Pediatric RESEARCH

ABSTRACTS COLLECTION

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1. Birth weight and asthma in young adults from a birth cohort

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Background: According to the hypothesis of the Developmental Origin of Health and Disease, scientific evidence suggest that adverse intrauterine conditions impair fetal growth and may have long-term consequences facilitating development of chronic non-communicable diseases in adulthood. These adverse conditions, such as low birth weight (LBW) have been identified as risk factors for asthma.
Objective: Evaluate the association between LBW and the development of asthma in young adult and estimate the direct and indirect effects.
Methods: Cohort study (1978/79) including 1958 young adults aged 23 to 25 years old, from a birth cohort of Ribeirão Preto in 1978/79[1]. Standardized questionnaires and methacholine bronchoprovocative test were employed. Outcome variable was asthma and exposure variable birth weight. A directed acyclic graph (DAG) was designed to map cause and effect relationships between variables analyzed; three constructs were created: asthma, birth economic status (Birth SES) and current economic status (Current SES). Asthma construct was set up for bronchial hyper-reactivity (PCO2 value ≤ 4mg/ml), wheezing in the last 12 months and medical diagnosis of asthma. Associations were obtained by Structural Equations Model (SEM).
Results: 14.1% of individuals were diagnosed with asthma. Lower birth weight (CP = −0.110; p = 0.030) had total effect on asthma and were also indirectly associated with asthma through hospitalization up 2 years and respiratory infection up to 5 years (CP = −0.220; p=0.037) and via current SES and adult smoking (CP = −0.005; p = 0.037). The exposure variable, birth SES, current SES, maternal smoking, adult smoking, respiratory infection up to 5 years and hospitalization up 2 years also had total direct and indirect effects with asthma.
Conclusion: Lower birth weight increase total risk and was indirectly associated with asthma in young adults via hospitalization up 2 years and respiratory infection up to 5 years and via current SES and adult smoking.

[1]Barbieri MA et al. Braz J Med Biol Res 2007; 40(9):1163–1164.

2. Impact of obesity on autonomic control in healthy children

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Background: In Chile overweight and obesity prevalence reach 60% in children population, which is associated with cardiovascular diseases (CVDs). The autonomic nervous system (ANS) could determine early onset and progression of CVDs.
Objective: To evaluate the effect of obesity on autonomic control in Chilean children.
Methods: Quasi-experimental study conducted in children, divided in obese and eutrophic, according to WHO criteria. Both groups were matched by age and sex. Heart rate variability (HRV) at rest, sympathetic response during the cold pressure test (CPT) and vagal response (cardiovagal index [CVI]) during the 4-s exercise test (ET-4) were measured.
Results: The study admitted 38 children between 8 and 13 years (mean age 10.5 ± 1.7 years), 19 children in each group. There was a statistically significant difference in weight and BMI between obese (55.0 kg and 24.4 kg/m^2) and eutrophic (36.2 kg and 17.7 kg/m^2) ($p < 0.0001$). There was no difference in HRV parameters or cardiovascular response during CPT. However, the CVI was significantly lower in obese group, compared to control group (1.11 vs. 1.01; p = 0.0173).
Conclusion: Obese children exhibit changes in the parasympathetic response during exercise, characterized by a decrease in CVI. These results suggest the existence of early autonomic alterations induced by childhood obesity.

