age windows identification and **B)** Nutrients with significant associations to myelin per window.

Conclusions:

This is the first study in healthy young children to identify and demonstrate the presence of dynamic nutrient-brain associations across the early years. This provides novel insights into the relationship between nutrition and brain development and is suggestive of a relevance for age- and brain-stage appropriate nutrition.

EP101 / #252

E-Poster Topic: *AS03. Childhood & Adolescence*

DYNAMIC INTERPLAY BETWEEN NUTRIENT INTAKE AND MATURATION OF THE SOCIAL BRAIN IN YOUNG CHILDREN

Alexandros K. Kanellopoulos[1], Nora Schneider[1], Sarah Costello[1], Fabio Mainardi[2], Sanja Budisavljevic[1], Maryann Rolands[3], Sean Deoni[4,5]
[1]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Brain Health Department, Lausanne, Switzerland, [2]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Data Science Group, Lausanne, Switzerland, [3]Nestlé Institute of Health Sciences, Société des Produits Nestlé SA, Nutrition Science Group, Lausanne, Switzerland, [4]Warren Alpert Medical School at Brown University, Department Of Pediatrics, Providence, United States of America, [5]Warren Alpert Medical School at Brown University, Department Of Radiology, Providence, United States of America

Background and Aims:

Myelination of specific brain regions is a dynamic neurodevelopmental process important for the development of cognitive functions and social-emotional skills. While individual dynamics for nutrient intake and myelin trajectories have been investigated across childhood, the longitudinal interaction between both is unknown in healthy children. This study explores the interplay between early life nutrition and its effect on the social brain's developmental dynamics.

Methods:

Myelin imaging for brain regions processing social information (social brain) and dietary nutritional intake information from 293 children (aged 6-60 months) from a longitudinal birth cohort were analyzed. A sliding window approach investigated the association between nutrient intake and social brain myelination over a continuous set of age windows. Regression analyses were performed to identify nutrient combinations with high predictive values.

Results:

We identified three nutrient-myelin window correlations with social brain regions: 28 nutrients were significant in window 1 (6-20 months), 14 in window 2 (20-30 months), and 27 in window 3 (30-60 months). Specific nutrient-myelin correlations in different age windows were observed, such as specific phospholipids overlapping between windows 2 and 3, while minerals are only associated with myelin in window 1. Six nutrient combinations showed significant predictive value for myelination of the social brain regions as a blend.

Conclusions:

This is the first study in healthy toddlers and young children to demonstrate specific nutrient-social brain dynamics across age, suggesting windows of sensitivity for the nutritional impact on specific brain regions critical for the social-emotional development.

EP102 / #294

E-Poster Topic: *AS03. Childhood & Adolescence*

GROWTH PATTERN OF CEPHALIC INDEX IN INDIAN DOWN SYNDROME CHILDREN

Anil Bhalla, Harvinder Kaur, Rupinder Kaur, Inusha Panigrahi
Postgraduate Institute of Medical Education & Research, Chandigarh, Pediatrics, Chandigarh, India

Background and Aims:

Use of Cephalic Index(CI) for determining skull shape is recommended to corroborate diagnosis of syndromic conditions. In view of complete absence of serial data on CI, this study aims to unfold auxological dynamics of CI in Down Syndrome(DS) children of Indian origin.

Methods:

A total of 2474 head length(HL) and head width(HW) measurements were performed on 1125(Male:752,Female:373) DS, aged 1 to 10 years at 6 monthly age intervals using a 'Spreading Caliper' in Growth Laboratory/Growth Clinic of the Institute. CI was calculated as head width/head length×100. DS children were categorized into Dolicocephalic (CI:male-71.0-75.9; female-72.0-76.9), Mesocephalic (CI: male-76-80.9; female-77-81.9), Brachycephalic (CI: male-81-85.4; female-82-86.4), hyperbrachycephalic (CI: male-85.5-90.4; female-86.5-91.9) and ultrabrachycephalic (CI: male-91-x; female- 92-x).

Results:

Mean HL and HW among our DS children depicted a slow but regular increase from 1 to 10 years. In contrast, CI demonstrated a decline in mean values for the first 3 years of life, whereafter, it became stable. Boys in general, possessed marginally higher values than girls however, gender differences remained statistically non-significant. Majority of our study children (male:88%, female:82%) demonstrated a broad head ranging through brachycephaly to hyperbrachycephaly to ultrabrachycephaly. Significantly ($p \leq 0.01$) higher percent pre-ponderance of hyperbachycephaly in males(37%) was noted as compared to females(28%).

Conclusions:

Our DS children representing north-western parts of India had larger mean CI and hence possessed broader heads. Use of age and gender specific data presented for CI of Down Syndrome children may be made for comparative purpose to ascertain inter-population variability.

EP103 / #227

E-Poster Topic: *AS03. Childhood & Adolescence*

WHY IS VITAMIN D INSUFFICIENCY PREVALENT AMONG CHILDREN IN TROPICAL INDONESIA? AN ANALYSIS BASED ON CHILDREN'S DIETARY INTAKE, PHYSICAL ACTIVITY AND ULTRAVIOLET EXPOSURE

Aria Kekalih[1,2], Rini Sekartini[2,3], Dian Novita Chandra[2,4], Listya Tresnanti Mirtha[2,5], Luthfi Arif[2], Ilse Khouw[6]
[1]Faculty of Medicine, Universitas Indonesia, Community Medicine Department, DKI Jakarta, Indonesia, [2]Faculty of Medicine, Universitas Indonesia, Seanuts Ii Indonesian Study Team, DKI Jakarta, Indonesia, [3]Faculty of Medicine, Universitas Indonesia, Departement Of Child Health, DKI Jakarta, Indonesia, [4]Faculty Medicine Universitas Indonesia, Department Of Nutrition, DKI Jakarta, Indonesia, [5]Faculty of Medicine Universitas Indonesia, Department Of Community Medicine, DKI Jakarta, Indonesia, [6]FrieslandCampina, Frieslandcampina, bn amersfoort, Singapore

Background and Aims:

Vitamin D insufficiency can affect the growth, development, and immunity status of children. Abundant sunlight in tropical countries like Indonesia reduces the risk of vitamin D deficiency. However, the trend of declining physical activity and outdoor activity among Southeast Asian children has prompted the need for updated data on the vitamin D status of Indonesian children. This study aimed to determine the vitamin D insufficiency status of 0.6-12 years old children in Indonesia and its associated risk factors

Methods:

In 2019-2020, 458 children were evaluated in 21 Indonesian regencies for South East Asian Nutrition Survey (SEANUTS II). Venous blood was analysed for vitamin D insufficiency. Random subsamples of 160 and 132 school children's (7-12.9 years old) physical activity and UVB exposure were collected. Univariate and multivariate analyses included household social economy and vitamin D intake.

Results:

The prevalence of children with vitamin D insufficiency was 27%. Higher risk of vitamin D insufficiency was found in older children (adjusted OR/aOR 4.5) and girls (aOR 2.1). Sub-analysis in school children revealed significant associations of low physical activity (aOR 3.7) and low exposure to UVB (aOR 4.8) to higher risk of vitamin D insufficiency.

Conclusions:

Despite the tropical climate, Vitamin D insufficiency was prevalent among Indonesian children, associated with low physical activity and sun exposure. This condition necessitates a strategy to

empower children and parents to engage in more physical and outdoor activity to reduce the risk of vitamin D deficiency-related low immunity and bone density.

EP104 / #507

E-Poster Topic: *AS03. Childhood & Adolescence*

IMPORTANCE OF VITAMIN D SCREENING UPON ARRIVAL. CASE STUDY OF SEVERE AVITAMINOSIS D IN AN ADOLESCENT REFUGEE GIRL FROM SYRIA IN GERMANY.

Domniki Kyriakou
Regiomed Klinikum Coburg, General Pediatrics, Coburg, Germany

Background and Aims:

Presenting the case of a teenage Syrian girl, admitted to our pediatric department in the upper Franconia region of Bavaria with symptoms of severe Hypovitaminosis D (convulsive seizures, tetany, failure to thrive). Our patient was portraited as the only "healthy" family member, giving her directly the role of the big supporter of her family and child bearing daughter. Consanguinity, low socioeconomic background, underestimation of education, full-clothing, a rich Migration Odyssey with outcoming Isolation, language barrier and social distancing were some of the predisposing risk factors.

Methods:

Case Study and Literature Review

Results:

We introduce a primary risk factor stratification table, enabling first-line easy assessment and suggesting further follow-up indication. An individualized medical approach can through a structural and simple risk-factor stratification be obtained. Supplementation of Vitamin D with seasonal variation, seasonal screening and maintenance of a balanced nutrition, consumption of fortified products so as education of children and mothers are of pivotal importance for a healthy lifestyle in the new country of settlement.

Conclusions:

The purpose of our Case Study is to emphasize the importance of Vitamin D screening of refugee and migrant children, future and lactating mothers. Upon arrival Screening Strategies are of health and integrational benefit, gaining improvement of life quality for children in times of Humanitarian Crisis. Identifying cases in an early stadium, optimizing integration, reducing social distancing , reducing trust issues among foreigners and at last engaging social workers, doctors and volunteers.

EP105 / #524

E-Poster Topic: *AS03. Childhood & Adolescence*

A DANGEROUS TRIAD: UNDERNUTRITION, HIV AND TUBERCULOSIS

Laura Leite De Almeida[1], Silvia Chauque[2]
[1]Centro Hospitalar Universitário de São João, Pediatrics, Porto, Portugal, [2]Hospital Geral José Macamo, Pediatrics, Maputo, Mozambique

Background and Aims:

Undernutrition is a complex medical condition that carries significant morbimortality. Although primary etiology is more prevalent in resource-limited settings, secondary etiology also plays a significant role. Therefore, the screening for related chronic diseases is crucial.

Methods:

We present a case report of a 5-year-old male, referred to a tertiary Mozambican hospital due to a persistent cough and otalgia for two months, without improvement after oral antibiotics. Additionally, the patient had a one-month history of weight loss and asthenia.

Results:

On physical examination, the child was febrile, lethargic, and appeared emaciated, with muscle wasting, a distended abdomen, thin hair and skin with hyperpigmented areas. He had purulent otorrhea, plaques on the buccal mucosa, and diffuse crackles on pulmonary auscultation. Anthropometry confirmed a severe acute malnutrition. A rapid HIV test was positive and the diagnosis of HIV/AIDS with acute otitis media, oral candidiasis, and pneumonia was established. Furthermore, the child had a history of close contact with a tuberculosis case.

A dietary program was implemented, and treatment with endovenous ceftriaxone, oral azithromycin and fluconazol initiated. CD4 count was 6 cells/μL and urine tuberculosis antigen test positive. Antituberculous therapy was started and two weeks later antiretroviral therapy added. Psychology counseling was provided to the family. The child made a progressive recovery and was discharged for outpatient monitoring after one month.

Conclusions:

HIV and tuberculosis screening should be performed in cases of acute malnutrition as the co-occurrence of these diseases can increase morbimortality. Its early identification and treatment are essential for a positive outcome.

EP106 / #259

E-Poster Topic: *AS03. Childhood & Adolescence*

DIFFERENCES IN HEIGHT-FOR-AGE CHARTS FOR MEXICAN CHILDREN VS WHO AND CDC REFERENCES.

Desiree Lopez-Gonzalez[1], Armando Partida-Gaytán[2], Patricia Clark[1], Mary Fewtrell[3], Jonathan Wells[4]
[1]Hospital Infantil de Mexico Federico Gomez, Clinical Epidemiology Research Unit,, Mexico City, Mexico, [2]Hospital Infantil de Mexico Federico Gomez, Medical Assistance Division, Mexico City, Mexico, [3]University College London, Childhood Nutrition Research Center, Ucl Great Ormond Street Institute Of Child Health, London, United Kingdom, [4]UCL Great Ormond Street Institute of Child Health, Institute Of Child Health, London, United Kingdom

Background and Aims:

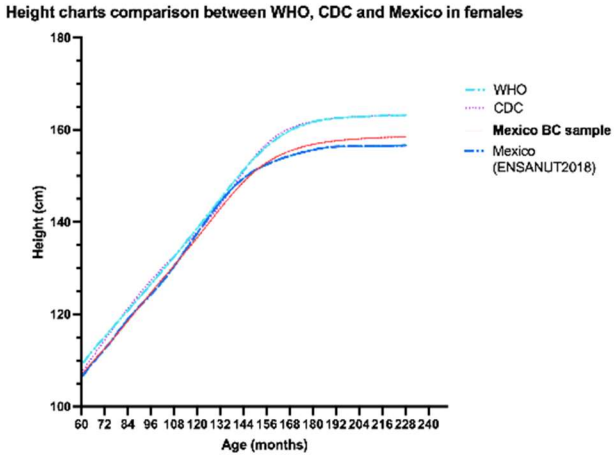
Linear growth in fetal life and early childhood shows minimal difference between populations. In contrast, adult height shows significant differences among different populations. It is not clear at what age these become evident and if they should be considered when assessing the height of a growing child or adolescent.

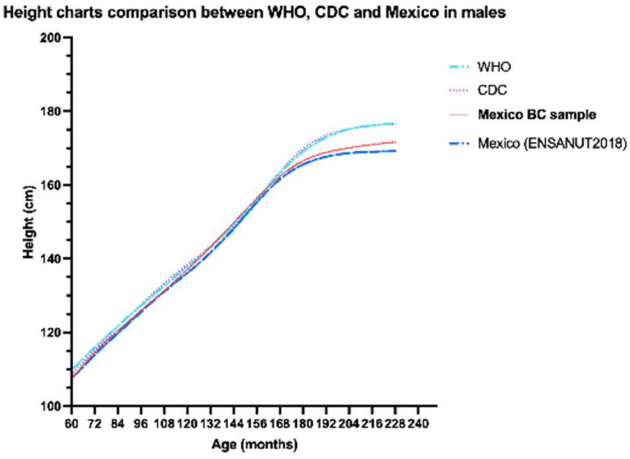
The aim of this study was to compare height for age (H/A) charts of CDC and WHO with two representative datasets of Mexican children/adolescents (5-19y).

Methods:

Using data from the Mexican National Health and Nutrition Survey (ENSANUT) and the study "Reference values of body composition for Mexican children/adolescents" (MXBC) we generated GAMLSS smoothed reference curves for height for the Mexican population. We compared such data to CDC and WHO charts.

Results:





H/A charts of CDC and WHO were similar across all ages. However, Mexican datasets

demonstrated significant differences starting at age 12y for girls and 14.2y for boys. At 19y, ENSANUT and MXBC data revealed significant differences compared to WHO and CDC. ENSANUT data showed -7.34cm vs WHO and -7.43cm vs CDC for males, and -6.58cm and -6.63cm respectively for females. MXBC data showed -4.88cm vs WHO; and -4.97cm vs CDC for males; and -4.78cm and -4.83cm respectively for females, all $P < 0.01$.

Conclusions:

H/A charts for healthy Mexican children/adolescents are different to those of CDC and WHO. Shorter height becomes evident from 12y for girls and 14.2y for boys, and by 19y the gap reaches 4.8cm and 4.9cm respectively. Future research is needed to understand the possible causes of these distinct growth patterns.

EP107 / #250

E-Poster Topic: *AS03. Childhood & Adolescence*

WHEY BASED DIET CORRECTS LPS INDUCED GROWTH ATTENUATION IN A RAT MODEL

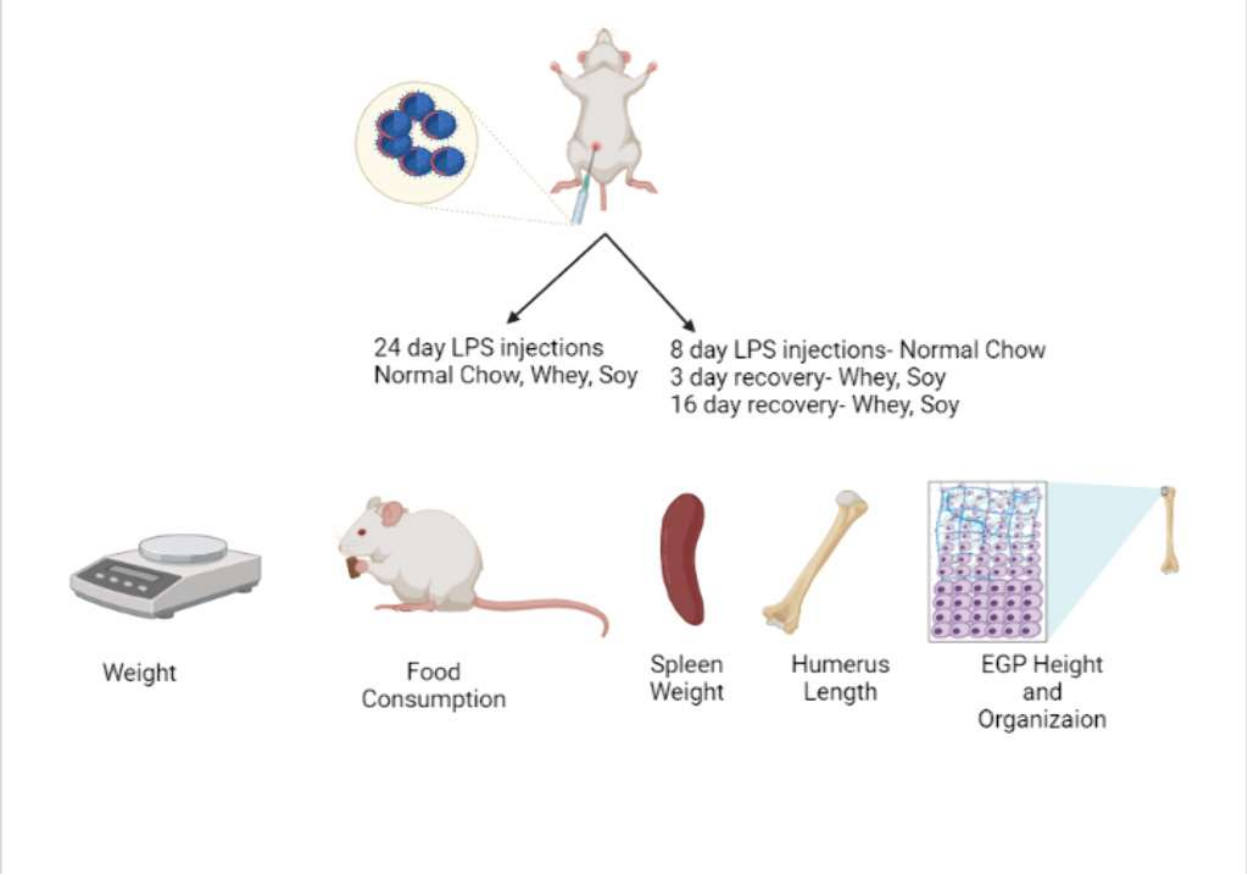
Chen Menahem[1], Michal Foist[1], Biana Shtaif[1], Meytal Bar-Maisels[2], Yasmin Mansour[2], Moshe Phillip[1,2,3], Galia Gat-Yablonski[1,2,3]
[1]Tel Aviv University, Sackler School Of Medicine, Tel Aviv, Israel, [2]Schneider Children's Medical Center, Endocrinology And Diabetes, Petach Tikva, Israel, [3]Felsenstein Medical Research Center, Sackler School Of Medicine, Petah Tivka, Israel

Background and Aims:

Inflammatory disease, such as IBD may cause growth attenuation. As the incidence in children is rapidly rising, resolving growth attenuation is an important challenge while treatment options are limited. Growth hormone (GH) therapy is not a feasible option due to GH resistance mediated by pro inflammatory cytokines. In the current study, we set out to study the effect of nutrition on growth under inflammatory conditions.

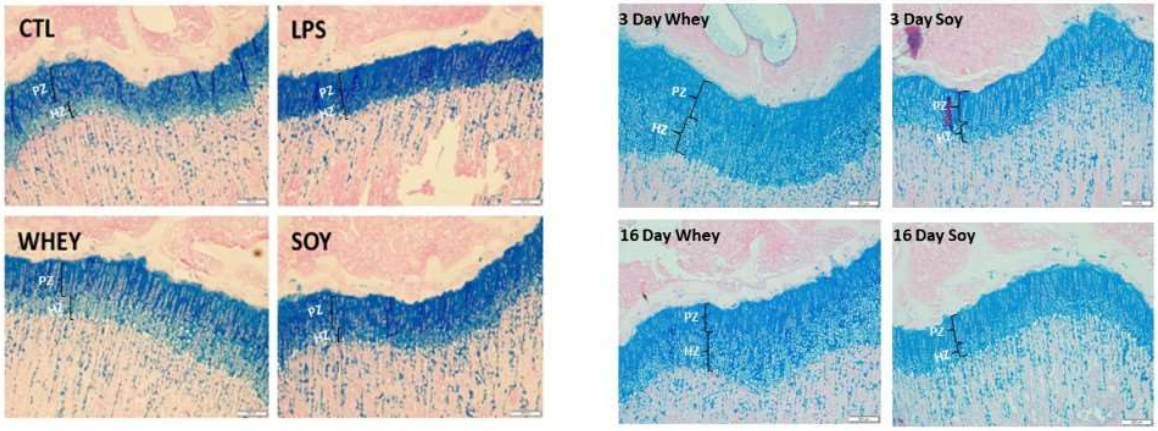
Methods:

LPS was used for the inflammation model. In the first set of experiments animals were fed normal chow (NC) or diets containing whey or soy as the sole protein source during LPS injections. In the second, they were treated with the diets during the recovery period. Body and spleen weight, food consumption, humerus length and growth plate (GP) height were measured.



Results:

LPS treatment led to a 10% decrease in weight with no effect on food consumption. In addition, a significant increase in spleen weight indicating inflammation, and a decrease in GP height were noted. Interestingly, whey but not soy-based diet corrected the effect on spleen weight and increased GP height. Similar results were obtained in the 2nd experiment; whey fed animals had a significantly higher GP compared to soy. Specifically, the hypertrophic zone of the GP, which was significantly shortened by LPS treatment, was increased in whey fed animals.



Changes in EGP Height and Structure

Conclusions:

We have shown that LPS induced inflammation attenuates growth by decreasing GP height, specifically at the hypertrophic zone. Whey based diet corrected both inflammation at the spleen level and growth attenuation at the GP level.

EP108 / #226

E-Poster Topic: *AS03. Childhood & Adolescence*

LOW VEGETABLE CONSUMPTION - A HIDDEN HEALTH THREAT AMONG MALAYSIAN URBAN POOR CHILDREN

Kai Ting Mok[1], Serene En Hui Tung[2], Satvinder Kaur[1], Yit Siew Chin[3], Martini Mohamad Yusoff[4], Vaidehi Ulaganathan[1]
[1]UCSI University, Department Of Food Science And Nutrition, Kuala Lumpur, Malaysia, [2]International Medical University (IMU), Division Of Nutrition And Dietetics, School Of Health Sciences, Kuala Lumpur, Malaysia, [3]Universiti Putra Malaysia, Department Of Nutrition, Faculty Of Medicine And Health Sciences, Serdang, Malaysia, [4]Universiti Putra Malaysia, Department Of Crop Science, Faculty Of Agriculture, Serdang, Malaysia

Background and Aims:

Despite the well-known health benefits of eating vegetables, many urban poor children had low vegetable consumption due to food insecurity. This trend underlines the importance of identifying factors related to vegetable consumption to plan an effective intervention programme for this population. This study aimed to determine the relationship between personal, social, and environmental factors with vegetable consumption among Malaysian urban poor children.

Methods:

This study was conducted from November 2021 through March 2022 among 206 children aged 9 to 12 years from People's Housing Programme (PPR) in Kuala Lumpur, Malaysia. Socio-demographic, personal, social, and environmental factors related to vegetable consumption were assessed using self-administered questionnaire. Vegetable consumption was determined using two days 24-hour dietary recall.

Results:

The mean vegetable consumption among urban poor children was 1.48±1.50 servings. Knowledge (β's=0.159, p=0.037), liking (β's=0.209, p=0.012), preferences (β's=0.279, p<0.001) and vegetable availability (β's=0.165, p=0.031) were predictors of vegetable consumption, accounting for 9.7% of the variance in children's vegetable consumption. In other words, children were more likely to eat more vegetables if they have good knowledge, positive liking and preference towards vegetables, and more vegetables available at home.