3. Relationship between matrix metalloproteinase-9 level in blood with premature birth

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Background: Metalloproteinases (MMP) are placental enzymes that degrades cervical extracellular matrix and fetal membranes, which favors preterm delivery (PB).
Objective: To establish the relationship between MMP-9 blood levels at 20th and 25th gestation weeks and preterm delivery.
Methods: Case-control study, using the database from the BRISA Project of Ribeirão Preto, SP, Brazil, which included 1371 mother–child pairs in 2010. Inclusion criteria: pregnancies between 20th and 25th gestation weeks. Exclusion criteria: multiple pregnancies, fetuses with major congenital malformations or chromosomal syndromes. A blood sample was collected for MMP-9 quantification and transvaginal ultrasonography was performed to measure cervical length between 20th and 25th gestational weeks. MMP activity in plasma was determined by ELISA and a concentration >63.2 ng/ml was chosen as cut-off point by ROC analysis. Cases were deliveries before the 37th week and two controls per case were randomly selected in infants at term (>37th weeks). Statistical analysis: OR with 95% CI, using multiple logistic regression models. SAS software, v.9.4 was used.
Results: The sample included 129 cases and 258 controls. There were no differences in mother's age, parity, urinary tract infection and vaginosis, while previous PB, smoking and cervix <2.5 cm were significantly higher in PB. Plasma MMP9 had a significantly higher concentration in the presence of PB compared with controls (96.1 vs. 57.9 ng/ml, $p < 0.001$). Plasma MMP9 above the cut-off point was associated with an almost three times higher adjusted risk of PB compared to controls (aOR 2.74, 95% CI 1.53–4.89; p = 0.001). There was no association with a cervix <2.5 cm (OR 2.48; 0.89–6.92). A higher risk of PB was observed in teenage mother (p = 0.064), smoking during pregnancy (p = 0.007) and previous preterm delivery ($p < 0.001$), while multiparity had a protective effect (p = 0.039). There was no association with vaginosis (p = 0.340) or positive urine culture (p = 0.059).
Conclusion: In the presence of PB, plasma MMP9 showed a significantly higher concentration compared with term newborns. Plasma MMP9 was associated with an almost three times higher adjusted risk of PB compared to controls.

4. Placental insufficiency and neuromotor development in the second year of life: ribeirão preto cohort 2010–2011

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Background: Placental insufficiency (PI) is characterized by poor maternal vascular perfusion, placental ischemia and chronic hypoxia. Studies have shown an association between PI and neurodevelopmental changes.
Objectives: To study the association between PI and child motor development during the second year of life in Ribeirão Preto (RP) 2010–2011 cohort[1].
Methods: Convenience cohort study, inserted in the BRISA-RP birth cohort. A total of 341 mother–placenta–child triads were evaluated, whose deliveries occurred at University Hospital in 2010–2011 and the children were evaluated by the Bayley screening test during the second year of life. Placental function was assessed by three indicators of efficiency: placental weight/birth weight ratio (E1), chorionic disc diameter/birth weight ratio (E2) and placental thickness/birth weight ratio (E3). Lower placental efficiency was defined as a combination of the upper quartile of the term newborns (≥37 weeks of gestational age) indicators E1, E2, and E3 and the upper quartile of preterm infants (<37 weeks) indicators. During the second year of life, it was applied to Bayley Scales of Infant and Toddler Development Third Edition, with correction for gestational age. The fine motor and gross motor domains were evaluated, classifying the children as competent and non-competent. A theoretical model was constructed using Directed Acyclic Graph adjusted for age, maternal BMI and education, smoking, parity, and presence of diabetes, hypertension and anemia during pregnancy. Adjusted and unadjusted logistic regression analyzes were applied, with a significance level of 5%, using Stata 14.0 software.
Results: 27.8% of children were preterm and, in the second year of life, 17.9% of them were classified as having a gross motor domain non-competent and 13.5% as a fine motor domain non-competent. There was a significant association between the indicators E1 (RR 3.81, 95% CI 1.93–7.55), E2 (RR 2.67, 95% CI 1.39–5.15) and E3 (RR 2.32, 95% CI 1.21–4.44) and non-competent gross motor development; as well as a significant association of the indicators E1 (RR 2.31, 95%

CI 1.11–4.83), E2 (RR 2.54, CI95% 1.25–5.16) and E3 (RR 2.60, 95% CI 1.29–5.26) with non-competent fine motor development.

Conclusion: In this study, PI indicators were significantly associated with probable delay in fine and gross neuromotor development at 2 years.

[1]Barbieri MA et al. Braz J Med Biol Res 2007; 40(9):1163–1164.

5. Nutritional status and traditional risk factors for atherosclerosis in patients with Childhood-onset systemic lupus erythematosus

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Background: Systemic lupus erythematosus (SLE) is a systemic autoimmune disease considered an independent risk factor for cardiovascular events. Monitoring the nutritional status of individuals with SLE assists in detecting factors that potentiate cardiovascular risk, such as obesity, dyslipidemia, insulin resistance, and inadequate food intake.

Objective: To describe the nutritional status and evaluate traditional risk factors for developing atherosclerosis in patients with childhood-onset systemic lupus erythematosus (cSLE) younger than 21 years, followed up at a tertiary pediatric rheumatology service.