Conclusions:

The study highlights the correlates of vegetable consumption among Malaysian urban poor children. As long-term inadequate vegetable consumption may be a hidden health threat that leads to nutrient insufficiency, there is a need for nutrition strategy development that focuses on

improving knowledge, liking, vegetable preferences and vegetable availability at home for this population.

Acknowledgement: This research was funded by UCSI Research Excellence & Innovative Grant (REIG) [REIG-FAS-2020/007].

EP109 / #428

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION OF MATERNAL AGE WITH UTILIZATION OF ANTENATAL CARE SERVICES AND KNOWLEDGE OF CHILD DEVELOPMENT IN RURAL LIMPOPO, SOUTH AFRICA

Nozipho Orykah Musakwa[1], Mhairi Maskew[1], Lezanie Coetzee[1], Aneesa Moolla[1], Vongani Maluleka[2], Patricia Leshabane[1], Anne Robertson[3], Gert Marincowitz[4], M Zuckerman[4], Gunther Fink[5], D Hamer[6], Aisha Yousafzai[7], Peter Rockers[6], Denise Evans[1]
[1]Health Economics and Epidemiological Research Office, Epidemiology, Johannesburg, South Africa, [2]Developmental Pathways to Health Research Unit, School Of Public Health, Johannesburg, South Africa, [3]National Department of Health, Limpopo, Limpopo, South Africa, [4]University of Limpopo, Public Health, Limpopo, South Africa, [5]Swiss Tropical Public Health Institute, Household Economic And Public Health, Basel, Switzerland, [6]Boston University, Global Public Health, Boston Massachusettes, United States of America, [7]Harvard T.H. Chan, School Of Public Health, Boston, United States of America

Background and Aims:

The influence of early maternal age on pregnancy, birth, and early childhood outcomes is important. We examined the association between maternal age and two predictors of child health outcomes: utilization of antenatal services; and maternal knowledge of ECD practices.

Methods:

We analyzed data from 1,092 caregiver-child dyads who participated in a cluster-randomized trial in rural Limpopo, South Africa. Data on maternal and infant characteristics were collected through maternal self-report and the RTH booklet at the household post-birth. The CKCDI was used to measure caregiver knowledge of ECD. Uptake of ANC was defined as first visit and total visits to ANC. We used log-binomial regression to estimate crude prevalence ratio and 95% CI for the effect of maternal age on maternal care practice.

Results:

Mothers less than 24 were more likely to attend antenatal care during the first trimester of pregnancy compared to mothers ages 24 to 49(20% vs 12%, respectively; PR 1.59; 95% CI 1.09-2.3 0). The prevalence of poor uptake/non-use of ANC services was higher among women greater than 31 years (PR, 1.78; 95% CI: 1.14, 2.78), among single women (PR, 2.99; 95% CI: 1.83, 4.75) and women with poor social support (APR, 1.71; 95% CI: 1.09, 2.67). Knowledge of ECD care practices ranged from 60-75% and was similar across maternal age groups.

Conclusions:

We found no association between younger maternal age at delivery and delayed uptake of antenatal care.Socio-economic challenges could impact quality of child care practices.

Caregivers should be supported and capacitated to access child-care knowledge during pregnancy and the post-partum period.

EP110 / #459

E-Poster Topic: *AS03. Childhood & Adolescence*

IMPACT OF A COMMUNITY HEALTH WORKER HOME VISIT INTERVENTION ON CHILD DEVELOPMENT IN SOUTH AFRICA: A CLUSTER-RANDOMIZED CONTROLLED TRIAL

Peter Rockers[1], Nozipho Orykah Musakwa[2], Jukka Leppanen[3], Amanda Tarullo[1], Lezanie Coetzee[2], D Hamer[1], Gunther Fink[4], Aisha Yousafzai[5], Denise Evans[2]
[1]Boston University, Global Public Health, Boston Massachusettes, United States of America, [2]Health Economics and Epidemiological Research Office, Epidemiology, Johannesburg, South Africa, [3]University of Tampere, Department Of Psychology, Finland, Finland, [4]Swiss Tropical Public Health Institute, Household Economic And Public Health, Basel, Switzerland, [5]Harvard T.H. Chan, School Of Public Health, Boston, United States of America

Background and Aims:

A strong body of evidence demonstrates that the negative impacts of early adversity on child development in LMIC countries can be mitigated through appropriate early-life intervention. However, important questions remain around how to effectively integrate home-based interventions for children into existing public service platforms in order to deliver them at scale.

Methods:

We conducted a cluster-randomized controlled trial to test the impact of a CHW delivered home visit intervention on child development in Limpopo Province, South Africa. CHWs were randomized to either the intervention group who were trained on a job aid for use during regular monthly home visits with children under two years of age or a control group. Care-giver- child dyads were selected. Primary outcomes for this study were: height-for-age z-scores (HAZ); skills measured in four domains; and two measures of neural function, and an eye-tracking measure of visual processing speed.

Results:

51 clusters randomly assigned to intervention (26 clusters, 607 caregiver–child dyads) or control (25 clusters, 488 caregiver–child dyads). Controlling for a set of baseline characteristics, the intervention had no impact on stunting, gross motor skills, fine motor skills, language skills, or social- emotional skills (P>0.05). The lab subsample, the intervention had a significant impact on SRT (aβ-6.90[-12.86,-0.93]; p=0.023), absolute EEG gamma power (aβ-0.40[-0.69,-0.12]; p=0.005), and total EEG power (aβ-0.46[-0.72,-0.20]; 0.001).

Conclusions:

The intervention did not affect children's linear growth or skills. Due to causal proximity, measures of neural function may be more sensitive to intervention effects than behavioral skills.

This study demonstrates the feasibility of collecting markers of neural function in low-resource settings.

EP111 / #177

E-Poster Topic: *AS03. Childhood & Adolescence*

CHARACTERISTICS OF OBESE PRESCHOOLERS REFERRED TO A TERTIARY OBESITY MANAGEMENT CENTER IN BELGIUM

Elise Nauwynck, Karolien Van Himbeeck, Willem Staels, Jesse Vanbesien, Stephanie Verheyden, Bart Rutteman, Jean De Schepper, Inge Gies
UZ Brussel, Pediatric Endocrinology, Jette, Belgium

Background and Aims:

Parental obesity and ethnicity are well-known risk factors for obesity in preschoolers. Here, we describe the characteristics of obese toddlers referred to a Belgian tertiary center and investigate shifts in the clinical presentation during the last decade.

Methods:

Medical records of obese (BMI z-score >2) children in the periods 2013-2015 and 2019-2021 were reviewed. Birthweight and BMi z-scores were calculated using the Flemish reference charts. Class III obesity was defined as BMI ≥140% of the 95th percentile. Macrosomia was defined by a birthweight > 90th percentile.

Results:

In the period 2013-2015, 19/306 referred obese children (6.2%) were aged between 2 and 6 years, whereas in the 2019-2021 period 13/248 (5.2%) were younger than 6 years. In total, 93.8% had class III obesity. There were more male children in the 2019-2021 cohort compared to the 2013-2015 cohort (9/13 vs 3/19; P = 0.002). The more recently diagnosed toddlers were younger (4.9 vs 5.3 years) and had a higher BMI SDS (3.4 vs 3.1), but these differences were not statistically significant. Parental obesity was more prevalent in the recently diagnosed group (92.3 vs 31.6%; P= 0.002). No significant differences in ethnic distribution (non-Caucasian origin 23 vs 10.5%) were observed.

Conclusions:

Referred obese preschoolers show in general a class III grade obesity. In the last years, a male predominance and higher proportion of parental obesity were observed in those referred for obesity management.

EP112 / #148

E-Poster Topic: *AS03. Childhood & Adolescence*

DESCRIBING THE NUTRITIONAL OUTCOMES FOLLOWING PAEDIATRIC LIVER TRANSPLANTATION AT A TERTIARY HOSPITAL IN SOUTH AFRICA

Lesego Ndhlovu, Elizabeth Goddard, Ronalda De Lacy
Red Cross War Memorial Children's Hospital, Univesity of Cape Town, Paediatric Gastroenterology, Hepatology, And Nutrition; Department Of Paediatrics And Child Health, Cape Town, South Africa

Background and Aims:

Background: Nutrition in chronic liver disease is an important marker of post- liver transplant outcomes in children and is monitored judiciously pre-transplantation. There is a paucity of data on post-transplant nutritional outcomes, particularly in the developing world setting

Aim: To describe the nutritional outcomes of children following liver transplantation.

Methods:

A retrospective study of patient's receiving post-transplant care at Red Cross War Memorial Children's Hospital liver transplant clinic in Cape Town, South Africa from 2004 – 2019

Results:

31 children were included in the analysis. Pre-transplant prevalence of stunting was 59.2%, with 33.3% of children severely stunted. At 24 months post-transplant 65.5% of children were stunted, with 41.4% severely stunted. Overweight and obesity prevalence was 0% pretransplant, and 32.2% and 27.6% at 12- and 24-months post-transplant respectively. Biliary atresia was the diagnosis in 89.5% of children with stunting at 24 months vs in 50% of children without stunting at 24 months post-transplant [$p = 0.03$]. Stunting at 24 months post-transplant was higher in children with lower pre-transplant mean albumin levels [26.7g/l versus 29.6g/l; $p < 0.001$]. Age at transplant was lower in children with stunting at 24 months post-transplant vs children without stunting [40.7 months versus 91.5 months; $p < 0.001$].

Conclusions:

Stunting and overweight/obesity are highly prevalent post paediatric liver transplantation. Lower pre-transplant albumin, younger age at transplant, and diagnosis of biliary atresia were associated with post-transplant stunting. It seems prudent to continue the monitoring of these children's nutrition post-transplantation to prevent the development of overnutrition and the metabolic complications thereof.

EP113 / #278

E-Poster Topic: *AS03. Childhood & Adolescence*

ENERGY DRINK CONSUMPTION AMONG ISRAELI-ARAB ADOLESCENTS – PHYSIOLOGICAL AND PSYCHOLOGICAL OUTCOMES

Gilad Naveh[1], Bshara Mansour[2], Omer Horovitz[3], Mahmoud Bader[2], Elias Nasrallah[2], Faiga Magzal[1], Nael Elias[2], Snait Tamir[1], Lili Nimri[1]
[1]Tel-Hai Academic College, Nutritional Sciences Department, Qiryat Shemona, Israel, [2]Azrieli Faculty of Medicine, Bar-Ilan University, Saint Vincent de Paul Hospital, Pediatrics Department, Nazareth, Israel, [3]Tel-Hai Academic College, Psychology Department, Qiryat Shemona, Israel

Background and Aims:

Energy drink (ED) consumption among Israeli-Arab adolescents is known to be quite common. However, only some studies have studied the short- and long-term ramifications of such habits on this population. This study aims to assess the effect of ED consumption on adolescents' physiological and psychological status.

Methods:

71 participants (56% girls, average age 16±1 years) underwent a baseline Mixed meal tolerance test to determine their glucose tolerance. Eligible subjects received 47 grams of carbohydrates, including 250 milliliters of either ED or soft drink and 20 grams of carbohydrates. Blood glucose and heart rate were measured at baseline and 15, 30, 60, and 120 minutes from baseline. Blood samples for Insulin and metabolomic profiles were also collected. Daily caffeine consumption and anxiety index were determined by using self-reported questionnaires.

Results:

Participants from the ED group exhibited higher blood glucose levels 15 and 30 minutes from baseline (P=0.010; P=0.034, respectively), and lower heart rate (P=0.015; P=0.056, respectively) compared to the soft drink group. Insulin levels were significantly higher in the ED group 30 minutes from baseline (P=0.004). Serum metabolomics analysis revealed significant and positive correlation between the quantity of caffeine consumed per kilograms in the ED group and the levels of Mevalonic acid, 3,4-Dihydroxymandelaldehyde, 3,5-Dihydroxyphenylglycine, and Gabaculine ($r_s \geq 0.766$, $P<0.001$, for all). A positive correlation between daily caffeine consumption and anxiety was found solely among boys ($r_s=0.313$, P=0.049).

Conclusions:

Our findings demonstrated altered metabolomic profiles and physiological and psychological symptoms among adolescent ED consumers.

EP114 / #541

E-Poster Topic: *AS03. Childhood & Adolescence*

EARLY ADOLESCENTS' NUTRITIONAL STATUS AND FACTORS THAT INFLUENCE IT IN NORTH CENTRAL NIGERIA

Vincent Ebuka Nwatah[1], Patience Ahmed[1], Lamidi Audu[2], Selina Okolo[3]
[1]National Hospital Abuja, Department Of Pediatrics, Abuja, Nigeria, [2]Barau Dikko Teaching Hospital, Kaduna State University, Department Of Pediatrics, Kaduna, Nigeria, [3]University of Jos, Department Of Pediatrics, Jos University Teaching Hospital, Jos, Nigeria

Background and Aims:

Nutritional requirement has been asserted to be high during early adolescence which could be due to changes in body composition from puberty related growth spurt and increase in physical activity. Adolescent nutritional inadequacy is plagued with several long-term consequences. We therefore aimed to evaluate the nutritional status of early adolescent students in North Central Nigeria as well as factors that may influence their nutritional status.

Methods:

The study was a descriptive cross-sectional study of adolescents aged 10 to 14 years. A multistage random sampling technique was used. A self-administered questionnaire was used to obtain relevant information. Nutritional assessment software (WHO AntroPlus) was used to determine the body mass index and height-for-age z-scores. A confidence interval of 95% was assumed and a p-value of < 0.05 was considered statistically significant.

Results:

The overall prevalence of stunting, wasting, overweight and obesity are 4.0%, 2.9%, 8.4% and 1.1% respectively with overall malnutrition prevalence of 16.4%. The overall mean (SD) for HAZ and BMIZ were 0.21 (±1.28) and 0.25 (±1.29) respectively. Age, "school type", "number of siblings", "maternal age" and "socioeconomic status" were all significantly associated with HAZ score with p-values of 0.001, <0,001, 0.009, 0.033 and 0.002 respectively. There were statistically significant associations between BMIZ and general characteristic variables like: "school type" ($p < 0.001$); "number of siblings" ($p = 0.004$); "socioeconomic status" ($p = 0.003$) and "skipping meals" ($p = 0.022$).

Conclusions:

The study showed an overall prevalence of malnutrition of 16.4% among early adolescents with over-nutrition contributing more than half.

EP115 / #339

E-Poster Topic: *AS03. Childhood & Adolescence*

RICKETS AND ASSOCIATED MICRONUTRIENT DEFICIENCY AMONG MOTHER-CHILD PAIR IN RURAL COMMUNITIES OF KUJE AREA COUNCIL, FEDERAL CAPITAL TERRITORY ABUJA, NIGERIA

Clementina Ebere Okoro[1,2], Aloysius Nwabugo Maduforo[2,3], Dabiri Lukman Agboola[4], Okonkwo Emmanuel Obi[5], Celina Gaza Oluwafemi[5]
[1]FCT Primary Healthcare Board, Nutrution Section, ABUJA, Nigeria, [2]University of Nigeria, Nsukka, Department Of Nutrition And Dietetics, Nsukka, Nigeria, [3]University of Calgary, Educational Research (leadership), Werklund School Of Education, Calgary, Canada, [4]Federal Capital Territory Administration, Economic Planning Revenue Generation And Public Private Partnership, Abuja, Nigeria, [5]Federal Capital Territory Administration, Department Of Economic Planning Research And Statistics, Abuja, Nigeria

Background and Aims:

Rickets/osteomalacia in rural communities has been unnoticed, and thus has not attracted attention for appropriate intervention in Nigeria. This study assessed the proportion of under-five children with rickets and women with osteomalacia/rickets and the associated micronutrient (Vitamin D, Calcium, Alkaline Phosphates, and Phosphorus) status of the under-five children – mother pair.

Methods:

A cross-sectional survey method was used and multi-stage sampling techniques were used in selecting the populations that were studied. Probability proportion by size was applied in choosing 30 clusters for the survey using ENA for SMART software 2011 version. Validated questionnaires were used to obtain information from the population and trained personnel collected the blood sample and all parameters were analysed using standard methods. The data was also subjected to statistical analysis using the statistical package for social sciences version 20.

Results:

Biochemical results showed that 11.8% of the children were suspected to have rickets from clinical assessment, 36.4% were deficient in Vitamin D, 10.7%, 9.1% were deficient and above normal respectively in Alkaline Phosphates, 1.7% were deficient in Phosphorus, and 59.5% were deficient in Calcium. The biochemical result of the mothers showed that 5.7% of the mothers were suspected to have rickets, 30.4% were deficient in Vitamin D, 93.8% had above normal Alkaline Phosphates levels, 41.3% were deficient in Phosphorus, and 52.2% were deficient in Calcium.

Conclusions:

Rickets and associated micronutrient deficiency in Kuje were high in among women and children in Kuje area council.

EP116 / #345

E-Poster Topic: *AS03. Childhood & Adolescence*

MALARIA AND ANAEMIA PREVALENCE AMONG UNDER-FIVE CHILDREN AND THEIR MOTHERS IN A RURAL AREA COUNCIL OF THE FEDERAL CAPITAL TERRITORY ABUJA

Clementina Ebere Okoro[1,2], Aloysius Nwabugo Maduforo[1,3], Dabiri Lukman Agboola[4], Okonkwo Emmanuel Obi[5], Celina Gaza Oluwafemi[5]
[1]University of Nigeria, Nsukka, Department Of Nutrition And Dietetics, Nsukka, Nigeria, [2]FCT Primary Healthcare Board, Nutrution Section, ABUJA, Nigeria, [3]University of Calgary, Educational Researcal (leadership), Werklund School Of Education, Calgary, Canada, [4]Federal Capital Territory Administration, Economic Planning Revenue Generation And Public Private Partnership, Abuja, Nigeria, [5]Federal Capital Territory Administration, Department Of Economic Planning Research And Statistics, Abuja, Nigeria

Background and Aims:

Anaemia among mothers and children has remained a chronic public health problem in Nigeria and developing countries. One of the common causes of anaemia in Nigeria is poor intake of iron-rich foods, fever which is a symptom of malaria, and intestinal infestation of worms. The study evaluated the prevalence of malaria parasites, anaemia and iron deficiency among under-five children and their mothers in the Kuje area council of the Federal Capital Territory Abuja.

Methods:

A cross-sectional survey and multi-stage sampling techniques were used to select the studied populations. Probability proportion by size was applied in choosing 30 clusters for the survey using ENA for SMART software 2011 version. Trained phlebotomist collected blood samples. All parameters were analysed using standard methods. Data was described in tables and figures.

Results:

The prevalence of malaria parasites was 29.8% among the children, 16.7% were anaemic and 12.5% were deficient in Iron. While among the mothers, 15.4% had malaria parasites, 15.1% were anaemic and none of the women were deficient in Iron.

Conclusions:

There is a high prevalence of malaria parasites and anaemia among under-five children and their mothers while a high prevalence of iron deficiency was found only among under-five children.

EP117 / #406

E-Poster Topic: *AS03. Childhood & Adolescence*

'THE RELATIONSHIP BETWEEN NUTRITION AND MICRONUTRIENTS IN HEALTHY CHILDREN IN TURKEY'.

Hakan Onur
Memorial private Diyarbakir Hospital, Pediatrics, Diyarbakir, Turkey

Background and Aims:

A healthy diet is important at every stage of life. We aimed to determine serum vitamin D and iron, folic acid and B12 levels in healthy children younger than ≤48 months and to investigate the relationship between nutrition and micronutrients in children of this age.

Methods:

This observational study children who applied to the Pediatrics Clinic of our hospital between 2015-2022 years were included. Vitamin D and other nutritional parameters (serum folate, B12, iron, ferritin) were evaluated from the serum during the outpatient clinic controls of the babies included in the study.

Results:

766 cases were included in the study within the period. Vitamin D was higher in the group who fed only breast milk (p=0.019), vitamin D insufficiency was statistically higher in the formula group (p=0.015). Hemoglobin levels were significantly higher in the formula group (p=0.007). The folic acid level was found to be normal in all infants, it was found to be higher in formula-fed infants (p=0.012). Serum B12 was found to be significantly higher in infants fed with formula (p=0.001). Vitamin D deficiency was most common in infants aged 25-48 months (p<0.001). Similarly, vitamin D insufficiency (12-20 ng/mL) was detected in infants aged between 25-48 months (p<0.001).

Conclusions:

Micronutrients such as calcium, folic acid, iron, vitamin D and iodine are critical in early fetal development from pregnancy onwards. It is vital for mothers to raise awareness on this issue, to raise awareness starting from pregnancy, and to feed their babies more carefully in the first years of life.

EP118 / #508

E-Poster Topic: *AS03. Childhood & Adolescence*

ORAL NUTRITIONAL SUPPLEMENT WITH DIETARY COUNSELLING IMPROVES CATCH-UP GROWTH IN CHILDREN WITH OR AT RISK OF UNDERNUTRITION – A RANDOMIZED, OPEN-LABEL, CONTROLLED TRIAL

Mandy Yl Ow[1], Yatin Berde[2], Nga Thuy Tran[3], Tu Song Nguyen[4], Tran Khanh Van[3], Geraldine E. Baggs[5], Dieu Thi Thu Huynh[1]
[1]Abbott Laboratories, Abbott Nutrition R&d, Asia Pacific-center, Singapore, Singapore, [2]Cognizant Technologies Solution Pvt. Ltd., Statistical Services, Mumbai, India, [3]National Institute of Nutrition, Department Of Micronutrients, Hanoi, Viet Nam, [4]National Institute of Nutrition, Department Of General Planning, Hanoi, Viet Nam, [5]Abbott Laboratories, Abbott Nutrition R&d, Columbus, United States of America

Background and Aims:

Undernutrition in childhood has negative consequences on growth and development. Thus, timely management of growth shortfalls is essential. This study aims to evaluate the use of an oral nutritional supplement (ONS) providing macronutrients, micronutrients, arginine, Vitamin K2 and casein phosphopeptides alongside dietary counselling (DC) for 120 days on anthropometric growth in children with or at risk of undernutrition.

Methods:

A prospective, randomized multicenter intervention 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 group which was allowed to consume their usual milk and fortified beverages. Outcomes assessed included anthropometric growth, appetite, physical activity and parental satisfaction.

Results:

The ONS+DC group achieved the primary outcome of a larger WAZ increase compared to the DC-only group at day 120 (analysis of covariance least squares mean change ± standard error, intervention vs. control: 0.27±0.04 vs. 0.11±0.04; p=0.001). ONS+DC also had greater increases in weight (kg; 1.0±0.1 vs. 0.7±0.1; p=0.003), height (cm; 2.8± 0.1 vs. 2.5±0.1; p=0.027) and HAZ (0.15±0.03 vs. 0.07±0.03; p=0.018) compared to the control group. Parent-rated child's appetite and physical activity levels, and parental satisfaction with height, weight and child's growth were also higher in ONS+DC group (all outcomes p<0.05).

Conclusions:

The addition of ONS to dietary counselling was more effective in promoting weight and height gain than standalone dietary counselling allowing usual milk consumption.

EP119 / #153

E-Poster Topic: *AS03. Childhood & Adolescence*

DAIRY CONSUMPTION AND VITAMIN D CONCENTRATION IN ADOLESCENTS WITH CHALLENGE CONFIRMED COW'S MILK ALLERGY DURING INFANCY

Sonja Piippo[1], Helena Hauta-Alus[1,2,3,4], Mirva Viljanen[1], Erkki Savilahti[1], Mikael Kuitunen[1]
[1]University of Helsinki and Helsinki University Hospital, Children's Hospital, Pediatric Research Center, Helsinki, Finland, [2]Faculty of Medicine, University of Helsinki, Research Program For Clinical And Molecular Metabolism (camm), Helsinki, Finland, [3]National Institute for Health and Welfare (THL), Public Health Research Team, Population Health Unit, Helsinki, Finland, [4]Oulu University Hospital and University of Oulu, Pedego Research Unit, Mrc Oulu, Oulu, Finland

Background and Aims:

Milk is an important source of calcium and vitamin D. Cow's milk allergy (CMA) is treated with a milk exclusion diet. Most children become milk tolerant over time, however. It remains unclear whether adolescents, with a history of CMA during infancy, adopt similar milk consumption as their peers. Our aim was assessment of dairy products consumption, and concentration of serum 25-hydroxyvitamin D (25(OH)D), in adolescents with atopic eczema (AE), and confirmed CMA during infancy, compared to adolescents with AE and a negative CMA challenge during infancy (suspected CMA), and to controls.