Methods: This was a cross-sectional study. Nutritional status was determined by anthropometric, biochemical and food intake assessment. Body mass index (BMI), waist circumference, body fat percentage, glycemic levels, lipid profile, folate, vitamin B12 serum levels, and Healthy Eating Index (HEI) were evaluated. Categorical variables were expressed as absolute frequency and numerical variables as mean and standard deviation.

Results: 38 patients aged 13.9 ± 3 years, were enrolled in the study. 21.4% were male. Anthropometric evaluation according to BMI identified 10.7% of thinness and 32.1% of overweight. Waist circumference was above the 90th percentile in 64.3% of cases. Bioimpedance analysis identified excess body fat in 61.9% of individuals. Altered glycemic levels were observed in only 3.5% of participants, however, 89.3% had dyslipidemia. Dietary intake showed poor diet quality (below 65 points) in 78.6% of the individuals, due to the high consumption of simple carbohydrates and saturated fat, and low in fiber, vitamins and minerals. Nevertheless, only 3.5% had low serum levels of vitamin B12 and folate.

Conclusion: The assessment of nutritional status of individuals with cSLE showed a high prevalence of overweight and body fat, high rates of dyslipidemia and poor diet quality, all factors associated with the risk of atherosclerosis. The study suggests the need for modification of eating habits in the investigated population in order to minimize the risk of adverse cardiovascular events.

6. Association between the fat mass index and sleep time in adolescents: 1997/1998 birth cohort in são luís (Brazil)

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Background: Epidemiological studies have shown that reduced sleep time in modern society is associated with significant changes in body composition. This is linked to the emergence of non-communicable diseases.

Objective: To analyze the association between fat mass index (FMI) and sleep time in adolescents, stratified by sex.

Methods: This was a cross-sectional study with follow-up data (2016) from the São Luís 1997/98 Birth Cohort[1]. The baseline sample was systematically stratified according to the number of births of the 10 maternity hospitals in the city. In the third phase of the birth cohort, 654 individuals were located. Due to the number of losses, adolescents who had not been drawn to the baseline were invited to participate. A total of 1861 new adolescents were included and the third phase sample totaled 2515 participants in the third phase of the research. The outcome was the Fat Mass Index (FMI) which is the ratio of fat mass (kg) to height (m^2). Fat mass was measured by the Bod Pod® (COSMED USA Inc, CA USA). Sleep time in hours was registered by the accelerometer (Actigraph wGT3X-BT). The adjustment variables were age, education, economic class and skin color.

Results: Data from 1281 adolescents were analyzed (50.7% female). Among the male participants, 89.4% were 18 years old, had high school (73.3%), were brown (66.6%), and belonged to economic class C (51.7%). Among females, most were 18 years old (84.9%), had high school (69.1%), were brown (66.4%), and belonged to economic class C (49.7%). For males, in the crude analysis, there was an association between longer sleep time and FMI (β: −1.60; 95%CI: −2.03; −0.79) and this remained in the adjusted analysis (β: −1.59; 95%CI: −3.16; −0.35). No association was detected in female adolescents.

Conclusion: Longer sleep time is associated with decreased FMI values in male adolescents. Thus, adequate sleep time could lead to the reduction of health-related risks, such as obesity and the onset of chronic non-communicable disease in adulthood.

[1]Barbieri MA et al. Braz J Med Biol Res 2007; 40(9):1163–1164.

7. Clinimetric properties of the epinfant scale during exercise in children: validity considering vo2 as the reference standard

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Background: The EPInfant scale[1] has been validated in Chilean children for the measurement of perceived effort (PE) and perceptual self-regulation of the exercise. Studies have considered only heart rate (HR) as the reference standard.

Objective: To verify the validity of the EPInfant scale in healthy children, considering VO2 as the reference standard.

Methods: Quasi-experimental study conducted in 20 healthy and eutrophic males, aged 9.8 ± 1.5 years. Each performed a cardiopulmonary exercise test (CPET). HR, PE and VO2 were measured every 2 min. The peak values of VO2, FC and PE were recorded at the end of the CPET. After 7 days, individuals performed a perceptual reproduction test (PRP), considering the highest PE achieved during CPET. Pearson's r coefficient between PE and VO2 was calculated during CPET and the intra-class correlation coefficient (ICC) between VO2 peak and VO2 reproduced in PRP. A $p < 0.05$ was considered statistically significant.