Methods:

A follow-up study based on a previously reported randomised trial on the effect of probiotics on AE with data on CMA in infancy. At the age of 15-18, data on diet was collected from a 20-item food frequency questionnaire, from which consumption of dairy was calculated. Serum 25(OH)D was measured at a research visit.

Results:

Median consumption of dairy products did not differ between adolescents with CMA (449 g/d), suspected CMA (566 g/d), and controls (235 g/d) (p 0.117). Median 25(OH)D levels were 76.0 nmol/l, 79.3 nmol/l and 80.8 nmol/l, respectively. (p 0.844). Of the subjects, 93.1% were identified as vitamin D sufficient, with no differences between groups (p 0.914).

Conclusions:

Among adolescents with a history of CMA during infancy, our study found no reintroduction failure of milk into the diet, or predisposition to vitamin D insufficiency. Current management of infants with CMA seems to adequately minimize later nutritional disadvantages associated with a milk elimination diet.

EP120 / #154

E-Poster Topic: *AS03. Childhood & Adolescence*

FOOD CONSUMPTION AND DIETARY BEHAVIORS OF MOROCCAN CHILDREN AGED 3 TO 12 YEARS-OLD LIVING IN URBAN AREAS – THE NUTRIKIDS STUDY

Peggy Drouillet Pinard[1], Sara Zibara[1], Jeanne H Bottin[1], Nawal Bentahila[2], Nezha Mouane[3]
[1]DANONE, Health, Strategy And Partnerships, Gif sur Yvette, France, [2]Consultancy firm, Scientific Affairs And Public Affairs, Casablanca, Morocco, [3]Faculty of medicine and Pharmacy, Mohammed V University, Nutgamed Research Unit, Rabat, Morocco

Background and Aims:

Morocco is facing a nutritional transition marked by the coexistence of nutritional deficiencies and overweight leading to increased risk of noncommunicable diseases. The purpose of the Nutrikids study was to provide insights on food consumption and nutrients intake in young children.

Methods:

Data was collected in 2021 from 500 middle-class children aged 3 to 12 years old living in urban areas, through four consecutive 24-hour dietary recalls. Dietary intakes were compared between age, sex, and region with application of a weighting factor for representativeness. Foods associations and alternatives were studied using correlation coefficients and random probabilities respectively.

Results:

Around 10% of children were identified as overweight or obese while 13% were underweight. The daily portion was structured around four main meals (breakfast, lunch, afternoon tea, and dinner). Breakfast and afternoon tea were mainly composed of a cereal product, a dairy product and a beverage. Lunch and dinner usually contained a source of animal protein (meat, fish or egg), some vegetables and fruits, while dairy products were negligeable. In addition to beverages, the four most consumed food groups were cereals (33%), dairy products (20%), fruits (18%) and meats (9%). Older children aged 7-12 consumed more cereals, meat, tea/coffee and soft drinks, but less dairy products and fruit juices than younger children aged 3-6.

Conclusions:

The Nutrikids study provides knowledge on food behaviors in Moroccan children, helpful to support prevention programs and policies. Assessment of nutrient intakes and comparison to the recommendations will provide additional insights in the future.

EP121 / #318

E-Poster Topic: *AS03. Childhood & Adolescence*

PRELIMINARY RESULTS SHOW EARLY-LIFE GROWTH AND ENVIRONMENT STRONGLY ASSOCIATE WITH SCHOOL-AGE GROWTH, COGNITIVE AND PHYSICAL FUNCTION IN THE SHINE COHORT USING THE SAHARAN TOOLBOX

Joseph Piper[1,2], Clever Mazhanga[2], Idah Mapurisa[2], Tsitsi Mashedze[2], Eunice Munyama[2], Gloria Mapako[2], Thombizodwa Mashiri[2], Dzidzai Matemavi[2], Maria Kuona[2], Kundai Sibanda[2], Marian Mwapaura[2], Manasa Mwangende[2], Soneni Nyoni[2], Asinje Saidi[2], Monica Tichagwa[2], Dzivaidzo Chidhanguro[2], Naume Tavengwa[2], Virginia Sauramba[2], Lisa Langhaug[2], Eddington Mpofu[2], Batsirai Mutasa[2], Robert Ntozini[2], Jonathan Wells[3], Melissa Gladstone[4], Melanie Smuk[1], Jean Humphrey[5], Shine Follow-Up Trial Team[2], Andrew Prendergast[1,2]
[1]Queen Mary University of London, Genomics And Child Health, AT, United Kingdom, [2]Zvitambo Institute for Maternal and Child Health, Research, Harare, Zimbabwe, [3]UCL Great Ormond Street Institute of Child Health, Institute Of Child Health, London, United Kingdom, [4]University of Liverpool, Institute Of Translational Medicine, Liverpool, United Kingdom, [5]Johns Hopkins, Bloomberg School Of Public Health, Baltimore, United States of America

Background and Aims:

The SHINE 2x2 factorial trial randomized children to an early-life comprehensive household WASH intervention and/or lipid-based nutrient supplements (LNS) in rural Zimbabwe. The School-Age Health, Activity, Resilience, Anthropometry and Neurocognitive (SAHARAN) toolbox has measured school-age growth, body composition, cognitive and physical function at age 7 years.

Methods:

The SAHARAN toolbox measured cognitive function using the Kaufmann Assessment Battery for Children (KABC-II) as a primary outcome, with additional tools measuring executive function, literacy, numeracy, fine motor skills and socioemotional function. Physical function was assessed by handgrip strength, broad jump and shuttle run test. Growth was assessed by anthropometry, body composition (using bioimpedance analysis) and skinfold thicknesses. Contemporary household socioeconomic status, demographics, nurturing, food and water insecurity were measured by a caregiver questionnaire.

Results:

Preliminary results for 1087 (562 female) rural Zimbabwean children (245 born to HIV positive mothers, of which 128 female) aged 7 years were analyzed using generalized estimating equations with an exchangeable working correlation structure to account for clustering. Stunting at 18 months was highly associated with reduced cognitive function at 7 years measured both by KABC-II (3.1 marks, 95%CI 1.4, 4.7, $p<0.001$) and literacy/numeracy (8.9 marks, 95%CI 5.0, 12.5, $p<0.001$). Physical function and growth were also significantly reduced. Early-life

socioeconomic status, HIV exposure, birthweight as well as contemporary exposures were all associated with school-age growth and function.

Conclusions:

Preliminary analysis of the SHINE cohort showed clear and plausible associations between early-life, contemporary factors and school-age growth, cognitive and physical function. Further analysis will explore the effect of early-life treatment arm.

EP122 / #228

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION OF MARITAL STATUS AND DECISION MAKING WITH HAEMOGLOBIN LEVELS IN GIRLS AND YOUNG WOMEN IN NEPAL: ANALYSIS OF LONGITUDINAL DATA FROM 2018-2019

Anjana Rai[1], Smita Nambiar[2], Naomi Saville[3], Marguerite C Sendall[4], Kenda Cunningham[5], Ramesh P Adhikari[6], Darren Wraith[1]
[1]Queensland University of Technology, School Of Public Health And Social Work, Brisbane, Australia, [2]Queensland University of Technology, School Of Nutrition And Exercise Sciences, Brisbane, Australia, [3]University College London, Institute For Global Health, London, United Kingdom, [4]Qatar University, Department Of Public Health, Doha, Qatar, [5]London School of Hygiene and Tropical Medicine, Faculty Of Epidemiology And Population Health, London, United Kingdom, [6]Helen Keller International, Suaahara Ii, Kathmandu, Nepal

Background and Aims:

Despite the prohibition of marriage of girls <18 years in Nepal, many continue to be married. Girls and young women often have little control over decisions and marrying young may further limit their decision-making agency in marital homes. Agency has been shown to improve nutritional outcomes in women. We quantitatively explored relationships between marital status, decision-making about food and haemoglobin of girls and young women 15-22 years old in Nepal.

Methods:

Longitudinal data (2018 and 2019) from the USAID Suaahara II programme were used. Marital status (never married/currently married) and decision-making about food (score of varying inputs on decisions around food purchasing, preparation and own consumption) were exposures of interest. Associations between marital status and decision-making and their relationship with haemoglobin were assessed using t-tests and unadjusted regressions. Multilevel linear mixed regression models were fitted (N=1061) with exposures and the outcome capillary haemoglobin, adjusted for age, education, dietary diversity, wealth, food security and ethnicity.

Results:

Results showed that married girls and young women had significantly higher decision-making than never married. Adjusted regression results showed haemoglobin levels were 0.07 g/dl (95% CI: 0.02, 0.13, p=0.007) higher in girls and young women with greater involvement in decision-making. Marital status was not significantly associated with haemoglobin levels.

Conclusions:

We found some evidence of higher decision-making around food and increased haemoglobin levels. While married girls and young women had higher decision-making agency, the

relationship between marital status and haemoglobin was not observed. Further research is needed to provide insights into these relationships among adolescent girls and young women.

EP123 / #247

E-Poster Topic: *AS03. Childhood & Adolescence*

RISK FACTORS FOR HEALTH OF CHILDREN AGED 7-9 YEARS

Lalka Stefanova Rangelova[1], Vesselka Duleva[2], Ekaterina Chikova-Iscener[2], Plamen Dimitrov[3]
[1]Nacinal Center of Public Health, Food And Nutrition, Sofia, Bulgaria, [2]National Center of Public Health, Food And Nutrition, Sofia, Bulgaria, [3]National Center of Public Health, Health Promotion And Disease Prevention, Sofia, Bulgaria

Background and Aims:

The aim is to examine the level of the leading risk factors for health-related lifestyle of the population.

Methods:

Within the National Programme for Prevention of Chronic Non-Communicable Diseases 2014-2020, a cross-sectional survey on a representative sample of 171 children aged 7-9 years and their mothers was carried out. The study included a direct face-to-face interview with the mother of each tested child. Major risk factors related to pregnancy, living conditions, knowledge and parents' socio-economic status were studied.

Results:

87.7% of the children lived in families with both parents. The percentage of mothers with secondary (27.6%) or higher (44.7%) education was relatively high.

The proportion of mothers with underweight before the pregnancy was 6.6%, while 9.6% were overweight, 14.4% had inadequate weight gain during pregnancy.

Relatively high rate - 81.3% of children aged 7-9 watched TV for ≤ 2 hours on school days and 66.4% - on weekends. A small number of children (8.8%) watched TV for ≥3 hours during the school days (8.8%) and three times more on the weekends (30.6%).

97.6% of mothers evaluated their child's health as good or very good; 30.6% of mothers provided nutritious food; 51.2% of mothers indicated high physical activity of their children in their free time. 80% of mothers believed that their child's weight is normal, 7.5%-underweight and 8.1%-overweight.

Conclusions:

The present study provides valuable and reliable information on the prevalence of major risk factors, leading to the development of chronic non-communicable diseases in later life.

EP124 / #442

E-Poster Topic: *AS03. Childhood & Adolescence*

: ABDOMINAL PAIN IN CHILDREN: WHEN SKIN STANDS BETWEEN YOU AND DIAGNOSIS. (A PEDIATRIC SURGEON'S PERSPECTIVE)

Naima Rasool
Fazaia Ruth Pfau Medical College, Pediatric Surgery, Karachi, Pakistan

Background and Aims:

Abdominal pain is a very common complaint in children, with various underlying causes. Usually, it is self-limiting.In small children, it is difficult to find out the cause of the pain, even after, clinical examination and baseline investigations. This article will help Pediatricians and Pediatric Surgeons to cater to all the surgical and non-surgical causes of abdominal pain with unclear and nonspecific clinical pictures that might need surgery at some point and time.

Methods:

All the patients admitted with abdominal pain when the cause of abdominal pain was not identified within 24 hours and the pediatrician sorted out the opinion of the pediatric surgeon were included in studies.

All infants and patients with clinical diagnoses were not included in the data.

During the span of 01 years and 10 months, (from January 2021 to October 2022), a total of 68 patients with abdominal pain sought the opinion of a pediatric surgeon for the diagnosis.

Results:

The study includes a total of 68 patients (36 boys and 32girls)

The final cause of abdominal pain was

Nonspecific abdominal pain 16

constipation 11

Mesenteric lymphadenitis 07

Cholecystitis/ hepatitis 06

Pneumonia in 05

Urinary tract infection in 04

Acid peptic disease in 04

Typhoid in 03

Pancreatitis 03

Tuberculosis 03

Appendicitis 02

Intussusception 01

Incarcerated hernia 01

Testicular torsion 01

subacute intestinal obstruction secondary to adhesions in 01 patient.

Conclusions:

Surgical causes should always be kept in mind while treating children with abdominal pain to prevent potentially life-threatening complications.

EP125 / #76

E-Poster Topic: *AS03. Childhood & Adolescence*

NUTRITIONAL ASSESSMENT IN PATIENTS WITH TYPE 1 DIABETES MELLITUS ON A LOW-CARBOHYDRATE DIET

Cristina Rodríguez Jiménez, Nuria López Barrena, Carlos Caballero Guiu, Andrés Alcaraz Romero
Hospital Universitario de Getafe, Pediatría Y Sus áreas Específicas, Getafe, Spain

Background and Aims:

Low-carbohydrate diets (LCD) are currently gaining interest in patients with type 1 diabetes mellitus (DM1) as they seem to provide a better glycemic control.

The objective of our study is to evaluate if a low-carbohydrate diet intake allows a proper growth and development.

Methods:

We conducted a longitudinal ambispective cohort study with DM1 patients from 0-18 years old in a tertiary care center. Anthropometric and analytical data were extracted from the medical history of the patients.

"Odimet" software was used in order to know the percentage of macronutrient intake, collected from a 24-hour dietary recall. Two groups were made according to the percentage of carbohydrate (CH) in their diets: CH <45% (group 1) or ≥45% (group 2).

Results:

43 participants were included, 37.2% female patients with a mean age of 11.4 years old. The mean age of elapsed time since diagnosis of diabetes was 4.8 years.

Group 1 had a 39.6% CH intake vs 51.7% in group 2. Fat intake was 29.6% in group 1 vs 22.2% in group 2, p=0.01. Protein intake in group 1 diet was 30.7% vs 26% in group 2, p=0.047. No statistically significant differences between groups were found in either anthropometrical (Table 1) or analytical data (Table 2).

	Group 1		Group 2		p-value
	Mean	SD	Mean	SD	
SD Weight	-0,03	0,9	0,07	1,2	0,7
SD Height	0,2	0,9	0,2	1	0,9
SD BMI	0,1	1	0,1	1,2	0,8
Waterlow index weight (%)	95,8	14,5	96	17	0,9
Waterlow index height (%)	100,9	4,1	96,3	21,7	0,3

	Group 1		Group 2		p-value
	Mean	SD	Mean	SD	
Hemoglobin (gr/dl)	13,9	1	14,3	0,7	0,2
Albumin (g/dl)	4,5	0,2	4,6	0,2	0,1
Ferritin (µg/L)	67,9	35,4	78,3	47,6	0,5
Total Cholesterol (mg/dL)	169	30,7	159,2	26,7	0,2
Triglycerides (mg/dL)	64,1	37,4	77,5	65,2	0,4
Vitamin D (ng/ml)	36,2	6,7	28,2	12	0,2

Conclusions:

Low-carbohydrate diet seems to have no impact on the growth of the children with DM1. Nutritional status of those patients is not influenced by the intake of a lower percentage of carbohydrate in the diet.

EP126 / #232

E-Poster Topic: *AS03. Childhood & Adolescence*

CHILDREN'S HOUSEHOLD FOOD INSECURITY AND THEIR HOME FOOD ENVIRONMENTS: A CROSS-SECTIONAL STUDY FROM LEBANON.

Gloria Safadi[1,2], Nehmat El-Helou[1], Christelle Akl[1], Marie-Elizabeth Ragi[1], Jalila El Ati[3], Hala Ghattas[1,4], The Scale Research Group[1,3,5,6,7,8,9,10,11]
[1]American University of Beirut, Center For Research On Population And Health, Faculty Of Health Sciences, Beirut, Lebanon, [2]Lancaster University, Division Of Health Research, Lancaster, United Kingdom, [3]National Institute of Nutrition and Food Technology, Nutrition Surveillance And Epidemiology In Tunisia Research Laboratory, Tunis, Tunisia, [4]University of South Carolina, Department Of Health Promotion, Education, And Behavior, Columbia, United States of America, [5]American University of Beirut, Department Of Agriculture, Faculty Of Agricultural And Food Sciences, Beirut, Lebanon, [6]Université de Sherbrooke, Department Of Family Medicine, Sherbrooke, Canada, [7]London School of Hygiene and Tropical Medicine, Faculty Of Epidemiology And Population Health, London, United Kingdom, [8]Institute of Tropical Medicine, Department Of Public Health, Antwerp, Belgium, [9]University of Tunis El Manar, Faculty Of Medicine, Tunis, Tunisia, [10]MoISA—Univ Montpellier, Cirad, Ciheam-iamm, Inrae, Institut Agro, Ird, Montpellier, France, [11]American University of Beirut, Department Of Computer Science, Faculty Of Arts And Sciences, Beirut, Lebanon

Background and Aims:

Numerous factors, that span the socio-ecological model, impact children's nutritional outcomes. Home environments can influence children's food choices and weight status through the quality of food available at home, family food-related habits, and parental feeding practices, and these may vary by food insecurity. This study describes home food environments, in a middle-income country going through a nutrition transition and a deepening food insecurity crisis.

Methods:

A school-based, cluster-randomized, cross-sectional study of 2,125 children (8-15 years) in greater Beirut, Lebanon collected data on children's diet diversity and body mass index. 1,466 parents participated in a telephone survey which collected data on household socio-demographics, food security status, food availability, food-related habits and parental feeding practices. We compare home food environments and practices by food security status. Statistical analyses were performed using Stata 17.0.

Results:

51% of the households were food secure (FS). There were differences between FS and food insecure (FI) households, in terms of food ($p<0.001$) and fast-food consumption away from home ($p<0.001$). FS households reported higher availability of both nutrient-poor ($P<0.001$) and nutrient-dense ($P<0.001$) foods. Parents from FS households reported lower child monitoring scores ($p=0.003$) yet higher restriction scores ($p=0.004$). Children in FS households had higher diet diversity ($p=0.016$) but similar overweight prevalence as FI children.

Conclusions:

Children's home food environments and resulting diet diversity differed by food security status. However, overweight rates were similar regardless of food security indicating that different household drivers may be at play in defining overweight in FS as compared to FI households.

EP127 / #548

E-Poster Topic: *AS03. Childhood & Adolescence*

MESSAGES OF HOPE: CHILD STUNTING AND COGNITIVE DEVELOPMENT IN AFRICA.

Caroline Jepkoech Sawe[1], Wambui Kogi Makau[2], Ettyang Keverenge Grace[1], Kimamo Charles Obadia[3]
[1]moi University, Health Policy, Management And Human Nutrition, Eldoret, Kenya, [2]University of Nairobi, Food Science, Nutrition And Technology, nairobi, Kenya, [3]University of Nairobi, Psychology, Nairobi, Kenya

Background and Aims:

Globally, child malnutrition and poor cognition are significant in public health. Over 39% and 26% of children in Africa and Kenya are stunted respectively. Nutrition in the first two years of life is key in child's ability to grow and its cognitive development. Timed and Targeted counseling nutrition intervention aimed at improving the nutritional status and cognitive development of children aged less than two years in Kisumu County. The objective of this study was to establish the impact of nutrition intervention on the stunting levels and cognitive development of children in Kisumu and Migori counties, Kenya.

Methods:

Quasi experimental study design was used with baseline and endline data collected and analyzed. WHO Z scores computed child's stunting status while Bayleys Scale of Infant Development assessed the Cognitive scores of children.

Results:

At baseline, there was no significant difference in the levels of stunting (chi^2=2.79, p=0.25) among children in study counties. After intervention implementation, there was reduction in prevalence of stunting from 21 to 6% (chi^2=22.54, p<0.001) and an increase in comparative site from 24% to 31% with 61%. Only 5% and 34% of the children had cognitive scores that were below average at intervention and comparative counties respectively (Chi^2=15.8537, p<0.001).

Conclusions:

Nutrition intervention to focus on child stunting and cognitive development. Further research on nutritional outcomes and cognitive development at early age of growth is also recommended. Nutrition interventions to target this age period as is the window period of opportunity

EP128 / #219

E-Poster Topic: *AS03. Childhood & Adolescence*

NUTRITIONAL STATUS AND ADHD POSSIBILITY: RESULT FROM SEANUTS II STUDY ON CHILDREN AGED 3.0 - 6.9 YEARS

Rini Sekartini[1,2], Aria Kekalih[1,3], Dian Novita Chandra[1,4], Listya Tresnanti Mirtha[1,3], Luthfi Arif[1]
[1]Faculty of Medicine, Universitas Indonesia, Seanuts Ii Indonesian Study Team, DKI Jakarta, Indonesia, [2]Faculty of Medicine, Universitas Indonesia, Departement Of Child Health, DKI Jakarta, Indonesia, [3]Faculty of Medicine, Universitas Indonesia, Community Medicine Department, DKI Jakarta, Indonesia, [4]Faculty Medicine Universitas Indonesia, Department Of Nutrition, DKI Jakarta, Indonesia

Background and Aims:

Attention-deficit hyperactivity disorder (ADHD) is the most prevalent behavioural condition in children and must be diagnosed as early as possible. Various studies indicated that ADHD is associated with obesity through various mechanism. We assessed the association between nutritional status, including body-mass-index for age Z-scores (BAZ), and ADHD possibility in children aged 3.0-6.9 years old.

Methods:

This analysis is part of the South East Asian Nutrition Survey (SEANUTS) II Indonesia. 842 children aged 3.0-6.9 years old were included in this analysis. Anthropometry data was obtained to calculate BAZ and determine the child's nutritional status. ADHD possibility was assessed using Abbreviated Conner Rating Scale (ACRS) questionnaire. Statistical analyses were done to test for associations between nutritional status, BAZ, and ADHD possibility.

Results:

Prevalence for stunted, underweight, wasted, thinness, and overweight-obese was 24.2%, 20.9%, 6.1%, 4.8%, and 5.1%, respectively. Median, minimum, and maximum score for BAZ was -0.47, -3.34 and 6.30, respectively. ADHD possibility was indicated among 25.4% children. There was no significant association between ADHD possibility with stunted, underweight, wasted, thinness, and overweight-obese (p-value: 0.560, 0.286, 0.308, 0.756, 0.158, respectively) or BAZ (p-value: 0.095).

Conclusions:

There was no significant association between nutritional status and ADHD possibility

EP129 / #221

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSOCIATION BETWEEN NUTRITIONAL STATUS AND SLEEP DISTURBANCE AMONG INDONESIAN CHILDREN AGED 0.5 -12.9 YEARS: FINDINGS FROM SEANUTS II

Rini Sekartini[1,2], Aria Kekalih[1,3], Dian Novita Chandra[1,4], Listya Tresnanti Mirtha[1,5], Luthfi Arif[1]
[1]Faculty of Medicine, Universitas Indonesia, Seanuts Ii Indonesian Study Team, DKI Jakarta, Indonesia, [2]Faculty of Medicine, Universitas Indonesia, Departement Of Child Health, DKI Jakarta, Indonesia, [3]Faculty of Medicine, Universitas Indonesia, Community Medicine Department, DKI Jakarta, Indonesia, [4]Faculty Medicine Universitas Indonesia, Department Of Nutrition, DKI Jakarta, Indonesia, [5]Faculty of Medicine Universitas Indonesia, Community Medicine Department, DKI Jakarta, Indonesia

Background and Aims:

Sufficient, good-quality sleep is important for the growth and development of children. However, recently, the prevalence of sleep disturbance among children has been on the rise. One of factors possibly associated to children's sleep issues may be the child's nutritional status. Therefore, this study aims to investigate the association between nutritional status and sleep disturbance among children between 0.5-12.9 years old.

Methods:

This analysis is part of the SEANUTS II Indonesia. 1528 children aged 0.5–2.9 years and 1935 children aged 3.0-12.9 were included. Anthropometry measurement was done to calculate the nutritional status. The Brief Infant Sleep Questionnaire (BISQ) was used to measure sleep disturbance in the younger children, while the Sleep Disturbance Scale for Children (SDSC) was used in the older children.