Results: The correlation between PE and VO2 during CPET was 0.60 (0.48–0.69). There was no difference between VO2 peak and VO2 produced perceptually during PRP (1.46 ml/kg/min vs. 1.52 ml/kg/min; $p = 0.3665$). For its part, the ICC was 0.88 (0.70–0.96).

Conclusion: These data confirm the validity of the EPInfant scale to estimate PE and reproduce the intensity of the exercise, considering VO2 as the reference standard.

[1]Rodríguez I et al. Arch Argent Pediatr. 2015;113(6):550–557.

8. Child with congenital cardiopathy at home: guidelines to caregiver

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Background: The home care of children with congenital heart disease after surgery requires special attention. Providing information can contribute to accurate attention to this child's needs.

Objectives: To validate a booklet approaching the returning to home after child cardiac surgery with caregivers of children with congenital heart disease.

Methods: This is a methodological research, type validation, developed in a hospital in São Paulo state, with caregivers of children with heart diseases, after their first surgery. An interview was carried out, with pre-test application (related to the childcare) and delivery and reading of the booklet. We applied the post-test and validated the booklet, 15 days after hospital discharge (outpatient return). Descriptive statistics and calculation of the answers for data analysis were used, with correct answers in the post-test compared to pre-test in order to identify an increase in caregiver knowledge about childcare at home. The Research Ethics Committee approved this research.

Results: Between May 2018 and May 2019, 20 caregivers were approached, 19 were included (one father, one maternal grandmother and 17 mothers). Aged between 17 and 60 years old; 52.6% had more than 10 years of schooling; 84.2% of them are married or have a stable union; 63.1% live in their own homes; 84.2% have access to basic sanitation; average of 4.1 people and 1.7 children at home. Only one mother could not indicate the name of the disease; 94.7% reported knowing the child's disease, but only 57.3% reported the correct name; and only 15.7% indicated the type of surgery the child underwent. By analyzing pre- and post-tests, all caregivers increased the number of correct items after reading the booklet. Of the 35 items in each test, there was an average of correct answers of 29 (pretest) and 33.6 (posttest); with an increase over 10 percentage points for 73.6% of caregivers. Most errors were related to medication management in situations such as child vomiting, forgetfulness of time or dose. There was a 100% positive evaluation of the booklet for Organization, Appearance, Style, Content and Motivation for learning. Only the font size (Layout and presentation) was negative for 63% of the interviewees, indicating the need to increase the letter used in the booklet.

Conclusion: The booklet assists caregivers of children with heart disease with practical issues of daily care at home. Giving information, through the diffusion of knowledge, allows the empowerment of caregivers in order to minimizing occurrences after hospital discharge that requires re-hospitalizations or which may result in child´s death.

9. Influence of pacifier use and co-sleeping practice in breastfeeding's duration

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Background: Pacifier use and co-sleeping practice, factors directly associated with breastfeeding's duration are still controversial.

Objective: To analyze pacifier's influence and co-sleeping practice in breastfeeding's duration, in children attended at Felix Bulnes Hospital's (Santiago, Chile) emergency service.

Methods: A case control study including a randomized sample of infants aged between 4–12 months attended for minor illness was conducted from October 2018 to January 2019. Preterm newborns or patients with chronic illnesses were excluded. Total breastfeeding duration, pacifier use frequency and co-sleeping were registered. To calculate the sample-size we considered frequency of pacifier use and co-sleeping practice (alpha 0.05 and beta 80%). In the analysis T test, X2 and logistic regression were used. The study was approved by the Ethics committee and the parents signed an informed consent.

Results: 300 infants were entered (8.5 ± 2.6 months old), 53% female, with a newborn's weight of 3.4 ± 0.4 kg, 80% practiced co-sleeping, 23% used pacifier. 72% of the mothers had more than 12 years of education. Newborns who used pacifiers had 2.9 times more risk of breastfeeding abandonment before 4 months of age (IC 95% 1.7–5.1) and 3.2 times more before 6 months of age (IC 95% 1.9–5.6). Infants who practiced co-sleeping were more likely to continue breastfeeding at 4 and 6 months of age (OR 0.5 IC 95% 0.3–0.8).

Conclusion: We observed that in the analyzed sample pacifier use and lack of co-sleeping were significantly associated with breastfeeding abandonment.

10. Affective dynamics of children with bruxism – an interface between dentistry and psychology

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Background: Bruxism is defined as an activity of chewing muscles characterized by clenching and/or grinding teeth. It can occur while awake (waking bruxism/BV) or sleeping (sleep bruxism/BS), the latter being more common in children, with prevalence values of up to 40%. There are multiple factors associated with bruxism and emotional issues have been reported.

Objective: To investigate the affective dynamics of children with bruxism.

Method: The diagnosis of bruxism was based on a questionnaire and clinical examination. It was performed a comparative analysis of two groups of 15 children matched by sex, age and education, aged between 6 and 12 years old, attended at a Specialized Child Bruxism Service at a public university. Study groups: Children with BV and/or BS and G.C: No bruxism. A semi-structured interview with the parents/guardians and an individual application of the Children's

Apperception Test (CAT-A) were conducted. The analysis was performed with a psychoanalytical perspective.

Results: Children with bruxism, compared to the control group, showed behaviors marked by avoidance to problems, submissive tendency to deal with conflicts, low indicators of creativity and immaturity. The Hero, Set, and Subcategory Stories categories showed a low functioning of creativity, with descriptive, stereotyped, and restricted stories in the presentation of social relationships beyond family members. The categories: Problematic, Needs, Set and Defense Mechanisms showed immaturity indexes corroborated by various aspects of the interview with the guardians (current fears of the child, place of sleep, description of sleep, oral habits). Creativity in these children may be restricted by emotional issues, the main form of adaptive conduct is submissive behavior coupled with emotional immaturity.

Conclusion: The affective dynamics of children with bruxism presents unique characteristics when compared to children without bruxism. The influence of psychological factors on childhood bruxism is evident, which makes an integrated look and joint work of dentistry and psychology indispensable, offering creative spaces that allow children to feel safe and autonomous.

11. The influence of environmental and genetic factors on maternal mental health

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Background: Maternal mental health problems are a major cause of concern worldwide, as they directly or indirectly increase maternal morbidity and mortality and represent a high emotional and economic cost for women and their families. Many risk factors contribute to the increase of problems related to maternal mental health, including genetic factors and environmental/social factors, and should therefore be investigated.

Objective: To verify the possible association between environmental/social and genetic risk factors and maternal mental health in a convenience cohort conducted in two Brazilian municipalities (Ribeirão Preto-SP and São Luís-MA).

Methods: 2170 pregnant participants of the BRISA Project—Brazilian Birth Cohort of Ribeirão Preto and São Luís (started in 2010) were evaluated through standardized questionnaires and scales, as well as the collection of maternal blood for DNA extraction and genotyping (oxytocin receptor gene—OXTR rs53576). Participants were evaluated at two points times: during pregnancy (depression and stress) and at the second year of babies' life, between 13–30 months (mother–infant relationship and again depression). For analyzes linear regression models (95% CI) were used and all required ethical aspects were contemplated.

Results: The genetic factor (OXTR rs53576) was associated with depression in pregnancy (ß = −0.985, CI −1.91; −0.06, p = 0.037) and follow up (ß = −0.479, IC −0.96; −0.001, p = 0.049), but was not associated with variations in stress or mother–baby relationship. The environmental/social variables significantly associated with increased stress in pregnancy were younger mothers, more depressed and anxious mothers, single mothers, non-white mothers and those of unfavorable socioeconomic status, with less social support and lower education. The risk factors most associated mother–infant relationship problems were the presence of psychiatric symptoms and stress. Conclusion: It is concluded that environmental/social variables should play a fundamental role in the elaboration of detection and management programs for maternal mental health. Thus, it is considered essential to improve knowledge about the mental health of individuals, including promotion of psychological well-being and prevention and early detection of both maternal and infant mental disorders.

12. Association of independent body mass and height gains with bone mass in adolescents: são luis birth cohort

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Background: The evaluation of bone mass is important because its accumulation occurs during the growth phase. Although birth weight and length are associated with bone mass, the association of linear growth and body mass gain has been less studied.

Objective: To evaluate the association between body mass index (BMI) and length at birth and changes in BMI and height in the first two decades of life with bone mass in adolescents.