Results:

Sleep disturbance was experienced by 15.6% of 0.5-2.9 years old group and 41.1% of 3.0-12.9 years old group. Among children with sleep disturbance, the prevalence of stunted, underweight, wasted, thinness, and overweight-obese was 21.3%, 18.0%, 12.1%, 10.9%, and 2.1% respectively, for the 0.5-2.9 years old children and 22.0%, 23.0%, 6.6%, 6.8% and 13.1% for the 3.0-12.9 years old children. Children aged 0.5-2.9 years old with wasted or thinness were at higher risk of having sleep disturbance (OR = 1.90 and 1.92, respectively). There was no association between sleep disturbance and nutritional status among the older children.

Conclusions:

The prevalence of sleep disturbance was 15.6% for 0.5-2.9 years old and 41.1% for 3.0-12.9 years old. Children aged 0.5-2.9 years old with wasted or thinness are more likely to have sleep problem

EP130 / #327

E-Poster Topic: *AS03. Childhood & Adolescence*

THE RELATIONSHIP BETWEEN WEIGHT, BREASTFEEDING AND EATING PROBLEMS IN CHILDREN WITH CEREBRAL PALSY AND AUTISM.

Reidun Kari Birgitta Stenberg, Christian Flardh
Faculty of Medicine and Health, Örebro University,Örebro, Sweden, Dept. Of University Health Care Research Center, Örebro, Sweden

Background and Aims:

Background: Low weight is common in children with Cerebral Palsy (CP). The cause is multifactorial and one is the oral dysfunction. Children with Autism Spectrum Disorder (ASD) has often selective eating, and the risk of impaired weight gain is a major concern for parents.

Aim: The aim of this study was to investigate if a questionnaire can identify breastfeeding difficulties or no breastfeeding as a risk factor for future eating difficulties and thus lower weight.

Methods:

Methods: Parents of 24 children with CP, 31 with ASD, and 26 controls answered a study specific questionnaire regarding health and eating habits.

Results:

Results: Fifty-four percent of CP children had breastfeeding problems or no breastfeeding in infancy, compared with 58% for ASD and 12% for controls.

CP- children were significantly underweight (-1, 3 SD), (Z-score) compared to autism (0, 18 SD), and controls (0.007 SD), the lowest weight were found in those with eating problems.

Fifty percent of CP children had eating problems, compared with 7% in ASD and none of the controls.

In the ASD group, the selective eaters did not weigh less than the non-selective eaters did.

Breastfeeding problems or no breastfeeding significantly increases the probability of future eating problems in CP, mostly in severe handicapped children.

Conclusions:

Conclusions: Breastfeeding problems during infancy results in an increased risk of future eating problems and lower weight in CP but not in ASD. Breastfeeding problems may be the first neurological sign in at-risk patients. In ASD, selective eating does not result in lower weight.

EP131 / #448

E-Poster Topic: *AS03. Childhood & Adolescence*

FINDING THE SOLUTION FOR STUNTING : RESULT OF DEMOGRAPHIC AND DIETARY INTAKE ANALYSIS AMONG RURAL STUNTED CHILDREN IN INDONESIA

Diana Sunardi[1], Lina Sulistiawati[2]
[1]Faculty of Medicine, Universitas Indonesia, Nutrition, Jakarta, Indonesia, [2]The State Police of the Republic of Indonesia, Medical And Health, Jakarta, Indonesia

Background and Aims:

Indonesian are still having challenges of stunting among underfive. Before we started an intervention on stunted children, we would like to find out their characteristic. By knowing those information, we hope that we can build the best intervention

Methods:

A cross sectional study was done in 1-3 y.o, subjects were randomly taken. Demographic data and knowledge were taken with a questionnaire, dietary intake were taken using FFQ semiquantitave.

Results:

Parents of thirty nine stunted children were agree to take part. Subjects mean age was 17.6 ± 3.6 m.o, girls an, 80% of subjects were breastfed, with birth weight and birth length mean were 2958.8 ± 498.0 grams and 48.1 ± 2.0 cm. Almost 75% of the mothers were low educated (below high school) with family income below area minimal income in almost 50% family. Most of the family have more than one child, almost all the family have good clean water sources and access to good sanitation. From the knowledge questionnaire, we found that only 10% of the subject's mothers have score low. Dietary analysis showed that these children were low in calorie, fat, carbohydrate, minerals (Ca, Mg, Zn, and P) and vitamin D. Surprisingly, more than 60% of the subjects consumed enough protein

Conclusions:

Mothers education maybe low, but their knowledge were good enough. The amount and quality of dietary intake in these stunted children was low. Practical education to mothers on how to fullfill child dietary need maybe the best solution for the family with stunted children.

EP132 / #335

E-Poster Topic: *AS03. Childhood & Adolescence*

HUMAN STEM CELL TRANSPLANTATION AND ITS NUTRITIONAL IMPACT ON CHILDREN WITH SICKLE CELL DISEASE

Javier López Pequeño[1], Cristina Núñez Carretero[1], Eduardo Oujo Alamo[1], Carmen Miranda Cid[2], Mar Tolín[2], Elena Cela De Julián[3], Cesar Sánchez Sánchez[2]
[1]Hospital General Universitario Gregorio Marañón, Pediatrics, Madrid, Spain, [2]Hospital General Universitario Gregorio Marañón, Paediatric Gastroenterology, Madrid, Spain, [3]Hospital General Universitario Gregorio Marañón, Paediatric Oncology & Hematology, Madrid, Spain

Background and Aims:

Hematopoietic stem cell transplantation (HSCT) is the main curative treatment for many pediatric oncological diseases. Most patients suffer a mixed impairment of their nutritional status due to their underlying disease as well as iatrogenic effects of previous treatments. Sickle-cell disease (SCD) patients undergoing HSCT are usually better nourished, since these patients do not require any other treatments before HSCT and usually receive HSCT at an earlier age.

The aim of this study was to evaluate the nutritional status of SCD patients undergoing HSCT, as well as its implications on HSCT complications.

Methods:

We conducted a retrospective observational study using a clinical database of SCD patients who underwent HSCT between the years 2010-2022 in the Pediatric Oncohaematology department of a high complexity hospital. Data collected included anthropometric and nutritional scores, need of nutritional support and risk of complications (ICU admission, graft-versus-host disease, mucositis).

Results:

We analyzed data from 51 patients. The median age was 67 months (IQR: 35-117), 49% of whom were female. Waterlow score was <90% at time of admission in 29.4% and at discharge in 43.1%. There was a statistically significant difference in the median nutritional score at admission and discharge (96.43 vs 93.53, p0.01). No significant differences between malnourished and well-nourished children were found regarding length of hospital stay, ICU admission, need of nutritional support and HSCT complications.

Conclusions:

HSCT entails a significant impact on the nutritional status of children. We found no correlation among nutritional status at admission and HSCT complications.

EP133 / #461

E-Poster Topic: *AS03. Childhood & Adolescence*

A TRIAL TO IMPROVE FOOD SECURITY AND FOOD DIVERSITY OF LOCAL PEOPLE WITH SPECIAL EMPHASIS ON CHILDREN UNDER FIVE IN MZIMBA, MALAWI

Daisaku Urabe, Motoi Adachi
St Mary's hospital, International Cooperation, Tsubukuhonmachi-Kurumeshi, Japan

Background and Aims:

Many people in Malawi continue to live a subsistence lifestyle and rely on food harvested from their own farms. This lifestyle results in a lack of dietary diversity and provides a backdrop for malnutrition. In other words, many people live in a state of limited availability of diverse foods. To overcome this situation, we intervened in the food environment of the local population to improve the availability, accessibility, and utilization of food.

Methods:

We selected four villages in Manyamula, Mzimba District, Malawi. We made regular visits to these villages to persuade villagers to grow more diverse crops, such as carrots and cash crops, to improve the availability and accessibility of more food in their living areas. In addition, we gave cooking demonstrations and introduced new recipes using locally available ingredients.

Results:

Before the intervention, only 5 of the 16 food groups were eaten by almost 100% of the subjects, while 50% ate 3 food groups. The remaining 8 food groups (fish, animal meat, dairy products, and vitamin A-rich food groups) were rarely eaten. However, after the intervention, the intake of eggs, milk products and fish increased from 7% to 28%, 16% to 44%, and 11% to 25%, respectively.

Conclusions:

The villagers procured food mainly from their own crops and not from the market. Therefore, food diversity was limited. Our approach showed that improving the components of food security such as availability, accessibility and utilization can improve the diversity of food consumed by the people.

EP134 / #355

E-Poster Topic: *AS03. Childhood & Adolescence*

FAILURE TO THRIVE DURING AND AFTER ONSET OF TYPE 1 DIABETES IN EMERGENCY CLINICAL HOSPITAL FOR CHILDREN "SF. IOAN" GALATI, ROMANIA

Maria Ursu[1,2], Diana Andreea Ciortea[1,2], Manuela Arbune[1,3], Aurel Nechita[1,2], Dana Tutunaru[1,4], Gabriela Gurau[1,5], Madalina Nicoleta Matei[1,6]
[1]"Dunarea de Jos" University of Galaţi, Faculty of Medicine and Farmacy, Dsmf, Galati, Romania, [2]Emergency Clinical Hospital for Children "St. Ioan", Diabetology, Galati, Romania, [3]Clinical Hospital of Infectious disease "St. Cuvioasa Parascheva", Infectious Disease, Galati, Romania, [4]Emergency Clinical Hospital "St. Apostol Andrei", Laboratory Medicine, Galati, Romania, [5]Emergency Clinical Hospital for Children "St. Ioan", Laboratory Medicine, Galati, Romania, [6]Emergency Clinical Hospital for Children "St. Ioan", Stomatology, Galati, Romania

Background and Aims:

The symptoms in children that develop T1D vary from mood swings, irritability that might be mistaken for a temper tantrum in preverbal toddlers, or as colic for those smaller than 12 months, to weight loss and stunted growth aka failure to thrive, is the only noticeable symptome, since older children present symptoms such as polyuria and polydipsia. Most children when diagnosed are underweight despite a normal or increased appetite. Weight loss and stunted growth in T1D is either due to uncontrolled diabetes or other hormonal problems like Hyperthyroidism or Celiac diseases. However, if the child with diabetes is underweight but the sugar levels are controlled and there are no symptoms of other diseases, then it could be due to inappropriate calorie restricted diet.

Methods:

A retrospective pediatric population-based incidence study was performed, we analyzed medical reports from the hospital of 50 cases of new onset T1D. Clinical symptoms presented were unintentional weight loss greater than 10 % , hyperosmolar polyuria, secondary polydipsia and severe ketoacidosis. Insulin therapy and according diet were initiated.

Results:

After 3 months from the initiation treatment and specific diet 62% of the children had an increase in body mass greater that 10%, and the rest in an improvement in between 5-8%.

Conclusions:

Most children when diagnosed with T1D despite a normal or increased appetite, once diagnosed and treated properly, their weight usually returns to normal levels. The main symptoms such as hyperosmolar polyuria and secondary polydipsia are usually ignored and therefore the diagnosis of these patients is sometimes delayed.

EP135 / #272

E-Poster Topic: *AS03. Childhood & Adolescence*

INFLAMMATORY PROFILE AND NUTRITIONAL STATUS IN BOYS WITH DUCHENNE MUSCULAR DYSTROPHY

Kivia Maria Batista Marinho[1], Ádila Danielly Souza Costa[1], Karina Marques Vermeulen-Serpa[2], José Brandão-Neto[2], Lucia Leite-Lais[3], Sancha Helena Lima Vale[1,2,3]
[1]Federal University of Rio Grande do Norte, Postgraduate Program In Nutrition, Natal, Brazil, [2]Federal University of Rio Grande do Norte, Postgraduate Program In Health Sciences, Natal, Brazil, [3]Federal University of Rio Grande do Norte, Departament Of Nutrition, Natal, Brazil

Background and Aims:

Duchenne muscular dystrophy (DMD) is a severe and progressive neuromuscular disease that affects boys. Due to the lack of dystrophin, the patient loses their ability to walk independently and rapidly progresses to the need for assisted ventilation and premature death. This work aims to identify the inflammatory profile of DMD patients and to evaluate associations between clinical and nutritional variables.

Methods:

We performed a cross-sectional study nested in a cohort between January 2018 and June 2019. Sociodemographics, illness time, use of medications, and nutritional supplement data have been obtained through interviews and the patient's medical records. Then we assessed the relationships between illness time, plasma cytokines, and nutritional status.

Results:

Forty-four male DMD patients were evaluated. Concerning nutritional status, 18 participants were eutrophic. The percentage of fat mass (%FM) increased from the beginning of the first signs of DMD. The illness time was positively correlated with IL-6. BMI/Age correlated negatively with IL-1β and TNF-α, while the %FM showed a negative relationship with TNF-α. The regression models demonstrated lower BMI/A z-scores associated with higher values of IL-1β and IL-6; and a higher %FM associated with higher IL-6 and lower TNF-α.

Conclusions:

A persistent inflammatory profile was observed in the patients evaluated. However, the illness time was not a predictor of inflammation; lower BMI/A z-scores and higher %FM were predictors of higher concentrations of IL-6. In addition, a lower %FM was associated with higher production of TNF-α. Our results suggest that maintaining adequate nutritional status and body composition is essential for determining the inflammation of DMD patients.

EP136 / #273

E-Poster Topic: *AS03. Childhood & Adolescence*

EVALUATION OF VITAMIN A, ZINC, AND IRON IN THE DIET CONSUMED BY DUCHENNE MUSCULAR DYSTROPHY BOYS

Ana Carolina Melo Mizumoto[1], Kivia Maria Batista Marinho[2], Lucia Leite-Lais[1], Márcia Márilia Gomes Dantas Lopes[1,3], Sancha Helena Lima Vale[1,2]
[1]Federal University of Rio Grande do Norte, Departament Of Nutrition, Natal, Brazil, [2]Federal University of Rio Grande do Norte, Postgraduate Program In Nutrition, Natal, Brazil, [3]Federal University of Rio Grande do Norte, Postgraduate Program In Applied Sciences To Women's Health, Natal, Brazil

Background and Aims:

Duchenne Muscular Dystrophy (DMD) is caused by mutations in DMD (encoding dystrophin) that abolish the production of dystrophin in muscle. As the first symptoms, boys have muscle weakness and difficulties walking and climbing steps, starting at childhood. It is common for DMD boys to have malnutrition and an increased risk for complications and illness. For these reasons, adequate food consumption is essential to manage the disease and improve the quality of life. This study aims to evaluate the dietary intake of vitamin A, zinc, and iron.

Methods:

This is a cross-sectional study carried out with 53 boys with DMD. The growth and nutritional status were evaluated according to WHO curves. In addition, vitamin A, zinc, and iron intake were estimated by 24-hour food records and compared to DRI recommendations.

Results:

More than 50% of the boys were identified as eutrophic, and 25.5% were in a situation of accentuated thinness. Regarding height, more than 80% of the boys were very short. The prevalence of inadequacy of micronutrients was expressive. Young people and adults had the highest percentages of nutrient inadequacy, which qualified for nonconformity of 80%. On the other hand, DMD boys aged between 4 and 8 years, and 9 and 13 years, presented adequate dietary zinc intake and had lower percentages of inadequate vitamin A and iron intake.

Conclusions:

Stunting is predominant among DMD boys, and the inadequacy of vitamin A, zinc, and iron prevails, promoting a nutritional risk for the growth and development of children with DMD.

EP137 / #141

E-Poster Topic: *AS03. Childhood & Adolescence*

HANDGRIP STRENGTH AS A PARAMETER OF HEALTH OUTCOME IN HOSPITALIZED CHILDREN OR CHILDREN WITH CHRONIC DISEASE.

Alice Larue[1], Liesbet Verbrugghe[1], Koen Huysentruyt[2]
[1]UZ Brussel, Paediatrics, Jette, Belgium, [2]UZ Brussel, Pediatric Gastro-enterology, Brussels, Belgium

Background and Aims:

The measurement of handgrip strength (HGS) had been advocated as a useful indicator of functional status during hospitalisation or in the setting of a chronic disease. HGS is influenced by nutritional status, hand preference, gender, weight and height. The aim of our systematic review is to analyse the evidence about using HGS as a parameter of different health outcomes in hospitalized children or children with chronic disease.

Methods:

A systematic search was performed in PubMed, Embase, Lilacs and the Cochrane Library from inception until 16/02/2022 without language restrictions (Prospero ID: CRD42022291558).

Results:

8475 unique references were screened, 16 studies included. Paediatric HGS studies focused on cystic fibrosis (CF) (4 studies, 227 patients), chronic kidney disease (CKD) (2 studies, 484 patients), type 1 diabetes mellitus (DM1) (2 studies, 282 patients), asthma (2 studies, 245 patients), congenital heart disease (1 study, 569 patients), juvenile idiopathic artritis (JIA) (1 study, 23 patients), surgical patients (1 study, 175 patients), hospitalised patients (3 studies, 904 patients). HGS was positively correlated with pulmonary function in CF and asthma (4 studies, 352 patients) and quality of life in CF, asthma, JIA and CKD (4 studies, 619 patients). No association was found with HbA1c in DM1 (2 studies, 282 patients).

Conclusions:

Several studies showed a significant correlation of HGS with health outcomes in different paediatric diseases. HGS can serve as a biomarker in CF or other chronic paediatric conditions.

EP138 / #341

E-Poster Topic: *AS03. Childhood & Adolescence*

LONG CHAIN N-3 POLYUNSATURATED FATTY ACIDS IN MIDDLE CHILDHOOD AND AGE AT MENARCHE

Eduardo Villamor[1], Rachael J Beer[1], Mercedes Mora-Plazas[2], Constanza Marín[3], Henry Oliveros[3]
[1]University of Michigan School of Public Health, Epidemiology, Ann Arbor, United States of America, [2]Foundation for Research in Nutrition and Health, Finusad, Bogota, Colombia, [3]Universidad de La Sabana, Facultad De Medicina, Chia, Colombia

Background and Aims:

Early menarche is related to adult chronic disease risk and all-cause mortality. Canned tuna and sardines intake in middle childhood was related to later age at menarche in a landlocked population, where canned fatty fish is a key source of long chain n-3 polyunsaturated fatty acids (PUFA). We aimed to determine whether serum concentrations of eicosapentaenoic acid (EPA, 20:5n-3) and docosahexaenoic acid (DHA, 22:6n-3) could explain the association.

Methods:

Using gas chromatography, we quantified serum PUFA in fasting blood samples from 364 pre-menarcheal girls aged 5 to 12 years at the time of enrollment into a cohort study. We followed them annually for the occurrence of menarche for a median 6 years. We estimated hazard ratios (HR) for menarche by quartiles of EPA and DHA using multivariable-adjusted Cox models.

Results:

Mean ± SD EPA and DHA (% of total FA) was 0.21 ± 0.13 and 2.29 ± 0.87, respectively. Median age at menarche was 12.4 y. Serum DHA was associated with later age at menarche. Compared with girls in the lowest DHA quartile, those above had an adjusted 25% lower probability of experiencing menarche during follow-up (HR=0.75; 95% CI: 0.58, 0.97; P=0.03). Neither other n-3 nor any n-6 FA were associated with age at menarche. Delta-5 or delta-6 desaturase activities estimated as the product-to-precursor ratios 20:4n-6 / 20:3n-6 and 18:3n-6 / 18:2n-6, respectively, were also unrelated to the outcome.

Conclusions:

DHA serum concentration in middle childhood, possibly from diet, is related to later age at menarche.

EP139 / #238

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSESSMENT OF NUTRITIONAL VALUES IN SPEECH AND HEARING DISSORDERED CHILDREN

Dr. Dharam Vir[1], Lakhvinder Kaur[2], Tanya Dhiman[3], Sakshi Dhiman[3], Ritika Dutta[3], Jaimanti Bakshi[3], Naresh Panda[3], Primal Kumar[4], Pankaj Aneja[5]
[1]Post Graduate Institute Medical Education and Research, Ent, Chandigarh, India, [2]RBU, Education, Mohali, India, [3]Post Graduate Institute of Medical Education and Research, Ent, Chandigarh, India, [4]RBU, Dental Hospital, Mohali, India, [5]Post Graduate Institute of Medical Education and Research, Hindi, Chandigarh, India

Background and Aims:

Nutrition plays an important role in human development. Nutritional value of a food is more crucial than amount of food intake. The eating habits development in early childhood can have impact not only on their current development but on future development also. The aim of the study is to assess nutritional values in 1- 9 years old children in Northern India. Study also aims to compare any nutritional value difference between normally developing children and speech and hearing disorder children.

Methods:

The study includes 36 participants from age range 1-9 years. Out of 36, 10 participants are normally developing and 26 are with speech and hearing disorders. Parents of participants fill the questionnaire developed to assess nutritional status in children. Questionnaire consists of 12 assessing child's nutritional status and values.

Results:

It is observed that 83% of the children take meals 3 times a day. No participant with normal development showed any difficulty in feeding. 77% participants only take vegetarian diet. All participants take dairy products, wheat products and pulses in their diet. Disordered population takes sweets and snacks a greater number of times in comparison to their normally developing peer. 1 child with CLP and 2 with GDD have difficulty in sticky and chewy consistency food.

Conclusions:

Intake of low nutritional food is high in disordered children. The Developed Questionnaire can be useful in finding poor nutritional value lags in developing children and can be used as tool to council parents.

EP140 / #270

E-Poster Topic: *AS03. Childhood & Adolescence*

NUTRITIONAL RECOVERY DIFFICULTIES OF A CHILD WITH SEVERE COMBINED IMMUNODEFICIENCY SYNDROME

Alexandra Elena Voicu[1], Ioana Oprescu[1], Laura Georgiana Bosneag[1], Cristina Adriana Becheanu[1,2]
[1]Emergency Hospital for Children "Grigore Alexandrescu", Bucharest, Pediatrics, Bucharest, Romania, [2]Carol Davila University of Medicine and Pharmacy, Paediatrics, Bucharest, Romania

Background and Aims:

Severe combined immunodeficiency syndrome (SCID) is a rare, inherited immune system disorder, with a high susceptibility to severe infections which can lead to failure to thrive and malabsorption. The aim is to emphasize the nutritional recovery difficulties in a late diagnosis of SCID, despite adequate treatment.

Methods:

A 3 year old female admitted for poor feeding, failure to thrive and localized rash, with a personal history of intrauterine growth restriction, SCID, malnutrition, recurrent severe infections, tuberculosis, malabsorption, gastrostomy, cow's milk protein allergy, persistent hyper IgE, hypopituitarism and hypothyroidism.

The blood tests showed: increased levels of total IgE and cow's milk protein IgE antibodies and decreased levels of IgM and IgA.

During infancy, she had growth problems, mostly because of multiple severe opportunistic infections. Between 1 and 2 years of age she was diagnosed with SCID and tuberculosis. Parenteral nutrition associated with enteral feeding with extensively hydrolysed formula led to significant weight gain. After 2 years of age, she received cow milk products and started to have fickle appetite and progressive weight loss.

Results:

Considering the underlying conditions, it is difficult to maintain an adequate nutritional status of a patient with SCID. Enteral nutrition with a special formula improved her weight curve.

Conclusions:

An early diagnosis of SCID is mandatory to establish a proper treatment and a better nutritional status which raises the life quality and expectancy. The follow-up of nutrition is a challenge considering its major role in the immune defense.

EP141 / #405

E-Poster Topic: *AS03. Childhood & Adolescence*

THE ASSOCIATIONS BETWEEN LIFESTYLE FACTORS AND DYSMENORRHEA IN ADOLESCENTS AGED 15-16 YEARS IN AMSTERDAM.

Tanja Vrijkotte[1], Ehsan Motazedi[1], Emmy Van Den Boogaard[2], Anne Timmermans[2], Mai Chinapaw[1]
[1]Amsterdam UMC, Public And Occupational Health, Amsterdam, Netherlands, [2]Amsterdam UMC, Obstetrics & Gynecology, Amsterdam, Netherlands

Background and Aims:

Dysmenorrhea is a prevalent menstrual disorder in adolescents, and characterized by cramping and lower abdominal pain and/or back pain. Nevertheless, research on possible related lifestyle factors is limited. This study aims to examine associations between lifestyle factors and dysmenorrhea in adolescents aged 15-16 years.

Methods:

A cross-sectional study was conducted including 1038 females (age 15-16 years) of the Amsterdam Born Children and their Development (ABCD)-study. Lifestyle factors included were: dietary quality (based on nutritional intake), moderate-to-vigorous physical activity, screentime, sleep duration, sleep quality and perceived stress during last month, determined by self-report. Dysmenorrhea was defined as having abdominal pain and/or back pain and taking medication –pain killers and/or oral contraceptives- for menstruation-related symptoms. We used logistic regression analysis, adjusted for age, age of menarche, ethnicity and school level, to estimate adjusted odds ratios (AOR) associations between single lifestyle factors and dysmenorrhea. Additionally, we fitted a multiple lifestyle model where all lifestyle factors were included in one model.

Results:

The prevalence of dysmenorrhea was 49.5%. In single lifestyle models, poor dietary quality (AOR:0.95;95%CI:0.90-1.00), poor sleep quality (AOR:1.07;95%CI:1.02-1.12) and perceived stress (AOR:1.05;95%CI:1.02-1.07) were significantly associated with increased odds of dysmenorrhea. The multiple lifestyle model showed perceived stress to be the only significant predictor (AOR:1.04;95CI:1.01-1.07).

Conclusions:

Dysmenorrhea is highly prevalent among female adolescents and therefore more awareness of this public health problem is needed. Poor dietary quality, poor sleep quality and perceived stress were associated with increased odds of dysmenorrhea. These lifestyle factors could provide input for the development of effective intervention strategies to prevent dysmenorrhea.

EP142 / #286

E-Poster Topic: *AS03. Childhood & Adolescence*

WHO GROWTH CHARTS: ARE THEY SUITABLE TO ASSESS GROWTH IN SRI LANKA CHILDREN

Vithanage Pujitha Wickramasinghe[1], Sameera Madhuwanthi Wijayawardhana[1], Nadeeka Chandrarathne[2]
[1]University of Colombo, Paediatrics, Colombo, Sri Lanka, [2]University of Colombo, Community Medicine, Colombo, Sri Lanka

Background and Aims:

Assessment of growth is a cardinal component in pediatrics care. In the absence of local growth charts, Sri Lanka adopts WHO growth. Validity of these charts in assessment of growth and categorization of nutritional status by these charts are questioned.

We aimed at compare WHO charrs with a preliminary set of growth monitoring charts to assess height, weight, and BMIfor 5-15-year-old Sri Lankan children.

Methods:

Cross sectional data collected from four previous studies conducted in western province were pooled. A total of 18660 children (11060 boys) were included. Data was filtered removing obvious outliers above +4SD and below -4SD

Growth curves were generated by LMS method using R software package and data points for percentiles were obtained for height, weight, and BMI for age for both girls and boys.

Results:

Compared with 50th centile height at each age WHO charts, Sri Lankan children were 1 to 6 cm shorter.in both sex. The Sri Lankan 50th centile was quite closer to the 25th centile of the WHO charts. When compared with Indian charts, the heights were quite similar. When the BMI for age compared with WHO charts, the local values were more than 1-2 BMI point below. Data have shown that the pattern of distribution of parameters in Sri Lankan chart were similar to WHO charts but has moved to the left.

Conclusions:

Sri Lankan parameters were lower than WHO values leading to overdiagnosis of underweight and underdiagnosis of overweight/obesity. We suggest to develop reference standards for Sri Lanka or validate regionally developed charts.

EP143 / #402

E-Poster Topic: *AS03. Childhood & Adolescence*

EVALUATION OF NUTRITION LITERACY OF PRESCHOOL CHILDREN

Erping Xiao, Xujia Liu
Hangzhou Normal University, Department Of Preschool Education, Hangzhou, China

Background and Aims:

Nutrition literacy is an important component of health literacy, which represents knowledge, skills, and behaviors related to food and nutrition. The evaluation of the nutrition literacy of preschool children is rare. The aim of this study was to develop an effective and reliable tool to evaluate nutrition literacy of preschool children.

Methods:

The study was conducted in three phases. A comprehensive literature review and semi-structured interviews were initially performed to identify the dimensions of nutrition literacy and form an initial project pool. In the second stage, Delphi method was used to revise and confirm the formal questionnaire. Finally, the reliability and validity of the scale were evaluated using Explanatory Factor Analyses (EFA) and Confirmatory Factor Analyses (CFA).

Results:

The results showed that the content validity ratio (CVR) and content validity index (CVI) of the questionnaire were acceptable. The results of CFA show that the proposed model has an acceptable fitting index. And the scale showed satisfactory internal consistency. The questionnaire measured two domains (basic knowledge and lifestyle and dietary behavior), and six dimensions, including understanding of food, food characteristics, food choice, dietary behavior, dietary safety, and physical activity.

Conclusions:

The nutrition literacy scale of preschool children developed in this study is an effective and reliable tool for measuring children's nutrition literacy. The evaluation provides a solid empirical and theoretical basis for future research and tailored interventions to promote nutrition literacy in children of this age group.

EP144 / #102

E-Poster Topic: *AS03. Childhood & Adolescence*

PREDICTORS OF COMPLIANCE TO NUTRITIONAL SUPPLEMENTATION TREATMENT AMONG SHORT AND LEAN ADOLESCENTS IN A RANDOMIZED CONTROL TRIAL

Roni Perry[1], Moshe Phillip[2], Michal Yackobovitch - Gavan[1,2]
[1]Tel Aviv University, Epidemiology And Preventive Medicine, School Of Public Health, Tel Aviv, Israel, [2]Schneider children's medical center, Endocrinology And Diabetes, Petach Tikva, Israel

Background and Aims:

to examine factors predicting compliance to nutritional supplementation, as part of a study which evaluated the influence of a protein and micronutrient-rich formula on growth in comparison to a placebo, among short and lean male and female adolescents.

Methods:

The study included 194 participants (128 males; mean age 11.180.97 years). Anthropometric parameters, physical activity habits, sleep habits, quality of life, self-esteem and formula's taste and texture ranking were evaluated using self-reported questionnaires and measurements. Compliance to the study formula was calculated from daily consumption record during three months following the study onset. Secondary goals included the assessment of additional predictors (socio-economic parameters, child's and parent's motivation, and family eating habits), on a pilot of 84 participants. Stepwise linear regression models were used to identify factors associated with compliance.

Results:

The final stepwise linear regression model showed positive associations between compliance and taste ranking (β=0.314, SE=0.011, $p<0.001$) and self-esteem (β=0.157, SE=0.004, p=0.042). Study group, which was considered a confounder, was also significant, with lower compliance found in the formula group (β=-0.216, SE=0.056, p=0.007).

In the assessment of the secondary goals, the final stepwise linear regression model included a single positive association between compliance and child's motivation (β=0.320, SE=0.039, p=0.022).

Conclusions:

We found that the factors associated with compliance to the consumption of the study formula among short and lean male and female adolescents included the formula's taste and texture ranking, the participant's self-esteem and motivation. Further studies are needed to improve the prediction of compliance in nutritional intervention studies.

EP145 / #179

E-Poster Topic: *AS03. Childhood & Adolescence*

ASSESSING THE USE OF A GROWTH ARTIFICIAL INTELLIGENCE ALGORITHM FOR LENGTH ESTIMATION (GAIN) OF CHILDREN IN A REAL-WORLD SETTING

Mei Chien Chua[1,2,3,4], Jill Wong[5], Reyhan Suryaditama[5], Sankha Mukherjee[5], Meenakshisundaram Palaniappan[5], Agathe Foussat[5], Fabian Yap[2,3,4,6]
[1]KK Women's and Children's Hospital, Department Of Neonatology, Singapore, Singapore, [2]Duke-NUS School of Medicine, -, Singapore, Singapore, [3]Nanyang Technological University, Lee Kong Chian School Of Medicine, Singapore, Singapore, [4]National University of Singapore, Yong Loo Lin School Of Medicine, Singapore, Singapore, [5]Danone Nutricia Research, -, Singapore, Singapore, [6]KK Women's and Children's Hospital, Paediatric Endocrinology, Division Of Medicine, Singapore, Singapore

Background and Aims:

Regular measurement of length and other anthropometric parameters in children <2 years is critical for growth assessment and monitoring. However, accurate length measurement requires specialised equipment, trained personnel and a cooperative child. Thus, outside of clinical settings, length measurement is extremely challenging for non-experts, such as parents. We developed a Growth Artificial Intelligence algorithm for leNgth estimation (GAIN) tool to aid users in estimating body length conveniently from smartphone photos, and explored GAIN's performance and suitability for real-world home and clinical use.

Methods:

This pilot study of healthy children was performed at KK Women's and Children's Hospital, Singapore from November 2021 to March 2022. Performance was evaluated by comparing the tool's photo-based length estimations with standardised length-board measurements (bias [estimated length minus measured length]; absolute percentage error [APE]). User experience was collected via questionnaires.

Results:

Investigators and parents captured 2490 photos of 215 children (age: mean 6 months; median 4 months) in a supine position. The tool produced a length estimation value for 1599 (72%) of 2226 photos analysed. Mean bias was +2.4 (range: -4.9, +17.7) cm and mean APE was 5.8 (range: 0.7, 22.2) %. For most children, investigators (85%) and parents (72%) reported no difficulties in capturing the required photos.

Conclusions:

GAIN's current performance and ease of use appear compatible with consumer use for general growth tracking at home. However, the tool does not currently meet more stringent clinical

requirements for accurate growth assessment. Further algorithm optimisation/redesign is needed to improve performance for clinical use.

EP146 / #156

E-Poster Topic: *AS03. Childhood & Adolescence*

AFFORDABILITY OF A HEALTHY MENU FOR FAMILIES WITH CHILDREN IN ISRAEL

Naama Yaroslaviz, Vered Kaufman-Shriqui
Ariel University, Department Of Nutrition Sciences, Ariel, Israel

Background and Aims:

Dietary guidelines aim to meet the Dietary Recommended Allowance (DRI) by age and sex. However, the food cost may be a barrier for consumers to meet the recommendations with implications on children's growth and development. This study aims to estimate the weekly food cost for households with children and examine affordability by geographic area of residence and trends over a year.

Methods:

The distribution of ages and number of children per household in 2018 was obtained from the Central Bureau of Statistics (CBS). Food prices were obtained from "Stornext" company. The menu cost was calculated using food portion and frequency by MOH's guidelines, per standard person, and as a percentage of the household's net income, by income quintile and geographic area of residence, following changes during 2018.

Results:

The average daily cost of a healthy menu was 11.4 USD. The ratio between the average cost of breakfast, lunch, dinner, and two intermediate meals was 1.5:3.4:1.2:1, respectively. Household affordability increased while the income quintile increased; the median was 20%. The highest monthly average cost was found in Judea, Samaria, and Jerusalem (1618 USD and 1596 USD, respectively). Vegetables were the most costly on the daily menu (29%).

Conclusions:

High cost was identified for the recommended menus for families. Gaps in the cost of a healthy menu were identified by income quintile, household composition, and geographical area. Significant implications on children's nutrition and health may result from the high food costs. Policies to lower food costs for families with children should be developed.

EP147 / #79

E-Poster Topic: *AS03. Childhood & Adolescence*

THE ASSOCIATION OF MODERATE TO VIGOROUS PHYSICAL ACTIVITY AND SCREEN TIME WITH DEPRESSIVE SYMPTOMS AMONG CHINESE ADOLESCENTS DURING THE POST-EPIDEMIC PERIOD: A COHORT STUDY

Minzhe Zhang, Minjie Zhang, Qiqiang He
Wuhan university, School Of Public Health, WUHAN, China

Background and Aims:

To investigate the longitudinal association of moderate to vigorous physical activity (MVPA) and screen time (ST) with depressive symptoms in adolescents during the post-COVID 19 epidemic period.

Methods:

A stratified cluster sampling method was used to recruit young adolescents in Wuhan, China. MVPA, ST and depressive symptoms was determined using self-administered standardized questionnaires in October 2020, and re-assessed one year later. Generalized estimation equation model was used to analyze the associations between MVPA, ST and the risk of depressive symptoms.

Results:

A total of 404 adolescents (aged 14.1±1.6 years) participated in the follow-up survey. The prevalence of depressive symptoms was 28.5% in 2020 and 33.3% in 2021, respectively. Insufficient MVPA (OR=2.17， 95%CI：1.21~3.89) and ST>2 hours/d (OR=1.73， 95%CI：1.22~2.45) were independent risk factors for depressive symptoms. Compared with their counterparts， adolescents with insufficient MVPA and ST>2 hours/d had a significantly increased risk of depressive symptoms(OR=3.18, 95%CI:1.36~7.44).

Conclusions:

In the post-COVID-19 epidemic period,insufficient MVPA and long ST significantly increased the risk of depressive symptoms among Chinese adolescents. It is recommended that adolescents should increase their physical activity and reduce the use of electronic devices to decrease the risk of depressive symptoms.

EP148 / #362

E-Poster Topic: *AS04. Obesity*

OBESITY-INDUCED TESTICULAR OXIDATIVE STRESS IN ADULT MALE RATS

Kamel Chouider Assia, Oudahmane Akdader Samira, Hamouli Said Zohra
University of Sciences and Technology Houari Boumendiene (USTHB), Bab Ezzouar, Algiers, Biology And Physiology Of Organisms (l.b.p.o)/section Endocrinology,, BAB EZZOUAR, Algeria

Background and Aims:

Obesity is a chronic pathological condition with a multifactorial aetiology and is one of the major causative factors in the development of male reproductive impairment (Luboshitzky et al., 2005), which is mostly associated with generalised oxidative stress. A large amount of ROS in semen adversely affects sperm function by damaging the cell membrane and nucleus of the sperm.The objective of this study was to determine the effects of the obesity, on testicular oxidative stress, in high-fat diet (HFD)-fed rats

Methods:

Adult male rats weighing 250-300 g were randomized into two groups (n=4/group), namely; control (C), high-fat diet (HFD) administered for 8 weeks.

Results:

Body weight was significantly increased, while relative testis weight was significantly

lower in HFD group compared to control group. The levels of MDA were significantly increased in the HFD group, total GSH level and catalase activity (CAT) decreased in the testis of HFD group relative to control group

Conclusions:

From these results, it appears that the consumption of a high calorie diet disrupts redox homeostasis and subsequently causes male infertility.

EP149 / #215

E-Poster Topic: *AS04. Obesity*

ASSOCIATION OF SLEEP, PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, SCREEN TIME WITH OBESITY AMONG CHILDREN IN PEDIATRIC/ ENDOCRINE UNIT

Shireen Qassim Bham[1], Fatima Zahra[1], Farhan Saeed[2], Umerhayat Ahmed Sharif[3]
[1]FAZAIA RUTH PFAU MEDICAL COLLEGE, Pediatrics, KARACHI, Pakistan, [2]LIAQUAT COLLEGE OF MEDICINE & DENTISTRY, Pediatrics, KARACHI, Pakistan, [3]DOW UNIVERSITY OF HEALTH SCIENCES, Pediatrics, KARACHI, Pakistan

Background and Aims:

Background: The world is undergoing a rapid transition in epidemiology and nutrition, from dietary inadequacies to an ongoing rise in overweight and obesity. Since there was a lack of local data, this study will highlight the risk factors for obesity so that preventive guidelines and policies can be developed

Aim: Our study aimed to observe the association of physical activity, sedentary behavior, sleep, and screen time with obesity in children of our community.

Methods:

A case-control study was conducted at the Department of Pediatrics and Endocrinology, Darul Sehat hospital from September 2019 to March 2020. Participants were children from 5 to 15 years of age. The participants (overweight or obese) and controls were selected from the same population based on BMI. Overweight and obese were defined using WHO index of BMI as >85th percentile and <95th percentile respectively

Results:

200 children were enrolled in the study, 53% of children were boys and 47% were girls with a mean age of 7.9 in the non-obese group and 8.9 in the obese group. The study revealed positive relationship between sedentary activity and obesity and affirms that children with sedentary activity were 6% more likely to develop obesity (OR: 6.38 with 95% CI of 2.49-16.38, P-value: <0.01) as compared to sleeping time (OR: 0.424 with 95% CI of 0.19-0.94, P-value: 0.03). No relationship was noted between physical activity and screen time.

Conclusions:

The study concludes that sedentary activity is significantly associated with overweight/obesity whereas sleep has negative relation making them potential risk factors for childhood obesity.

EP150 / #456

E-Poster Topic: *AS04. Obesity*

TYPE 2 DIABETES VERSUS ORAL GLUCOSE INTOLERANCE IN CHILDREN WITH OVERWEIGHT AND OBESITY

Tatiana Chisnoiu, Mihai Cristina Maria
Constanta Clinical Emergency Hospital, Pediatric Department, Romania, Pediatric, Constanta, Romania

Background and Aims:

The prevalence of type 2 diabetes in young people has increased dramatically in recent decades worldwide, in parallel with the increase in the prevalence of obesity. The purpose of this paper is to highlight the importance of early diagnosis of decreased oral glucose tolerance and the importance of lifestyle modification intervention.

Methods:

We performed a retrospective clinical study on a group of 53 patients aged between 0-18 years, hospitalized in the Pediatric Clinic of the Constanța County Clinical Hospital, with the diagnosis of obesity or overweight. The study was carried out between January 1, 2019 and May 27, 2022.

Results:

From the group of 53 patients, 24 were female (45.28%) and 29 were male (54.71%). 38 patients come from urban areas (71.69%) and 15 patients come from rural areas (28.3%). More than half of the patients analyzed in the study have a hereditary history of obesity and type 2 diabetes. 42 of the subjects analyzed in the study present an increased probability of insulin resistance (79.24%); 8 patients present the possibility of insulin resistance (15.09%); 3 patients do not present insulin resistance (5.66%). 98.11% of patients have an abdominal circumference above the 90th percentile, suggesting the presence of central obesity. 18.86% of patients had Vitamin D deficiency.

Conclusions:

The majority of children show eating errors and a sedentary lifestyle. Puberty is a risk factor for the development of obesity and type 2 diabetes. Through early intervention on lifestyle, the progression to type 2 diabetes can be slowed, with patients having a favorable evolution.

EP151 / #187

E-Poster Topic: *AS04. Obesity*

A BODY FAT MASS EQUATION, BASED ON CHILDHOOD WEIGHT AND HEIGHT, ALLOWS SCREENING OF INDIVIDUALS AT-RISK OF CHRONIC INFLAMMATION IN ADOLESCENCE AND EARLY ADULTHOOD

María Paulina Correa[1], Cecilia Albala[1], Felipe Salech[1,2,3], Christian Gonzalez-Billault[1,2,3,4,5], Guillermo Sanhueza[6], Raquel Burrows[1]
[1]Universidad de Chile, Institute Of Nutrition & Food Technology, Santiago, Chile, [2]Universidad de Chile, Faculty Of Medicine, Santiago, Chile, [3]Universidad de Chile, Geroscience Center For Brain Health & Metabolism, Santiago, Chile, [4]Universidad de Chile, Faculty Of Science, Santiago, Chile, [5]Buck Institute on Aging Research, Buck Institute On Aging Research, Novato, United States of America, [6]Universidad de Chile, Faculty Of Social Sciences, Santiago, Chile

Background and Aims:

A persistent low-grade proinflammatory state is a risk factor for premature morbimortality and pervasive aging feature. Obesity predisposes to this proinflammatory state. Despite limitations in measuring body fat, BMI remains the most used marker of childhood body-fatness. An equation based on childhood weight/height allows estimating fat mass. We examined whether this equation predicts chronic inflammation later in life.

Methods:

Prospective study in a Chilean birth cohort. In 630 23y-olds (52% females), weight, height were measured at several timepoints since birth. BMI-for-age-and sex (BAZ) at 5y was estimated. Fat mass at 5y was calculated using weight, height, sex, age, ethnicity. hs CRP was measured at 16y-23y; values ≥3 mg/L were considered low-grade systemic-inflammation (LGSI).

Results:

Up to 23y, 47% of participants had obesity at some point in their life and 29% had childhood obesity (before 5y). Eleven and 27% had LGSI at 16y and 23y, respectively. In participants with childhood obesity, a one-unit increase in FM% at 5y related to 8.7% and 7.2% rise in the odds of having LGSI at 16y (OR: 1.07, 95%CI 1.03-1.15) and 23y (OR: 1.11, 95% CI 1.02-1.12), respectively, compared to participants who always had a healthy weight-status. BAZ 5y was unrelated to LGSI at 16y and 23y

Conclusions:

A prediction model for fat mass in childhood, based on routine anthropometric and sociodemographic data, is a better predictor of LGSI in adolescence and early adulthood than BMI. This equation can be used for early identification of individuals at risk of premature expression of aging phenotypes. NIH02RHL088530-ACT210006-FONDECYT1210283.

EP152 / #421

E-Poster Topic: *AS04. Obesity*

IS THE BODY MASS INDEX BE RELATED TO IRON DEFICIENCY ANEMIA IN OBESE ADOLESCENTS?

Simge Eren, Leyla Gizem Bolaç Özyılmaz, Rumeysa Ceylan, Mustafa Özdemir, Ebru Mısırlı Özdemir, Aydilek Dağdeviren Çakır, Ahmet Uçar
Şişli Hamidiye Etfal Hospital, Pediatric Endocrinology, İstanbul, Turkey

Background and Aims:

Obesity is a risk factor for various comorbidities and complications, including iron deficiency anemia.We aimed to evaluate the relationship between obesity and iron deficiency anemia by examining the changes in body mass index (BMI) and serum iron parameters and hemoglobin values in adolescents.

Methods:

Complete blood count, serum iron levels, ferritin levels, body mass index were retrospectively reviewed in thirty-one obese adolescents ranging in age from 12 to 18 years.Patients who received iron therapy in last 6 months,had infection or inflammatory disease, iron deficiency anemia or chronic disease were excluded.

Results:

The mean BMI of obese adolescents at the time of admission was 34.25±4.98(26-46) and the mean BMI percentile: 99±1.1. The second mean BMI during the weight loss period was 31.50 ± 4.4 (24-40) and the mean BMI percentil: 97±3.1.The mean hemoglobin measured at the time of admission was 12.9±0.95 g/dl.The second mean hemoglobin measured 13.2±1.22 g/dl. The mean Fe measured at the time of admission was 57.96±19.48 ng/ml and the mean Ferritin was 30.5±14 ng/ml. The second mean Fe was 56.01±19 ng/ml and the second mean Ferritin was 33.1±14 ng/ml. A correlation was found between the change in BMI and hemoglobin and iron parameters.

Conclusions:

Our study suggests that there is a significant relationship between BMI and iron deficiency anemia in obese adolescents.Considering the increase in the number of obese adolescents and the known morbidities of iron deficiency, adolescents with high BMI should be followed closely clinically for anemia.

EP153 / #363

E-Poster Topic: *AS04. Obesity*

EVALUATION OF OBESITY RISK FACTORS IN OBESE AND NORMAL WEIGHT CHILDREN AND ADOLESCENTS IN LATVIA

Jurgita Gailite[1], Ieva Silina[2], Eva Petrosina[3], Dace Gardovska[4], Iveta Dzivite-Krisane[1]
[1]Children's Clinical University Hospital, Children Endocrinology Department, Riga, Latvia, [2]Children's Clinical University Hospital, Paediatrics Department, Riga, Latvia, [3]Riga Stradiņš university, Department Of Statistics, Riga, Latvia, [4]Riga Stradiņš university, Department Of Paediatrics, Riga, Latvia

Background and Aims:

In Latvia, the prevalence of overweight is higher in 7 year-old boys compared to girls, 23.7 % and 21.8 %, respectively. However, for girls, this proportion has gradually increased since 2008 from 18.3 % to 21.8 %. It is important to be aware of preventable and non-preventable obesity risk factors which would be useful in planning long-term obesity prevention programs in the country. The aim of the study was to investigate obesity risk factors in normal weight and owerweight children.

Methods:

The study included 198 children who were divided into 3 groups according to weight and age: Group I – children ≥ 10 years old with obesity, Group II – children < 10 years old with obesity, control group – normal weight children. The obesity risk factors were evaluated: birth weight, duration of breastfeeding, excessive weight gain during pregnancy in mothers, T2DM in family, parental obesity were evaluated.

Results:

There were no statistically significant differences in birth weight ($p = 0.530$), maternal weight gain during pregnancy ($p = 0.787$), T2DM in family ($p > 0.999$) and duration of breastfeeding ($p = 0.120$) between obese and normal weight children. A statistically significant difference was observed only for parental obesity ($p = 0.004$). In study Group I and II, the prevalence of parental obesity was 79.8 % and 63.0 %, respectively. In control group parental obesity was found in only 33.3 % of cases.