Methods: This is a longitudinal study using data from São Luís—MA from the RPS Cohort Consortium[1]. The cohort started in 1997/98 was followed at birth, school age and adolescence. Theoretical model was constructed using directed acyclic graphs (GAD) with adjustment for maternal education, gestational smoking, gestational age, gender and family income. Exposures were measures of length and BMI at birth and conditional measures in a sample of 317 adolescents. Conditional measurements were calculated as residuals of linear regressions of BMI and height at a given age and their previous measurements. Positive residue indicates higher than expected gain. Outcomes, lumbar spine bone mass, and total body were obtained in adolescence from the z-score provided by dual-energy X-ray absorptiometry (DXA). Unadjusted and adjusted Linear Regression models were constructed. Interaction between sexes was tested. STATA 14.0 software was used for analyzes. The project was approved by the Research Ethics Committee of the University Hospital—UFMA.

Results: Anthropometric measurements at birth were not associated with bone mass in the unadjusted and adjusted models. In the adjusted model, the above-expected body mass gain in childhood (Coef = 0.149; CI = 0.02–0.28), adolescence (Coef = 0.315; CI = 0.21–0.42) and linear gain in childhood (Coef = 0.221; CI = 0.10–0.34) were associated with lumbar spine bone mass. Regarding body bone mass, body mass gain in childhood (Coef = 0.408; CI = 0.28–0.54) and adolescence (Coef = 0.444, CI = 0.33–0.56), and linear gain in childhood (Coef = 0.252; CI = 0.12–0.38) and adolescence (Coef = 0.210; CI = 0.09–0.33) were associated.

Conclusion: The findings suggest that gains in BMI and height are important factors in bone mass gain in adolescents, as well as identifying critical growth periods in which interventions would be more efficient for long-term bone mass acquisition.

[1]Barbieri MA et al. Braz J Med Biol Res 2007; 40(9):1163–1164.

13. Association between metabolic syndrome during pregnancy and neonatal growth phenotypes in two birth cohorts in ribeirão preto and são luís cities of Brazil (2010)

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Background: Metabolic syndrome (MS) is a common metabolic alteration that occurs in the pre-gestational period and is a determining complicating factor in pregnancy, postpartum and throughout the life cycle, contributing to adverse perinatal outcomes. There are few studies on the association between maternal MS in early pregnancy with birth outcomes.

Objective: To identify the MS that happen during pregnancy and its relationship with the frequency of neonatal growth phenotypes in two birth cohorts in the cities of Ribeirão Preto (RP) and São Luís (SL), Brazil, in 2010.

Methods: Retrospective cohort study of 1370 mother–newborn couples in RP and 1382 in SL. The information was obtained through questionnaires in addition to anthropometric, blood pressure measurement and biochemical evaluation. MS was defined by an adaptation of the NCEP-ATP III criteria.

Results: Compared with SL, RP showed higher rates of pre-gestational overweight and obesity (40.1% vs. 25.8%, p < 0,001), gestational diabetes (5.3% vs. 2.7%, p < 0,001) and preterm birth (9.7% vs. 7.4%, p = 0.029) but lower rate of gestational hypertension (14.0 vs. 16.9, p < 0.001). The frequency of MS was almost twice as high in RP (5.7% vs. 3.3%, p = 0.002), but marginally associated with preterm risk (OR 1.03, 95%CI 0.94–1.13). Compared with SL, RP showed higher rates of low-birth-weight (<2500 g, 7.6% vs. 6.7%), and large-for-gestational-age over the 90th (14.2% vs. 14.1%) and 97th (6.4% vs. 5.2%) birth-weight percentiles, but lower rate of small-for-gestational age (SGA) below the 3rd (2.2% vs. 3.0%) and 10th birth-weight percentiles (7.2% vs. 8.4%), and similar Ponderal Index (2.76 vs. 2.74, p = 0.06), all statistically non-significant. In multiple logistic regression models, only MS was marginally associated with SGA <10th percentile (OR 1.10, 95% CI 1.03–1.20, p < 0.04), whereas mother's age, smoking, pre-gestational BMI, gestational hypertension and gestational diabetes were significantly associated with the other phenotypes.