Conclusions:

Our study found that only the prevalence of parental obesity differed between obese and normal weight children.

EP154 / #303

E-Poster Topic: *AS04. Obesity*

SCHOOL NURSE'S PRACTICES AND ATTITUDES TOWARDS OVERWEIGHT AND OBESE SCHOOLCHILDREN

Olga Shnaider[1], Yael Tevet Birman[2], Moran Blaychfeld Magnazi[3], Shani Barzilay[2], Vered Kaufman-Shriqui[1]
[1]Ariel University, Department Of Nutrition Sciences, Ariel, Israel, [2]Ministry of Health, Nutrition Division, North District, Israel, [3]Haifa University, School Of Public Health, Haifa, Israel

Background and Aims:

Policies for obesity prevention include school-based growth assessments (GA). Public health school nurses (SNs) are the primary professionals who perform GA, but only little is known about their attitudes and practices toward children with overweight and obesity. This study aims to describe SN's current practices in performing GAs in elementary and middle schools in Israel.

Methods:

We developed and validated an online survey for SN who perform GA. The survey obtained socioeconomic and employment characteristics of SN and their current practices in performing GA. Descriptive statistics were obtained using IBM Statistics SPSS 27.

Results:

A total of 441 nurses (72% response rate) replied to the survey. Of them, 330 had completed the study and were included in the data analysis. The mean age (±SD) was 42.32 (±11.53), and years of experience as SN ranged from 4.16 to 27.42 years; 91% of SN had children, and 58% of them indicated a household income at the average level of the country. The majority of 65% of the SNs shared measurement results with the students. Further, 59.8% of the SNs conducted a different conversation with students whose measurements differed from the norm. The majority of SNs (64.9%) gave nutritional recommendations and weight loss advice.

Conclusions:

Practices reported by SNS were not in line with international guidelines, which raises concerns about potential stigmatization and potentially preventing professional guidance for overweight and obese children and their families. Capacity building among SNs and further research are needed.

EP155 / #525

E-Poster Topic: *AS04. Obesity*

DEVELOPMENT AND EVALUATION STUDY OF FLY-KIDS: A NEW LIFESTYLE SCREENING TOOL FOR YOUNG CHILDREN

Anne Krijger[1], Lieke Schiphof-Godart[2], Liset Elstgeest[3], Caroline Van Rossum[4], Janneke Verkaik-Kloosterman[4], Elly Steenbergen[4], Sovianne Ter Borg[4], Caren Lanting[5], Karen Van Drongelen[6], Ondine Engelse[7], Angelika Kindermann[8], Symone Detmar[5], Carolien Frenkel[9], Hein Raat[10], Koen F.M. Joosten[11]
[1]Erasmus MC - Sophia Children's Hospital, Department Of Pediatrics And Pediatric Surgery, Rotterdam, Netherlands, [2]Erasmus MC, Department Of Medical Informatics, Rotterdam, Netherlands, [3]Reinier de Graaf Hospital, Reinier Academy, Delft, Netherlands, [4]National Institute for Public Health and the Environment, -, Bilthoven, Netherlands, [5]Netherlands Organisation for Applied Scientific Research, Child Health, Leiden, Netherlands, [6]Netherlands Nutrition Center, -, Den Haag, Netherlands, [7]Dutch Knowledge Center for Youth Health, -, Utrecht, Netherlands, [8]Amsterdam Medical Center, Department Of Pediatric Gastroenterology, Amsterdam, Netherlands, [9]Association of Dutch Infant and Dietetic Foods Industries, -, Den Haag, Netherlands, [10]Erasmus MC, Public Health, Rotterdam, Netherlands, [11]Erasmus MC Sophia Children's Hospital, University Medical Center Rotterdam, Department Of Pediatrics, Pediatric Intensive Care Unit, Rotterdam, Netherlands

Background and Aims:

Evaluating and discussing young children's lifestyle may contribute to timely modification of unhealthy behaviour and prevention of adverse health consequences. We aimed to develop and evaluate a new lifestyle screening tool for children aged 1-3 years.

Methods:

The lifestyle screening tool "FLY-Kids" was developed using data from lifestyle behaviour patterns of Dutch toddlers, age-specific lifestyle recommendations, target group analyses, and a Delphi process. FLY-Kids was administered among parents of children aged 1-3 years attending a regular youth healthcare appointment. Youth healthcare professionals (YHCP) then used the FLY-Kids dashboard to discuss lifestyle with the parents, and provided tailored advice. Parents as well as YHCP evaluated the tool after use. Descriptive and correlation statistics were used to determine the usability, feasibility, and primary effect of FLY-Kids.

Results:

FLY-Kids was completed by 201 parents. Parents scored an average of 3.2 unfavourable lifestyle behaviours in their children, while hardly 3.5% complied with all recommendations. Most unfavourable behaviours were reported in unhealthy food intake and electronic screen time behaviour. Parents and YHCP regarded FLY-Kids to be usable and feasible. We found a strong association between the number of items requiring further exploration according to FLY-Kids and the number of items discussed.

Conclusions:

FLY-Kids can be used to identify unhealthy lifestyle behaviour in young children and to guide the conversation about lifestyle in preventive healthcare settings. Parents and YHCP appraise FLY-Kids as helpful and easy to use. Longitudinal research has to show whether the use of FLY-Kids also leads to behavioural change.

EP156 / #108

E-Poster Topic: *AS04. Obesity*

USEFULNESS OF THE TRIGLYCERIDE GLUCOSE INDEX TO PREDICT NONALCOHOLIC FATTY LIVER DISEASE IN CHILDREN WITH OBESITY

Yu-Cheng Lin
Far Eastern Memorial Hospital, Pediatrics, New Taipei City, Taiwan

Background and Aims:

The triglyceride glucose (TyG) index, calculated from fasting glucose and triglyceride levels, is highly sensitive for identifying insulin resistance. Song et al. recently reported TyG index and modified TyG indices significantly predicted NAFLD in general Korean youths, with area under receiver operating characteristic (AUROC) values ranging from 0.667 to 0.780. Here, we aimed to determine whether these variables could predict NAFLD in children with obesity.

Methods:

We analyzed cross-sectional data from 1233 obese children aged 6 to 18 years recruited from schools in Taipei, Taiwan. Logistic regression analysis was performed and ROC curves were drawn. Pediatric NAFLD was defined as alanine aminotransferase (ALT) >23 IU/L in boys and >18 IU/L in girls. The ALT cutoffs were derived from metabolically healthy Taiwanese children.

Results:

The estimated prevalence of NAFLD was 46.9% in obese boys and 31.1% in obese girls. AUROC values of the original and modified TyG indices ranged from 0.616 to 0.674 as follows: TyG, 0.616; TyG-body mass index (BMI), 0.674; TyG-BMI standard score (SDS), 0.648; TyG-waist circumference (WC), 0.673; and TyG-waist-to-height ratio (WHtR), 0.670. Consistent with the data of Song et al., AUROC values of the TyG-BMI, TyG-WC and TyG-WHtR indices were significantly higher than those of the TyG index in our obese cohort.

Conclusions:

Our data support the usefulness of the original and modified TyG index as potential biomarkers for screening NAFLD screening in children with obesity. However, the AUROC values were not high, suggesting that other biomarkers should be combined to improve prediction accuracy.

EP157 / #112

E-Poster Topic: *AS04. Obesity*

ARE THE MAIN CUT-OFF POINTS FOR DEFINING CHILDHOOD OVERWEIGHT AND OBESITY EQUIVALENT? A SYSTEMATIC REVIEW AND META-ANALYSIS.

Francisco Llorca Colomer[1,2], María Teresa Murillo Llorente[1], Marcelino Pérez Bermejo[1]
[1]SONEV Research Group, School of Medicine and Health Sciences, Catholic University of Valencia, Spain, Overweight And Obesity, Valencia, Spain, [2]Doctoral School, Health Program. Catholic University of Valencia, Spain, Overweight And Obesity, Valencia, Spain

Background and Aims:

The prevalence of childhood obesity has increased dramatically all over the world in recent years. While obesity in adults can be easily measured using the BMI calculation, determining overweight and obesity in children is more controversial. The aim was to compare the three most used international classification systems (WHO 2007, CDC 2000 and Cole-IOTF) to determine overweight and obesity in infant and adolescent populations.

Methods:

A systematic review was conducted according to the PRISMA 2020 guidelines in addition to a meta-analysis of articles comparing any of the three classification systems.

Results:

In the 19 studies analysed there was significant and substantial heterogeneity between studies. The difference between these subgroups was statistically significant. In both cases, the values calculated with the 2007 WHO standard are significantly higher. No studies have been excluded from the meta-analysis. A funnel plot was used to assess potential publication bias, which did not show any substantive asymmetry.

Conclusions:

The prevalence of childhood overweight and obesity according to BMI was determined to be higher in boys than in girls in most studies, this was considered when analysing the classifications of the WHO 2007, CDC 2000 and Cole-IOTF together. The WHO 2007 criteria were those with the highest prevalence of overweight in the child and youth populations. Both the results of the review and the great heterogeneity found in the meta-analysis show that it is necessary to unify the criteria for the classification of childhood overweight and obesity. International standards are insufficient for working with the current population.

EP158 / #285

E-Poster Topic: *AS04. Obesity*

PROSPECTIVE ASSOCIATION OF ADIPOSITY WITH LINEAR GROWTH IN MEXICAN CHILDREN.

Desiree Lopez-Gonzalez[1], Armando Partida-Gaytán[2], Patricia Clark[1], Mary Fewtrell[3], Jonathan Wells[4]
[1]Hospital Infantil de Mexico Federico Gomez, Clinical Epidemiology Research Unit,, Mexico City, Mexico, [2]Hospital Infantil de Mexico Federico Gomez, Medical Assistance Division, Mexico City, Mexico, [3]University College London, Childhood Nutrition Research Center, Ucl Great Ormond Street Institute Of Child Health, London, United Kingdom, [4]UCL Great Ormond Street Institute of Child Health, Institute Of Child Health, London, United Kingdom

Background and Aims:

In Mexico 30% of children have overweight or obesity. In high-income settings, young children with excess weight often show faster linear growth and maturation. However, childhood obesity has been associated with reduced pubertal growth velocity compared to lean children. The underlying mechanisms remain unclear. Our aim was to evaluate the prospective association of adiposity with linear growth in Mexican children and adolescents.

Methods:

An initial analysis of the first 156 subjects of an ongoing prospective cohort study. Participants were clinically and biochemically healthy children, aged 5-16 years, who have had two evaluations of body composition (BC) by DXA within 5 years. Adiposity was assessed as fat mass index (FMI) Z-score, and truncal fat-mass for age trFM Z-score. The associations of FMI-z and trFM-z with linear growth were assessed by linear regression analyses, with growth velocity (cm/year) as the outcome, with adjustment for pubertal Tanner stage and sex.

Results:

The initial sample consisted of 58% males, aged 9.8y with mean baseline height 139.9 cm. The mean follow-up BC assessment was after 4.9 years, where mean growth velocity was 4.3 cm/year.

For each 1 unit increase in trFM-z, growth velocity decreased by 0.41 cm/year (95% CI -0.77, -0.05; P = 0.025). FMI-z showed a similar association (-0.39 cm/year; 95% CI -0.75, -0.04; P= 0.028). Both associations remained significant after adjusting for sex and Tanner stage.

Conclusions:

There is a significant negative association between baseline adiposity (FMI and trFM/a) with subsequent linear growth velocity in Mexican children and adolescents.

EP159 / #260

E-Poster Topic: *AS04. Obesity*

PREVALENCE OF OBESITY AND OVERWEIGHT IN ADOLESCENT GIRLS ALONG WITH DIETARY AND PHYSICAL-ACTIVITY FACTORS ASSOCIATED WITH THEM IN NORTH EASTERN PART OF INDIA

Kumar Shambhu Nath
Katihar Medical College, Pediatrics, Katihar, India

Background and Aims:

Rising rates of overweight and obesity has reached epidemic proportions in developed countries and increasing rapidly in many middle-income and less-developed countries.

Aims-

To determine prevalence of obesity and overweight, in adolescent girls and its association with lifestyle (dietary and physical-activity factors)

Methods:

Study

A cross- sectional study was conducted in government and private schools of north eastern part of India

Study population: Adolescent girls of 10-19 year of age.

For the assessment of underweight overweight and obesity, the WHO BMI cut-off classification of girls was used, with the criteria : overweight : >+1 SD(equivalent to BMI 25 kg/m^2 at 19 years), obesity >+2 SD (equivalent to BMI 30kg/m^2 at 19 years).

Results:

In our study the prevalence of obesity in adolescent girl was 2.3%, and overweight 14.5%.

significant Correlation was found between

BMI & Socioeconomical status

BMI with father education. Prevalence of obesity and overweight was high 18.2% and 63.6% respectively among the adolescent girls whose fathers were post graduated

BMI & mode of transports to school. Higher prevalence in those using buses obesity 8.2%, overweight 30.1%.

BMI & physical activities. Prevalence of obesity 4.4%.

BMI & Carbonate soft drink intake (>3times in a week). Prevalence of obesity was higher 5.8% in comparision to 0.9% those who are not taking.

BMI & intake of locally available sold out street food items Prevalence obesity and overweight was high 4.8% and 26.4%

Conclusions:

Behaviour like consumption of unhealthy, high-calorie foods and poor physical activity is causing obesity and this is rising in India.

EP160 / #316

E-Poster Topic: *AS04. Obesity*

MUAC CUTOFF POINTS MUST BE SEX-SPECIFIC FOR OVERWEIGHT AND OBESITY SCREENING AMONG SCHOOL CHILDREN AND ADOLESCENTS

Carlos Alberto Nogueira-De-Almeida[1], Fábio Da Veiga Ued[2], Patrícia Ruffo[3]
[1]Federal University of Sao Carlos, Medical, Sao Carlos, Brazil, [2]FMRP-USP, Nutrition, Ribeirao Preto, Brazil, [3]Abbott Nutrition, Medical Manager, São Paulo, Brazil

Background and Aims:

Obesity has shown increasing prevalence in all age groups. Especially from a population point of view, rapid screening of higher-risk patients is essential and mid-arm circumference (MUAC) has been used for this purpose. Some authors suggest the use of age-specific but non-sex-specific cut-off points and and we aimed to assess whether this is possible through a systematic review of the scientific literature.

Methods:

We reviewed papers published between 2010 and 2021 involving children aged 7 to 18 years in which the authors aimed to define cut-off points for MUAC capable of detecting those at risk of being overweight and obese (body mass index (BMI) above the 85th percentile or z-score greater than +1). Of the 28 articles originally found, 13 were discarded because they did not use BMI as an outcome or used cutoff points different from those proposed for the present study. Five ages were chosen for analysis: 7, 10, 12, 15 and 18. The averages of the proposed values at each age were compared.

Results:

The studies that proposed MUAC cutoff points (cm) capable of predicting overweight in children and adolescents are shown in figure 1. There was a significant difference in the mean values of MUAC (cm) between boys and girls at all ages evaluated ($p<0.001$).

Figure 1. MUAC cut-off points (cm) according to age group and sex

Authors	7 years		10 years		12 years		15 years		18 years	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Asif et al. (2018) [A]	17.5	17.5	19.1	18.1	19.1	20.5	NA	NA	NA	NA
Asif et al. (2018) [B]	NA	NA	NA	NA	19.4	19.5	22.4	20.5	23.1	24.7
Ayu et al. (2017)	18.5	18.5	NA	NA	NA	NA	NA	NA	NA	NA
Craig et al. (2014)	18.4	18.3	NA	NA	22.2	22.5	NA	NA	NA	NA
Dumith et al. (2018)	NA	NA	NA	NA	NA	NA	26	26.5	27.1	27.4
Jaiswal et al. (2017)	18.8	19.4	NA	NA	23	23.3	NA	NA	NA	NA
Lu et al. (2013)	18.9	18.9	21.9	21.9	23.4	23.4	NA	NA	NA	NA
Mazıcıoglu et al. (2010)	18.1	18.2	19.9	20.6	21.9	22.6	24.9	23.9	NA	NA
Nitika (2021)	NA	NA	21.1	21.2	22.9	23.1	26.4	25.2	28.2	26.5
Rerksuppaphol & Rerksuppaphol (2017)	17.2	18	20.3	20.4	22.4	23.2	NA	NA	NA	NA
Shinsugi et al. (2020)	19.5	19.5	NA	NA	NA	NA	NA	NA	NA	NA
Sisay et al. (2020)	NA	NA	NA	NA	NA	NA	NA	NA	27.7	27.9
Oriaifo et al. (2019)	19.7	21.7	24.7	22.2	24.2	27.7	30	27.2	31.5	26.2
Engwa et al. (2021)	NA	NA	NA	NA	NA	NA	25.9	25.5	NA	NA
Asif et al. (2021)	NA	NA	NA	NA	18.4	18.1	NA	NA	NA	NA
Mean	18.5	18.9	21.2	20.8	21.7	22.4	25.9	24.8	27.5	26.6
(SD)	(0.8)	(1.2)	(1.9)	(1.4)	(1.9)	(2.6)	(2.4)	(2.4)	(3.0)	(1.2)
p-value *	0.001		0.001		0.001		0.001		0.001	

NA: not available; * student t test

Conclusions:

The use of MUAC for overweight and obesity screening among school children and adolescents should be made using cut-off points corrected for age and gender.

EP161 / #479

E-Poster Topic: *AS04. Obesity*

EARLY-LIFE GUT MICROBIOTA AND NUTRITIONAL STATUS IN CHILDREN

Alexandru Cosmin Pantazi[1,2], Simona Claudia Cambrea[1], Tatiana Chisnoiu[1,3], Mihai Cristina Maria[1,3], Larisia Mihai[1,2], Corina Elena Frecus[1,2], Anca Daniela Pinzaru[1,2], Viviana Cuzic[1,2], Adina Ungureanu[1,2], Adriana Luminita Balasa[1,2]
[1]Ovidius University of Constanta, Pediatrics, Constanta, Romania, [2]Constanta County Clinical Emergency Hospital, Pediatrics, Constanta, Romania, [3]Constanta Clinical Emergency Hospital, Pediatric Department, Romania, Pediatric, Constanta, Romania

Background and Aims:

Early-life gut microbiota determines a long-term impact on health, including malnutrition and obesity, representing a public health concern. The composition of microbiota is individually variable due to genetic differences and environmental factors.

Methods:

During a period of 3 years (January 2019 - January 2022) 104 children under three years old performed anthropometric measurements including height and weight. Stool samples analysis of microbiota composition was performed. The aim of the study was to analyse composition of gut microbiota and nutritional status during the first three years of life.

Results:

Acidifying germs such as Enterococcus species (<1x10^4 CFU/g), Bifidobacterium species (<1x10^8 CFU/g), Bacteroides species (1x10^8 CFU/g) and Lactobacillus species (<1x10^5 CFU/g) were found to have lower abundance in overweight children ($p < 0,05$), while children with malnutrition presented increased values for protective germs. It was observed an increased level of Candida albicans and Candida krusei. It was observed a high level of proteolytic germs in overweight children, such as Enterobacter species (3x10^5 CFU/g), Clostridium species (4 x 10^5 CFU/g), Escherichia coli (6x10^9 CFU/g) and Klebsiella species (2x10^9 CFU/g), while in children with malnutrition Enterobacter species and Clostridium species values were significantly decreased. Flora index suggested an intermediate dysbiosis (mean value 6) in both cases, with elevated stool pH value (6.0).

Conclusions:

Early-life gut microbiota is significant in pathogenesis of malnutrition and overweight in children. High levels of proteolytic species were observed in overweight children,while dysbiosis in children with malnutrition presented decreased levels, with lower abundance of protective germs from Enterococcaceae family.

EP162 / #136

E-Poster Topic: *AS04. Obesity*

IMPORTANCE OF BREASTFEEDING AS A REGULATOR OF BODY PARAMETERS AMONG INDIVIDUAL AGED 3-10 YEARS FROM TWO COHORTS 1993-1997 AND 2015-2017 IN CENTRAL POLAND.

Paulina Agnieszka Pruszkowska-Przybylska, Anna Opoka, Elżbieta Żądzińska
University of Lodz, Department Of Anthopology, Łódź, Poland

Background and Aims:

Background and aims: Numerous studies indicate that breastfeeding positively regulates human development and later body proportion. The aim of this study was to verify whether duration of breastfeeding affects body parameters in later life and if there is diversity among two investigated cohorts. Additionally, we evaluate if the frequency of the breastfeed children was changed after over 20 years in Lodz.

Methods:

In the analysis we included 659 children (315 boys and 344 girls) aged 3-10 years comes from two cohorts: 1993-1997 and 2015-2017 selected in the nurseries and primary schools in central Poland. In the analysis there were included information about: duration of breastfeeding and BMI, body mass and height which were standardized on sex and age of the children.

Results:

There were statistically significant differences in the frequency of breastfeeding in two investigated cohorts. In cohort 1993-1997 69% of the women declared breastfeeding and over 20 years 86% of the respondents indicated that they breastfed their child. The Mann Whitney U-test showed that in cohort 1993-1997 breastfed children had higher body mass than no breastfed children ($Z=2.027$; $p=0.0426$). Inverse results were obtained for cohort 2015-2017 - breastfed children had lower body mass than no breastfed children ($Z=-2.5209$; $p=0.0117$). The regression model for weight z-score was statistically significant. Longer duration of breastfeeding affected lower weight in later life ($Beta=-0.012$; $p=0.0154$) and explained 0.5% of the weight variability.

Conclusions:

The frequency of breastfeeding slightly increased in Poland after over 20 years. Breastfeeding might affect later body parameters in age 3-10.

EP163 / #535

E-Poster Topic: *AS04. Obesity*

ASSOCIATIONS OF OVERWEIGHT AND OBESITY WITH METABOLITE PROFILES IN SCHOOL-AGED CHILDREN

Mireille C. Schipper, Sophia M. Blaauwendraad, Vincent W.V. Jaddoe, Romy Gaillard
Erasmus MC (Erasmus University Medical Center), Paediatrics / Generation R, Rotterdam, Netherlands

Background and Aims:

Pediatric obesity is closely associated with an increased risk of metabolic diseases, but the underlying molecular mechanisms remain unknown. We examined the associations of childhood body mass index (BMI) with serum metabolite profiles at school-age.

Methods:

Among 497 children aged 10 years with metabolomics data available, participating in a population-based prospective study from early-pregnancy onwards, we measured BMI using height and weight at our research center. BMI categories were defined by the International Obesity Task Force cut-offs. Liquid-chromatography tandem mass spectrometry was used to measure concentrations of amino acids (AA), non-esterified fatty acids (NEFA), phospholipids (PL) and carnitines (Carn) in serum.

Results:

Independent of child's sex and age, a higher childhood BMI standard deviation score (SDS) was associated with higher childhood concentrations of branched-chain AA, aromatic AA, essential AA and free Carn, and lower concentrations of acyl-alkyl-phosphatidylcholines and mono-unsaturated sphingomyelines, with the strongest effects for BCAA, essential AA and free Carn (p-values < 0.001). Within these metabolite subgroups, the strongest associations were with Isoleucine, Leucine, Valine, Lysine, and Acyl-Alkyl-phosphatidylcholine C42.5 (p-values < 0.001). Associations were present across the full range of childhood BMI, with the strongest effects in overweight and obese children.

Conclusions:

A higher childhood BMI is associated with alterations in metabolite profiles, mainly in AA, PL, and Carn concentrations, already at school-age. Future studies should focus on the role of these metabolites in the development of metabolic disorders among overweight and obese children, and their potential as biomarkers for metabolic dysregulation.

EP164 / #201

E-Poster Topic: *AS04. Obesity*

THE INFANT ORIGINS OF NON-COMMUNICABLE DISEASE

David Ian Smith
NoRCEL, Microbiome Department, Leeds, United Kingdom

Background and Aims:

Background: During the 1990s, David Barker, late of Southampton University, UK, developed his Fetal Origins Hypothesis, a theory based on the epidemiology of non-communicable disease. While focusing on cardiovascular disease, he mentioned obesity and also, perhaps surprisingly, schizophrenia. Significantly, in our view, he also mentioned the possibility of an infant origin:

Barker, D.J. The Fetal and Infant Origins of Adult Disease. BMJ, 1990, 301, 1111.

Aims: To update Barker's hypothesis in the light of our own microbiome-derived concepts:

Smith et al. Microbiome-gut dissociation: Investigating the origins of obesity. Gastrointest. Disord. 2021, 3, 156-172

Smith et al. Microbiome-gut dissociation in the neonate: Autism-related developmental brain disease and the origin of the placebo effect. Gastrointest. Disord. 2022, 4, 291-311

Methods:

Method: As a hypothesis paper, this work relies only on literature review.

Results:

Results: An explanation for the increasing prevalence of obesity and mental health issues in both children and adults will be presented. A significant feature is the presence of biogenic amines (semiochemicals) in the maturing microbiota-gut-brain axis (see reference 1). It also seems that unicellular eukaryotes may be essential for the proper functioning of the microbiome (reference 2), but potentially these are poisoned within polluted modern societies.

1. Sudo, N. Biogenic Amines: Signals Between Commensal Microbiota and Gut Physiology. Front. Endocrinol. 2019, 10, 504.

2. Laforest-Lapointe, I.; Arrieta, M-C. Microbial eukaryotes: a missing link in gut microbiome studies. mSystems 2018, 3, e00201-17.

Conclusions:

Conclusion: This “Infant Origins Hypothesis” fits well with Barker’s epidemiological observations. A possible plan for future work will be outlined.

EP165 / #225

E-Poster Topic: *AS04. Obesity*

FOOD ENVIRONMENT OF THE URBAN POOR AND ITS ASSOCIATED RISK WITH OVERWEIGHT/OBESITY AMONG ADOLESCENTS LIVING IN KUALA LUMPUR, MALAYSIA

Janice Ee Fang Tay[1], Serene En Hui Tung[2], Satvinder Kaur[1], Wan Ying Gan[3], Nik Norasma Che'Ya[4], Choon Hui Tan[1]
[1]UCSI University, Department Of Food Science And Nutrition, Cheras, Malaysia, [2]International Medical University, Division Of Nutrition And Dietetics, School Of Health Sciences, Kuala Lumpur, Malaysia, [3]Universiti Putra Malaysia, Department Of Nutrition, Serdang, Malaysia, [4]Universiti Putra Malaysia, Department Of Agriculture Technology, Serdang, Malaysia

Background and Aims:

Understanding the role of the food environment in the development of obesity is important in addressing obesity epidemic, especially in urban poor contexts. This study aimed to determine the relationship between the perceived food environment and overweight/obesity of urban poor adolescents in Kuala Lumpur, Malaysia.

Methods:

A total of 219 adolescents aged 10-17 years were recruited from eight People Housing Programme in Kuala Lumpur, Malaysia from November 2021 through February 2022. The perceived food environment was assessed using the Perceived Nutrition Environment Measures Survey. Adolescents' weight and height were measured, and body mass index-for-age was calculated.

Results:

A total of 39% of the adolescents were OW/OB, while 61% were NOW/OB. The food environment in the urban poor is perceived to have poor accessibility to stores [Median(IQR)=10(4)] and restaurants [Median(IQR)=8(3)], as well as low availability of healthy items at home [Median(IQR)=6(3)]. Greater access to healthy food (fruit and vegetables) at home is associated with lower BAZ (β=-0.217, p=0.008) after adjusting for adolescents' age, educational level, and monthly household income. No significant relationships were found between other food environment variables with obesity.

Conclusions:

This study provides a better understanding of the urban poor food environment in relation to adolescent obesity. It is important to ensure healthy food is accessible at home for obesity prevention. Future studies are recommended to focus on objectively assessing of food environment to better understand the underlying causes of obesity among urban poor adolescents.

Acknowledgment: This research was supported by Fundamental Research Grant Scheme by Ministry of Higher Education Malaysia [FRGS/1/2020/SKK06/UCSI/02/2].

EP166 / #519

E-Poster Topic: *AS04. Obesity*

PROTEIN MALNUTRITION IN AN "OVERWEIGHT" PATIENT

Iulia Țincu[1], Anamaria Luca[2], Bianca Ciurez[2]
[1]„Dr. Victor Gomoiu" Clinical Children Hospital, "Carol Davila" University of Medicine and Pharmacy, Gastroenterology, Bucharest, Romania, [2]„Dr. Victor Gomoiu" Clinical Children Hospital, Gastroenterology, Bucharest, Romania

Background and Aims:

Kwashiorkor is a severe form of malnutrition that occurs due to a major deficiency of proteins and essential amino acids in association with an adequate caloric intake. It is frequently diagnosed in countries with limited resources where children's nutrition is incorrectly and early introduced. Long-term topical use of glucocorticosteroids causes adverse reactions due to percutaneous absorption facilitated by the increased permeability of the skin at this age. We present the case of a patient with iatrogenic Cushing's syndrome characterized by obesity and inadequate nutrition that caused severe hypoproteinaemia.

Methods:

A 14-month-old female patient was referred for vomiting, decreased appetite, drowsiness, and altered general condition.

Results:

On admission, we report cushingoid facies, pallor, venous ectasias bison's neck, excess subcutaneous cellular tissue represented globally, eyelid oedema, erosive gluteal erythema and erythema at the level of the pouches flexion, polypnea. Emergency investigations indicated severe hypoproteinemia and fluid and electrolyte imbalances requiring sustained enteral and parenteral correction. Anthropometrically, the patient had a body mass index greater than the 99th percentile. However, from the history we note the fact that she was diagnosed with iatrogenic Cushing's syndrome at the age of 10 months based on the continuous excessive use of a topical cortisone preparation, and the diet was made exclusively with breast milk from the age of 11 months.

Conclusions:

The combination of obesity secondary to endocrine changes and age-inappropriate nutrition resulted in a severe picture of protein malnutrition in a patient who simultaneously required hypocaloric and hyper proteic nutrition.

EP167 / #306

E-Poster Topic: *AS04. Obesity*

BARIATRIC SURGERY FOR ADOLESCENTS EXPERIENCE OF A CENTER

Carla Vasconcelos[1], Jéssica Sabina Teixeira Sousa[2], Maria Céu Espinheira[3], Susana Corujeira[3], Sofia Ferreira[3], Tiago Tuna[4], John Preto[5], José Miguel Campos[4]
[1]Centro Hospitalar Universitário são João, Nutrition Department, Porto, Portugal, [2]Faculdade de Ciências da Nutrição e Alimentação, Pediatric Nutrition, Porto, Portugal, [3]Centro Hospitalar Universitário são João, Pediatric Department, Porto, Portugal, [4]Centro Hospitalar Universitário São João, Pediatric Surgery Department, Porto, Portugal, [5]Hospital Fernando Pessoa, Clinical Director, Gondomar, Portugal

Background and Aims:

Obesity is a global epidemic. Childhood obesity, in particular, has become a growing concern due to the prevalence of associated comorbidities. Bariatric surgery is recognized as the most effective intervention for significant weight loss and remission of cardiovascular and metabolic comorbidities and preoperative liver volume reduction in severely obese adolescents.

The ketogenic diet is a strategy to induce weight loss in a short period of time, pointed out as useful in preparing for surgery.

The results of the experience at a pediatric obesity treatment center are presented.

Methods:

Evaluation of adolescents undergoing bariatric surgery between 2013-2022.

It evaluated: adherence to the ketogenic diet, weight evolution and cardiovascular and metabolic comorbidities.

Results:

We evaluated 36 adolescents (69% female) aged between 15 and 20.

Thirty-five patients underwent gastric sleeve, 1 gastric bypass, without immediate operative complications. Before surgery, patients had a mean initial weight of 126.8 kg±17.2kg. With a post-surgery follow-up period varying between 1 and 48 months, there was an average weight loss of 27.7%±12.11%, with a significant improvement in comorbidities, namely remission of 80% of dyslipidemia, 63.3% of insulin resistance, 70 % of hepatic steatosis and 33.3% of hyperuricemia.

Forty-six percent of patients were on a ketogenic diet 3 weeks before surgery. In these, the mean initial weight was 132.3kg±12.96kg, with a mean weight loss of 3.85%±1.47%, after the ketogenic diet.

Conclusions:

This program of Bariatric Surgery for Adolescents made it possible to achieve a significant weight reduction, and remission of associated comorbidities, in accordance with what is described in the literature.

EP168 / #64

E-Poster Topic: *AS04. Obesity*

SCREENING PEDIATRIC OBESE PATIENTS FOR DIABETES USING HBA1C: A FINANCIAL ANALYSIS

Michael Yafi
University of Texas Health Science Center at Houston, Pediatric Endocrinology, Houston, United States of America

Background and Aims:

Hemoglobin A1c (HbA1c) and glucose finger blood stick (FBS) are one of the most common measurements used to screen for diabetes in obese population at risk. These tests can be done during clinic visits and the results can be verified immediately by the health care providers to make the diagnosis of diabetes or impaired fasting glucose. A special testing machine is often provided at no cost by the manufacturer provided that testing kits are purchased on regular basis.

Methods:

A cost analysis was performed to compare the price of HbA1c and FBS kits purchased in our pediatric clinic over a period of 2 years and compared to the total collections from payers within the same time. Testing was performed on obese pediatric patients to rule out diabetes.

Results:

The total cost of kits in 2 fiscal years was

$11485. The total collections from testing

HbA1c and FBS in the same period was

$28595. This shows a positive balance of $17110 (Average of $8500 per year). When adjusted for personnel's time of handling the kits, preparing the machine daily, testing patients and reporting results (20 % of total time multiplied by total salary of $29000), the profit is estimated to be around $ 2700 per year.

Conclusions:

Testing HbA1c and FBS in outpatient clinic setting offers an instant diagnosis for diabetes when combined with analysis of clinical symptoms and other laboratory tests. Testing HbA1c and FBS during clinic visit seems to be profitable in the outpatient clinical setting.

EP169 / #116

E-Poster Topic: *AS05. Other*

SEVERE ACUTE MALNUTRITION DURING CHILDHOOD AND OPHTHALMOLOGICAL DISORDERS IN ADULTHOOD: THE LWIRO FOLLOW-UP STUDY IN EASTERN DEMOCRATIC REPUBLIC OF CONGO.

Burume Zigashane Adrien[1], Nshokano Simba Gloria[2], Mwenebatu Lyabayungu Pacifique[3,4,5,6], Furaha Masumbuko Bonheur[7], Minani Balibanga Jimmy[6], Michèle Wilmet Dramaix[8], Philippe Donnen[8], Bisimwa Balaluka Ghislain[3,4,5]
[1]hopital provincial général de référence de Bukavu, Pediatrics Department, Bukavu, Congo, Republic of, [2]hopital provincial général de référence de Bukavu, Ophtalmology Department, Bukavu, Congo, Republic of, [3]Université Catholique de Bukavu, Ecole Régionale De Santé Publique, Bukavu, Congo, Republic of, [4]Université Catholique de Bukavu, Faculty Of Medicine, Bukavu, Congo, Republic of, [5]Université de Kaziba, Faculty Of Medicine, Bukavu, Congo, Republic of, [6]hopital provincial général de référence de Bukavu, Internal Medicine Department, Bukavu, Congo, Republic of, [7]hopital provincial général de référence de Bukavu, Internal Medicine, Bukavu, Congo, Republic of, [8]Université Libre de Bruxelles, Public Health, Brussels, Belgium

Background and Aims:

Little is known about the long-term outcomes for children treated for severe acute malnutrition (SAM). We aimed to explore the association between SAM during childhood and ophthalmological disorders in adulthood 11 to 30 years after nutritional rehabilitation.

Methods:

We recruited 91 adults (median age of 23 years: 50% male, 50% female) treated for SAM during childhood between 1988 -2007 in the Eastern Democratic Republic of Congo (exposed). They were compared with 60 community unexposed age-and-sex-matched adults. The variables of interest were clinical and paraclinical ophthalmological symptoms and signs. Pearson's Chi2 test (or exact Fisher) and Student's t test were used respectively to compare percentage and means between the two groups.

Results:

Compared with unexposed, the exposed showed higher proportion of structural abnormalities of the optic disc (22.1% vs 9.4%), vessels (58.9% vs 18.3%), and peripheral retina (31.5% vs 13.5%) at the fundus. In addition, they had higher percentage of fundus disease (39.3% vs 9.8%). These differences being statistically significant ($p < 0,05$). However, clinically, there was no difference between the two groups in terms of the presence of Bitot’s spots, pterygium, and pinguecula, as well as corneal abnormalities.

Conclusions:

SAM during childhood is associated with ophthalmological abnormalities at fundus examination in adults. This is one more reason that reinforces the need for policy makers to prevent SAM.

EP170 / #539

E-Poster Topic: *AS05. Other*

INFORMATION AND COMMUNICATION TECHNOLOGIES TO PROMOTE BREASTFEEDING DURING THE ANTENATAL CARE

Julia Holandino[1], Karina Dos Santos[1], Cláudia Saunders[2]
[1]Federal University of the State of Rio de Janeiro, Public Health Nutrition, Rio de Janeiro/RJ, Brazil, [2]Federal University of Rio de Janeiro, Josué De Castro Nutrition Institute, Rio de Janeiro, Brazil

Background and Aims:

The use of information and communication technologies (ICT) for health (eHealth) hold great potential for maternal and child nutrition. Pregnant women are a leading public searching about nutrition on the internet, but they use to found untrusted information sources available about breastfeeding. We developed short videos promoting breastfeeding and clarifying common queries with reliable official recommendations to share with pregnant women during the antenatal care.

Methods:

The videos' scripts were organized in four parts: first, second, third trimester of pregnancy, and postpartum. We used a comprehensive language for better understand of the target audience. The videos were uploaded to the YouTube channel of the Academic League of Maternal and Child Nutrition, of the Federal University of the State of Rio de Janeiro. A banner with a QR code to provide free and easy access to the videos was placed in a visible location for the women who is waiting the antenatal care visits in the University Hospital.

Results:

The first video focused on the benefits of breastfeeding and preparation for this practice. The second, on body changes during pregnancy and how to put the child on the breast to avoid hurt and pain. The third video focused on the nutritional recommendation for lactating women, and the fourth focused on the initial concerns of mothers about breastfeeding, providing advice for the Brazilian Network of Human Milk Banks.

Conclusions:

We are monitoring the use of this innovative way to promote breastfeeding using ICT. It seems to be very helpful for maternal and child health initiatives.

EP171 / #243

E-Poster Topic: *AS05. Other*

PERSPECTIVES OF WOMEN DURING PREGNANCY AND POSTPARTUM PERIOD ON DIETARY BEHAVIOUR AND APP USE FOR DIETARY COACHING - BASED ON A DUTCH SURVEY

Janine P.M. Faessen, Desiree A. Lucassen, Edith J.M. Feskens, Elske M. Brouwer-Brolsma
Wageningen University and Research, Division Of Human Nutrition And Health, Wageningen, Netherlands

Background and Aims:

Healthy dietary habits are crucial to promote optimal development of the infant and prevent maternal complications during pregnancy and the postpartum period. Mobile health (mHealth) applications are promising approaches to improve dietary habits of women during these periods. Yet, to develop effective mHealth applications, first, insight in women's needs and preferences regarding such apps is essential. Therefore, we aim to explore pregnant and postpartum women's perspectives on their dietary habits and on diet-related apps.

Methods:

Social media channels were used to distribute a web-based survey targeted at pregnant women and women during the first year postpartum. The survey included 41 closed and 22 open questions aiming to identify modifiable behavioural components where the COM-B model served as framework.

Results:

The survey is open from November 2nd 2022 until the end of December 2022. At November 14th 2022, 865 women completed the survey, of which 454 (52%) were pregnant, 405 (47%) gave birth less than one year ago and 6 women (1%) were both pregnant and gave birth less than one year ago. Preliminary data indicate that women are on average 32 ±4 years of age and had a pre-pregnancy BMI of 25 ±5 kg/m^2. Pregnancy apps are used by 411 (91%) pregnant women; 240 (59%) women indicated to use apps about the postpartum period. Final results will be available in early 2023.

Conclusions:

This study is the first step in designing a dietary coaching app for pregnant women and women during the first year postpartum.

EP172 / #520

E-Poster Topic: *AS05. Other*

VITAMIN D STATUS IN CHILDREN WITH CEREBRAL PALSY

Adriana Fernandez[1], Verónica Garrido[2], Ana Cabral[1,3], Amal Hassam[1], Sandra Cosentino[1], Julieta Hernandez[1], Horacio Federico Gonzalez[1]
[1]RIANA, Red Interdisciplinaria De Asistencia Nutricional Ambulatoria, La Plata, Argentina, [2]RIANA, Red Interdisciplinaria De Nutricion Ambulatoria, La Plata, Argentina, [3]La Plata Children's Hospital, Nutrition, La Plata, Argentina

Background and Aims:

Background: Micronutrient deficiencies are frequent in patients with cerebral palsy (CP), particularly Vitamin D (VitD).

Aim: To assess the VitD status in CP patients receiving enteral nutrition (EN) at home

Methods:

Retrospective analytical cross-sectional study. CP patients ≥2 and ≤16 years, with a blood VitD level measured by the end of winter. The variables analyzed: sex, age, disability by Gross Motor Scale (GMS), nutritional status, antiepileptic drugs, VitD formula content, VitD intake,basal energy expenditure (BEE) (Schofield W/H). They were grouped: Group I (GI VitD ≥ 30 ng/ml) GII (VitD ≤ 29 ng/ml).

Results:

38 patients were included, 17 female (44.11 %), mean age 10.87 years (SD 4.78), all grade V (GMS). The mean BMI Z score (WHO) was -1.33 (SD 3.14). All received EN at home daily followed up by an interdisciplinary group, 37 due to gastrostomy and 1 due to SNG. The average of energy form EN was1260 Kcal (DS:240), 1.14%/ Schofield W/H. The formulas provided 80 % of the VitD requirement. VitD blood levels showed: 18 patients (47 %) ≥ 30 ng/ml and 20 (52 %) ≤ 29 ng/ml: 14 (41.17 %) were deficient and 4 insufficient (11.76 %). 59 % (20) of the patients received antiepileptics.

No significant differences were found between G1 and G2 for sex, age, BMI Z score, VitD intake, calories received/BEE or antiepileptic medication

Conclusions:

There was a high percentage of suboptimal levels of Vit D in this group of CP children receiving home enteral nutrition despite the intake of a supplemented formula with VitD.

EP173 / #374

E-Poster Topic: *AS05. Other*

GINGER AND ITS CONSTITUENTS IN HEALTHY NUTRITION IN CHILDREN. A REVIEW

Lemlem Gebremariam Gebremariam[1], Mohammad Shokralahi[2], Teferi Gebru Gebremeskel[3]
[1]University Of Debrecen, Institute Of Nutrition, Medical Faculty, Debrecen, Hungary, [2]University Of Debrecen, Faculty Of Medicine, Debrecen, Hungary, [3]Flinders University, Public Health, Adelaide, Australia

Background and Aims:

Background

Ginger Zingiber officinale is one of the most consumed dietary condiments in the world and is used for treating numerous ailments. There is a lack of review regarding ginger and its constituents in healthy nutrition for children.

Aim

The aim of this review is to summarize, ginger and its constituents in healthy nutrition for children.

Methods:

Methods

A systematic search was conducted on the databases of PubMed, Scopus and Clinical Trials with the search term of the key words.

Results:

Results

This review indicated that ginger promotes the secretion of saliva and gastric juices improving children's appetite and digestion in which it can treat eating disorders in children by having a positive impact on food intake and nutrient metabolism. The active components present in ginger stimulate digestion and absorption and relieve constipation and flatulence by increasing muscular activity in the gastrointestinal (GI) tract. It has shown that ginger is an anti-emetic agent that prevents nausea and vomiting in children. Gingerols and shogaol may exert their anti-emetic effect by acting on the 5- HT3 receptor ion-channel complex, possibly binding to a modulatory site distinct from the serotonin-binding site.

Conclusions:

Conclusions

This review indicated that ginger has benefits for children's health and has nutritional value. However, there are limited clinical trials to conclude its efficiency, safety, and its dosage. Therefore, further clinical trial studies are needed to conclude the health and nutritional uses of ginger in children.

EP174 / #504

E-Poster Topic: *AS05. Other*

THE EFFECTS OF WORKOUT SUPPLEMENTATION IN CHILDREN ATHLETES: A SYSTEMATIC REVIEW

Nina Gruska, Julio Cesar Fernandes De Sousa, Hugo Miguel Borges Sarmento
University of Coimbra, Research Unit For Sport And Physical Activity (cidaf)., Coimbra, Portugal, Portugal

Background and Aims:

Child/adolescent elite athletes deserve special attention due to the strenuous energy expenditure resulting from their intense training and strong energy demand for growth and body development. Consequently, they often consume pre-workout supplements in competitions in order to improve their cognitive and physical performances. However, little is known about the totality of the impacts that this kind of supplementation has on their health.

The aim of this research was to analyze studies that dealt with interventions on young athletes who received acute dosages of supplementation and to undersand the impacts of these substances on their physical and/or cognitive performances.

Methods:

A systematic review of PubMed, Scopus, Web of Science databases was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. There was no limitation on language or date of publication. Experimental studies of acute use were included, with athletes under 18 years of age, of both sexs, which evaluated the effects on the physical and/or mental performance.

Results:

2365 studies identified, 17 articles were included in this review. Sample sizes ranged from 7 to 58 individuals and participants' ages ranged from 10 to 17 years. 12 of the articles used carbohydrates, whereas caffeine or beetroot juice or sodium citrate were ministered in the others ones. . Only 2 studies did not obtain positive results. Feeding control was not performed in most studies.

Conclusions:

Several athletes feel tempted to consume supplements before the competition. It's important to conduct more studies to understand the impacts of acute supplementation on child/adolescent athletes.

EP175 / #446

E-Poster Topic: *AS05. Other*

MATERNAL PLASMA 25-HYDROXY VITAMIN D DURING PREGNANCY IS POSITIVELY ASSOCIATED WITH LEVEL OF BRAIN-DERIVED NEUROTROPHIC FACTORS AND NEUROCOGNITIVE DEVELOPMENT IN HEREDITY

Fitri - Hartanto[1], Julian - Dewantiningrum[2], Maria - Mexitalia[3], Dwi - Pudjonarko[1,4]
[1]DR Kariadi General Hospital, Pediatrics, semarang, Indonesia, [2]DR Kariadi General Hospital, Obstetrics & Gynecology, semarang, Indonesia, [3]DR Kariadi General Hospital, Pediatric, semarang, Indonesia, [4]DR Kariadi General Hospital, Neurology, semarang, Indonesia

Background and Aims:

Vitamin D deficiency during pregnancy is associated with child neurocognitive. During the COVID-19 pandemic, examining using the Capute Scale became ineffective because the child's neurocognitive examination was carried out face-to-face. BDNF is an alternative method to determine a child's neurocognitive through blood sampling.

Methods:

This was a diagnostic study from 14 community health centres in Semarang City. The study included vitamin D levels records of 62 women at 20-24 weeks of normal pregnancy in 2017 from all single births. The cases were divided into 2 groups, each consisted of 31 children at 2 years old born to mothers with normal and deficient vitamin D levels (cut off 25(OH)D = 20 ng/ml). Capute scale is normal when the score of full scale > 85. This study assessed the relationship between BDNF levels at one year age to predict the Capute Scales at two years age of offspring among two groups and looked for a cut-off value, sensitivity, specificity, positive and negative predictive value (PPV and NPV).

Results:

Cut off value of BDNF among two groups was 10,051.5 pg/ml. Total of 56 samples with the normal Capute Scales criteria, 13 samples had a BDNF value less than the cut-off. Six subjects, who were low score of Capute Scale, one subjects had BDNF value less than the cut-off. The sensitivity, specificity, PPV and NPV were 16.67%, 76.79%, 7.14% and 89.58% respectively.

Conclusions:

BDNF levels at one year can be an alternative neurocognitive examination in children born to mothers with status of maternal Plasma 25-Hydroxy vitamin D.