Conclusion: MS was almost twice as high in RP as SL and was marginally associated with preterm and SGA <10th percentile risks.

14. Association between perceived stress during pregnancy and phenotypes at birth: a study of two brazilian cohorts—brisa

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Background: Gestational stress seems to be associated with adverse perinatal outcomes such as low birth weight and prematurity (PT).

Objective: To analyze the association of stress during pregnancy with phenotypes at birth in two prenatal cohorts initiated in São Luís (SL)/MA and Ribeirão Preto (RP)/SP.

Methods: This is a longitudinal study using data from mother/newborn dyads (NB) from two convenience cohorts in 2010–2011 (1368 pairs in RP and 1334 in SL). Stress was measured at 22–25 weeks of gestation by the Perceived Stress Scale (PSS14) and analyzed as a binary variable; more exposed women categorized as those above the 75th percentile. NB information was obtained after childbirth through medical records. The studied phenotypes were PT birth (gestational age <37 weeks); small for gestational age (SGA, below the 3rd percentile), large for gestational age (LGA, above the 97th percentile) and low length for age (stunting, below the 3rd percentile), from the INTERGROWTH-21st standard. A theoretical model was constructed through Targeted Acyclic Charts with adjustment for maternal education, age and occupation, socioeconomic status and pregnancy planning. Logistic regression analyzes were applied when outcome measure was dichotomous and multinomial when polytomous, unadjusted and adjusted with a significance level of 5%, using Stata 14.0 software (StatCorp LLC, TX, USA).

Results: RP reached total score of 56 in PSS14 while SL 51/56. PT rates were 9.6% and 7.5%, SGA 2.4% and 3.5%, LGA 4.3% and 6.3% and stunting 6% and 5.7%, in RP and SL, respectively. There were no association between the highest level of perceived stress during pregnancy with SGA (RR 1.03; 95% CI 0.45–2.36 in RP and RR 0.69; 95% CI 0.30–1.59 in SL), LGA (RR 1.65; 95% CI 0.90–3.01 in RP and RR 1.26; 95% CI 0.74–2.12 in SL) and stunting (RR 0.80; 95% CI 0.44–1.43 in RP and RR 1.33; 95% CI 0.76–2.34 in SL). Only stress showed a small and significantly increased risk of PT in RP (1.57; 95% CI 1.04–2.36 in RP and 1.10; 95% CI 0.67–1.82 in SL).

Conclusion: The highest level of perceived stress during pregnancy was associated with increased risk of preterm birth only in Ribeirão Preto. There was no association with the other phenotypes studied. Further studies are needed to analyze the association between stress and adverse perinatal outcomes.

15. Non-nutritive sucking and diarrhea in children of a birth cohort

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Background: Diarrhea is one of the main diseases affecting children under five years of age. Non-nutritive sucking (NNS) may be associated with diarrhea.

Objective: To verify the frequency of NNS in children from a birth cohort and its association with diarrhea.

Methods: Descriptive, cross-sectional, observational and analytical study, inserted in a birth cohort of 2010. Mothers of children belonging to a birth cohort were interviewed using a structured questionnaire during the second and third years of their children's lives. Information on the occurrence of NNS—pacifier use and/or finger sucking—and diarrhea within 15 days prior to the interview were obtained. Duration of breastfeeding, use of infant formula and/or cow's milk, parity, family income and day care attendance, in addition to education, age, work and skin color of the mother, were registered in each case.

Results: 1069 mothers were interviewed. The average age of the children was 22.6 months (SD: 3.4) and 50.6% (541/1069) were female. At the time of the interview, 45.4% (485/1069) of the children presented NNS [41.2% (440/1069) were using pacifier and 4.9% (52/1069) presented finger sucking; 0.7% (7/1069) presented both habits]. 17.9% (191/1069) of the children had presented diarrhea. No association was observed between the occurrence of NNS and diarrhea [Relative Risk (RR): 1.07; Confidence Interval 95% (95% CI): 0.83–1.39; p = 0.31]. After adjusting the variables, it was observed that children who did not attend daycare centers had a lower proportion of diarrhea (RR: 0.68; 95% CI: 0.52–0.92; p = 0.012).

Conclusion: Despite the high prevalence of diarrhea observed among the children studied, there was no association between these episodes and NNS. Children who did not attend day care centers had a lower proportion of diarrhea.