EP176 / #514

E-Poster Topic: *AS05. Other*

DETERMINATION THE SECRETOR STATUS ON HUMAN MILK OLIGOSACCHARIDES PROFILE BY USING HEMAGGLUTINATION INHIBITION METHOD OF SALIVA IN HEALTHY NORTHERN TAIWANESE

Beng-Huat Lau
Skin Kong memorial Hospital, Pediatrics, Taipei, Taiwan

Background and Aims:

Breast milk contains abundant and different profile of human milk oligosaccharides (HMOs), which is determined by Lewis blood type and secretor (Se gene) status in different population. All data suggest that infants of secretor mothers have a better health outcome than those there of non-secretors Currently the secretor status of Taiwanese is still unclear. The aim of this study is to determine the secretor status on human oligosaccharide profile through saliva blood group determination among northern Taiwan population

Methods:

From July to December 2019, 65 healthy individuals with known blood type from different sites of Taipei city were enrolled and 5 to 10ml of saliva samples were collected in test tube. The samples were heated in 100。Celsius water bath for 10 minutes and centrifuge with 3000 revolutions per minute for 10 minutes. The supernatants were analyzed by using hemagglutination inhibition method to determine the saliva blood group within 24 hours

Results:

Among 65 healthy Taiwanese with different blood groups, age 20 to 65 years old. 14 (21%) were male and 51 (79 %) were female. The proportion of blood groups A, B, O and AB were 26%, 38%, 31% and 4%, respectively. All 65 (100%) of the saliva samples tested were compatible to known individual's blood group, the result showed that all of Northern Taiwanese population were secretors in this study

Conclusions:

All of the healthy Taiwanese of Northern Taiwan in our study were secretor. Further genetic studies were needed to confirm secretor status in this population

EP177 / #462

E-Poster Topic: *AS05. Other*

HLA PATTERNS IN PATIENTS POSITIVE FOR SEROLOGICAL TESTS CELIAC AND GLUTEN INTOLERANCE IN A MULTI RACIAL PAEDIATRIC ENDOCRINE CLINIC POPULATION IN SINGAPORE

Warren Lee
Dr Warren Lee's Paediatrics, Growth & Diabetes, Centre, Singapore, Singapore

Background and Aims:

Celiac Disease and gluten intolerance has been considered rare in Asians but is being increasingly recognised. It was also previously thought that the vast majority of cases of celiac disease in the literature have been positive for HLA DQ2 and DQ8 and that the absence of these alleles was reason to exclude the diagnosis. This series of 220 patients will demonstrate that HLA DQ 2 and DQ8 are not necessarily present in individuals with a relevant clinical presentation, and positive serological tests for celiac disease.

Methods:

HLA DQB1 testing was performed at the Health Science Authority Singapore for 220 patients aged below 21 yrs seen between 2008 -2020 at a multi racial pediatric endocrine clinic, and who were positive for at least one of 4 tests (tissue Transglutaminase IgA , tissue Transglutaminase igG , Deamidated Gliadin IgA and Deamidated Gliadin IgG). Ethnicity was determined by birth certificates and detailed family histories. Testing was with Euroimmun kits (tT-IgA, DGP IgA, DGP IgG) and Orgentec kits (tTg igG) at Tan Tock Seng Hospital, (a government restructured hospital).

Results:

Out of 220 patients of all ethnicities, 126 (57%) patients were positive for HLA DQ2 or DQ8 alleles, while 40 (78.5%) out of 51 Caucasian patients and 52 (50%) of 104 Chinese patients were positive for HLA DQ2 and or DQ8 alleles

Conclusions:

HLA DQ2 and DQ8 positivity is not necessarily present in patients with seropositivity for tests of celiac disease and gluten intolerance in a multi-racial pediatric endocrine clinic population in Singapore .

EP178 / #330

E-Poster Topic: *AS05. Other*

LONG-TERM FOLLOW UP ON NUTRITIONAL STATUS AMONG CHILDREN WITH SPINAL MUSCULAR ATROPHY

Dina Levy[1], Shlomi Cohen[1], Liora Sagi[2], Aviva Fattal-Valevski[2], Anat Yerushalmy-Feler[1]
[1]Tel Aviv Sourasky Medical Center, Pediatric Gastroenterology Institute, Tel Aviv, Israel, [2]Tel Aviv Sourasky Medical Center, Pediatric Neurology Unit, Tel Aviv, Israel

Background and Aims:

Spinal muscular atrophy (SMA) is a genetic motor neuron disorder characterized by progressive muscle atrophy. SMA can lead to feeding difficulties and adverse influence on nutritional status. The aim of the study was to describe the prevalence of malnutrition in SMA children.

Methods:

SMA multidisciplinary clinic at "Dana-Dwek" children's hospital is the largest SMA center in Israel. We performed a retrospective analysis during 2016-2022. Demographic, anthropometric and nutritional data were collected. Z-scores were calculated using the World Health Organization (WHO) standards.

Results:

54 SMA patients were included. Mean age of 11.6±6.7 years and mean follow-up of 45±32 months 27 children (50%) were type 1 SMA, 19 (35%) type 2 and 8 (15%) type 3. 23 patients (42.5%), all with SMA type 1, received enteral nutrition, while 31 (57.5%) were orally-fed. At baseline among 27 SMA type 1 patients, 13 (48%) were malnourished, 10 (77%) of them were severely malnourished at baseline. 15 (55%) of SMA type 2+3 patients were malnourished, 9 (60%) of them had severe malnutrition and 6 (40%) of them were overweight. At the end-point among 27 SMA type 1 patients, 11 (40%) were malnourished, 4 (36%) of them were severely malnourished. 9 (34%) SMA type 2+3 patients were malnourished, 5 (55%) of them had severe malnutrition. An increase in BMI z-score was observed during follow-up, from -1.5±2.2 to -0.8±1.79 (p=0.008).

Conclusions:

Malnutrition is frequent among children with SMA. Our results highlight the degree of malnutrition in this population, and the need for closer follow-up of the nutritional status of SMA patients.

EP179 / #191

E-Poster Topic: *AS05. Other*

FOOD INSECURITY, DIETARY DIVERSITY AND THE RIGHT TO ADEQUATE FOOD AMONG HOUSEHOLDS IN LANDSLIDE-PRONE COMMUNITIES IN EASTERN UGANDA: A COHORT STUDY

Aziiza Nahalomo[1], Per Ole Iversen[1], Bård Anders Andreassen[2], Archangel Byaruhanga Rukooko[3], Archileo Natigo Kaaya[4], Peter Milton Rukundo[5]
[1]University of Oslo, Department Of Nutrition, Oslo, Norway, [2]University of Oslo, Norwegian Centre For Human Rights, Oslo, Norway, [3]Makerere University, School Of Liberal And Performing Arts, Kampala, Uganda, [4]Makerere University, School Of Food Technology, Nutrition And Bioengineering, Kampala, Uganda, [5]Kyambogo University, Department Of Nutritional Sciences And Dietetics, Kampala, Uganda

Background and Aims:

Among households in the communities affected by the 2010 and 2018 major landslides in Eastern Uganda, we assessed their food insecurity, dietary diversity and the right to adequate food.

Methods:

A prospective cohort study was applied to select 422 households during May-August (the food-plenty season) 2019. In January-March (the food-poor season) of 2020, 388 households were re-assessed. Socio-demographic, food insecurity, dietary diversity and the right to adequate food data were collected using structured questionnaires. Focus group discussions and key informant interviews with 10 purposively sampled duty-bearers explored issues on food insecurity, dietary and the right to adequate food.

Results:

The affected households had significantly higher mean (SE) food insecurity scores than controls, during both the food-plenty season 15.3 (0.5) vs 10.8 (0.5), and during food-poor season: 15.9 (0.4) vs 12.5 (0.0). The affected had significantly lower mean (SE) dietary diversity scores than the controls during the food-plenty season: 5.4 (0.2) vs 7.5 (0.2) and during the food-poor season: 5.2 (0.2) vs 7.3 (0.1). Multivariate analyses showed that disaster event, education and main source of livelihood significantly predicted household food security and dietary diversity during the food-plenty season whereas during the food-poor season, disaster event and education were predictors. During both food seasons, the majority of the affected and controls reported to have consumed unsafe food. Comprehension and awareness of human rights principles and state obligations were low.

Conclusions:

Severity of food insecurity and dietary diversity differed significantly between affected and controls. Realization of the right to adequate food of landslide victims faced challenges.

EP180 / #533

E-Poster Topic: *AS05. Other*

SECULAR TREND IN MATURE HUMAN MILK MACRONUTRIENT COMPOSITION OF MOTHERS OF HEALTHY TERM INFANTS IN INDONESIAN URBAN POPULATION

Neti Nurani[1], Tunjung Wibowo[2], Rina Susilowati[3], Janatin Hastuti[4], Ekawaty Lutfia Haksari[2], Madarina Julia[2], Mirjam Maria Van Weissenbruch[5]
[1]Dr Sardjito Hospital/Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada, Child Health, Yogyakarta, Indonesia, [2]Dr Sardjito Hospital/ Faculty of Medicine, Public Health and Nursing, Child Health, Yogyakarta, Indonesia, [3]Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada, Histology And Cell Biology, Yogyakarta, Indonesia, [4]Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada, Department Of Health Nutrition. Lab. Of Bioanthropology & Paleoanthropology, Yogyakarta, Indonesia, [5]Vrije University Amsterdam, Pediatrics-neonatology, Amsterdam, Netherlands

Background and Aims:

Background: Improvement in a population's welfare may change its food consumption patterns, including those of the nursing mothers. This, in turn, may influence their human milk composition.

Research Aims: To investigate the secular trend in macronutrient composition of mature human milk from mothers of healthy term infants in urban populations in Indonesia, between 1974 and 2019.

Methods:

We compared macronutrient composition of mature human milk of healthy term infants from 1974 with that from the present (2019). The present data used human milk analyzer MIRIS to quantify carbohydrate, fat and protein content of the milk, while the historical data used methods available at that time, i.e., methods described by Benedict, Gerber and Kjeldahl, respectively.

Results:

There were no significant differences in carbohydrate, protein and fat content across categories of maternal nutritional status in the respective period. However, the fat content of human milk from 2019 was significantly higher than that of 1974: 4.7 ± 1.7 vs. 3.3 ± 1.1 g/dL, $p<0.001$, while its carbohydrate content was significantly lower: 6.2 ± 2.1 vs. 7.1 ± 0.2, $p<0.001$. There was no significant difference in the protein content between the two periods, 1.4 ± 0.5 vs. 1.6 ± 0.3 g/dL.

Conclusions:

The present mature human milk has higher fat and total energy content, but lower carbohydrate content than those observed around four decades ago. The protein content remained the same.

EP181 / #315

E-Poster Topic: *AS05. Other*

EFFECTS OF ESSENTIAL OILS OF MENTHA PULEGIUM ON THE BODY AND GONAD WEIGHTS OF FEMALE PRE-PUBERTAL RABBITS

Samira Oudahmane Akdader[1], Lynda Lakabi[1], Assia Kamel[2]
[1]ummto, Biology, Tizi ouzou, Algeria, [2]USTHB, Biology, Algiers, Algeria

Background and Aims:

Essential oils extracted from plants, are natural compounds with active ingredients that give them a high therapeutic power due to their wide use for preventive or curative purposes. Several studies had showed the effects of essential oils in particular on the reproductive function. The aim of this work is to evaluate the effect of essential oils (Mentha pulegium) on the body and gonad weights of female pre-pubertal rabbits treated with different dose of essential oils.

Methods:

Twenty females rabbits were used in this study, animals are divided into 4 groups: one control group and three groups treated with three different doses of Mentha pulegium essential oil, respectively 200µl/kg, 300µl/kg and 400µl/kg. After the sacrifice, the gonads were weighed and fixed for histological study.

Results:

The results show that treatment with essential oil of Mentha pulegium resulted in increased body weight of rabbits in the group treated with a high dose of essential oil (400 µl/kg) compared to controls. The histological sections of the ovaries revealed an hyperstimulation of ovulation and an increase in the number of follicles at different stages, Greater in comparison to control rabbits and an increase in the number of mature follicles, more important in rabbits treated with dose 3 compared to those treated with dose 1 and 2. Control rabbits, present some stages of folliculogenesis.

Conclusions:

It would seem that the essential oil of Mentha pulegium at three different doses would have a stimulating effect on the development of gonads, folliculogenesis and fertility of pre-pubescent rabbits.

EP182 / #344

E-Poster Topic: *AS05. Other*

EXPLORING AN ONLINE MESSAGING PLATFORM UTILIZATION FOR BREASTFEEDING SUPPORT AMONG MOTHER DURING COVID-19 PANDEMIC IN INDONESIA

Dian Dwi Sary
Universitas Riau, Faculty Of Medicine, Pekanbaru, Indonesia

Background and Aims:

WhatsApp is the most used instant messaging application in Indonesia, which also serves as a social networking platform for some users. WhatsApp can be used as a tool for breastfeeding promotion and support. Breastfeeding mothers who lack access to sufficient professional service tends to seek online support, especially during the COVID-19 pandemic. PUAN (Perempuan Untuk ASI dan Anak) is an online breastfeeding peer support group moderated by trained lactation consultants. This study is aimed to explore the utilization of online breastfeeding support by members of PUAN WhatsApp Group (WAG)

Methods:

Online survey consisting of open and closed questions was completed by 234 members of PUAN WAG. Message exchanged between February - August 2021 in the group is also recorded. Closes-ended questions were analyzed descriptively while open-ended questions and exchanged messages were analyzed using content analysis

Results:

The WhatsApp Group received 2047 messages during 6 months. The thematic analysis summarized 13 main topics of discussions, in which the top two being infant health (n=520 messages) and breastfeeding management (n=434 messages). The range of time in which members usually joined the group was between in time of pregnancy to 5 years after birth, with 52.2% members of the WhatsApp Group joined during pregnancy or within 6 months of birth. The most common reasons for joining were for reassurance, access to shared experience, and emotional support from the community

Conclusions:

WhatsApp Groups can be an accessible and easily available online support for mothers to learn and discuss topics regarding breastfeeding concerns and their child health

EP183 / #332

E-Poster Topic: *AS05. Other*

DETERMINING FACTORS OF THE GLYCEMIC INDEX AND THE GLYCEMIC LOAD OF DIETS OF PREGNANT WOMEN WITH DIABETES MELLITUS

Cláudia Saunders[1], Tatiane De Freitas Mazotto[1], Leticia Barbosa Gabriel Da Silva[2], Erlaine De Souza Gomes[2], Mariana Campos De Moraes[2], Giovana Melo Moraes De Souza[2], Ana Sophia Soares Pessoa Nobre De Lacerda[2], Karina Dos Santos[2], Eliane Lopes Rosado[2]
[1]Federal University of Rio de Janeiro, Josué De Castro Nutrition Institute, Rio de Janeiro, Brazil, [2]Federal University of Rio de Janeiro, Josué De Castro Nutrition Institute, Rio de Janeiro/RJ, Brazil

Background and Aims:

Background and aims: dysglycemia is currently the most common metabolic disorder in pregnancy. Nutritional intervention is an important strategy for maternal glycemic control and the prevention of macrosomia. The objective was to evaluate the determining factors of the Glycemic Index (GI) and the Glycemic Load (GL) of the diets adopted by pregnant women with Diabetes Mellitus (DM).

Methods:

Methods: a longitudinal study, with pregnant women with DM of onset before pregnancy, followed up in a public maternity hospital in Rio de Janeiro, Brazil. The Food Frequency Questionnaire was applied for dietary assessment in the 2nd trimester of pregnancy (2nd T). The GI and GL of the diet were calculated. Statistical analyzes were performed in SPSS v.21.0, using linear regression ($p<0.05$).

Results:

Results: the mean age of the 68 pregnant women was 31.1 (SD=6.1 years), 35.3% of the pregnant women were overweight and 36.8% were obese. Of the women, 48.5% were diagnosed with DM1 and 48.5% with DM2. The GI was negatively influenced by the consumption of proteins (grams, $b =-0.065$, $p=0.03$), fiber ($b=-0.230$, $p=0.001$), and fruits ($b=-0.008$, $p=0.02$) and positively with carbohydrate consumption ($b=0.067$, $p<0.001$). GL was negatively correlated with fiber consumption ($b=-1.091$, $p<0.001$), fruits ($b=-0.023$, $p=0.04$), and positively with carbohydrates ($b=0.724$, $p<0.001$).

Conclusions:

Conclusions: The consumption of fiber, protein, and fruits contributed to the reduction of GI and GL, and the consumption of carbohydrates increased the GI and GL of the diet of pregnant women. These results may be useful in the nutritional care of pregnant women with DM.
Acknowledgements: CNPQ, FAPERJ.

EP184 / #376

E-Poster Topic: *AS05. Other*

ASSOCIATION BETWEEN THE RS17782313 POLYMORPHISM OF THE MC4R GENE AND PICAMALACIA IN PREGNANT WOMEN WITH PRE-EXISTING DIABETES MELLITUS

Jacqueline Souza Silva[1], Laísa Ramos Rodrigues[1], Adriana Azevedo Abras[2], Beatriz Magalhaes Blois[2], Gabriela Longo[2], Clara Cardoso[2], Miria Almeida[1], Kamile Sinquini[2], Karina Dos Santos[1], Eliane Lopes Rosado[1], Cláudia Saunders[1]
[1]Federal University of Rio de Janeiro, Josué De Castro Nutrition Institute, Rio de Janeiro/RJ, Brazil, [2]Federal University of Rio de Janeiro, Josué De Castro Nutrition Institute, Rio de Janeiro, Brazil

Background and Aims:

Pregnancy is a period of intense physiological and emotional changes that can favor eating disorders, such as pica and polymorphisms in the melanocortin-4 receptor genes (MC4R) are associated with pre-gestational weight, obesity and eating disorders. The objective was to evaluate the association between the rs17782313 polymorphism of the MC4R gene and pica in pregnant women with pre-existing diabetes mellitus.

Methods:

Cross-sectional, genetic-based observational study carried out in a Public Maternity Hospital in Rio de Janeiro/Brazil approved by the Research Ethics Committee of the Maternity School of the Federal University of Rio de Janeiro All pregnant women signed the Free and Informed Consent Form. We used data from the baseline of a randomized clinical trial. The DNA was extracted from saliva samples and genotyped using real-time PCR. Pica was identified by standardized interview.

Results:

The sample consisted of 70 pregnant women and the mean age was 32 years. The prevalence of pica was 20% (n=14) and among these, 4 had a genotype carrying the C allele (CT or CC) corresponding to 15.4% of all pregnant women with this genotype and 10 had TT genotype (22, 7%). No association was observed between pica and genotypes.

Conclusions:

These results are significant for clinical practice and may be the basis for future research. We believe that increasing the sample size and isolating the effect of the C risk allele is expected that there is a statistical difference in the variables between the genotypes, since the C allele has a greater association with eating disorders during pregnancy.

EP185 / #203

E-Poster Topic: *AS05. Other*

CORRELATES OF PERCEIVED STRESS AND PROFESSIONAL QUALITY OF LIFE AMONG NURSES WORKING IN NEONATAL INTENSIVE CARE UNITS(NICU) IN NORTH INDIA: A MULTICENTRE STUDY

Shivani Shivani[1], Mohit Sharma[2], Sonakshi Sonakshi[1], Jatinder Singh[1], Kamalpreet Arora[3]
[1]Punjab Institute of Medical Sciences, Paediatrics, Jalandhar, India, [2]Punjab Institute of Medical Sciences, Community Medicine, Jalandhar, India, [3]Dayanand medical college and hospital, Paediatrics, Ludhiana, India

Background and Aims:

Background: The neonatal intensive care unit has a highly stressful work environment and the consequences can be physiological and psychological.

Objective: To estimate the levels of perceived stress and determine the professional quality of life domains viz. compassion satisfaction, burnout, and secondary trauma and their associated factors in Neonatal Intensive Care Unit [NICU] nurses.

Methods:

A multicentre cross-sectional study was carried out in various NICUs across a number of NICUs in North India from May to June 2022. A total of 223 nurses included in the study were given a self-administered questionnaire consisting of their socio-demographic profile, work profile, PSS 14 scale, and ProQol 5 scale. Data was analyzed using descriptive statistics, correlation coefficient, and multiple regression.

Results:

Based on PSS 14, 52[23.3%], 132[59.2%], and 39[17.5%] nurses experienced mild, moderate, and severe stress, respectively. Burnout and secondary trauma were found to be average in the majority of nurses [178(79.8%) and 175 (78.5%) respectively] in regard to professional quality of life domains. Interestingly, a sizable portion [99(44.4%)] of the nurses were found to have high compassion satisfaction. Factors such as more night duties, alarms, and lights in the NICU, less professional experience, high workload, being unmarried, and having no children were found to be significant in association with perceived stress and professional quality of life.

Conclusions:

According to this study, the majority of nurses who work in NICUs experience moderate levels of stress and average levels of compassion fatigue. Therefore, it is important to consider various stress management programs based on the identified stressors.

EP186 / #120

E-Poster Topic: *AS05. Other*

NUTRITIONAL STATUS IN PHELAN-MCDERMID SYNDROME

Mar Tolín[1], Virginia María Velasco Molina[2], Clara Redondo Grande[2], Guillermo Álvarez Calatayud[1], Carmen Miranda Cid[1], Cesar Sánchez Sánchez[1], Eduardo Oujo Alamo[1]
[1]Hospital Gregorio Marañón, Pediatrics, Madrid, Spain, [2]Complutense University Madrid, Paediatrics, Madrid, Spain

Background and Aims:

Background and aims: Phelan-McDermid is a rare syndrome due to a genetic disorder caused by 22q13.3 delection, with SHANK3 being the main gene involved. It is characterized by global development delay, hypotonia and autism spectrum disorder. There are 201 people diagnosed of this syndrome in Spain, the aim of this study is to describe the nutritional status of this group of patients, existing very few data published to date.

Methods:

Methods: Descriptive, observational, cross-sectional study with anthropometric, nutritional, bioimpedance, autism (ATEC), adherence to mediterranean diet (KIDMED) and physical activity assessment of children from the Phelan-McDermid Syndrome Association, by visit and survey to parents.

Results:

Results: 50 patients were included, 27 of them engaged in the study to its completion. The median age was 114 months, with 67% of participants being male. The prevalence of hypotonia was 78.3%, with 39% of digestive manifestations. The median weight and height Z-scores were -0.9 (IQR 1.6) and -1 (IQR 1.8) respectively. The 70% and 67% of patients had normal nutrition according to Waterlow indexes. No significant differences were found between lean and fat mass by anthropometric and bioelectrical impedance analysis. The adherence to mediterranean diet was calculated to be 73%, with an adequate level of physical activity of 30%. In the autism assement, 60.9% presented moderate severity.

Conclusions:

Conclusion: in our cohort, we observed a high prevalence of normal nutrition, adherence to mediterranean diet and moderate severity of autism. No correlation was found between the adherence to mediterranean diet or severity of autism with the degree of malnutrition.

EP187 / #73

E-Poster Topic: *AS05. Other*

TITLE: DRIVERS OF FOOD CHOICE AND ITS EFFECT ON ANAEMIA AMONG PREGNANT WOMEN IN ACCRA, GHANA

Benedicta Twum - Dei[1], Richmond Aryeetey[2], Linda Nana Esi Aduku[3], Jonathan Annan - Asare[4]
[1]Heritage Christian College, Department Of Nursing, Accra, Ghana, [2]University of Ghana, Population, Family And Reproductive Health, Accra, Ghana, [3]Kwame Nkrumah University of Science and Technology, Biochemistry And Biotechnology, Kumasi, Ghana, [4]University of Health and Allied Sciences, Nutrition And Dietetics, Ho, Ghana

Background and Aims:

Maternal nutritional status is of great concern as it is linked with outcomes for both the pregnant woman and her unborn child. This study assessed the effect of food choice on anaemia among pregnant women seeking antenatal care services in selected hospitals in the Accra Metropolis of Ghana.

Methods:

A mixed-methods study comprising a survey and three focused group discussions was conducted in urban Accra. The survey included 345 adult pregnant women, and collected data on food choice, dietary practices, socio-demographic, and socio-cultural and health state factors. Ten women participated in each focus group discussion. Data were triangulated and presented using descriptive, analytical statistics and content analysis.

Results:

This study found that more than 50% of the women in the study recorded Haemoglobin (Hb) levels less than 11.0g/dl with a mean Hb of 10.24 g/dl and a maximum of 13.9g/dl and a minimum of 7.8 g/dl. Feeding from at least four food groups was associated with appearance of food ($P< 0.05$), aroma of food ($P<0.05$), absence of additives in food ($P<0.05$), craving ($P< 0.05$). Also the FDG revealed that a higher proportion of women perceive family influence and affordability as a strong influence of food choice. The study showed that women without anaemia scored higher dietary diversity scores compared to those who had anaemia.

Conclusions:

Appearance of food, Aroma, absence of additives,family influence, affordability and cravings influenced the food choice of pregnant women. Also 63.1% of the women were anaemic.