

CO1: ASSOCIAÇÃO DE PADRÕES ALIMENTARES IDENTIFICADOS AOS 7 ANOS COM A SAÚDE CARDIOMETABÓLICA DE CRIANÇAS DA COORTE GERAÇÃO XXI AOS 10 ANOS DE IDADE

Andreia Pinto^{1,2}; Ana Cristina Santos^{1,2}; Carla Lopes^{1,2}; Andreia Oliveira^{1,2}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Saúde Pública e Ciências Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUÇÃO: A abordagem usual de relacionar exposições alimentares com a saúde (através de alimentos/nutrientes isolados ou padrões alimentares que não explicam um resultado específico) pode explicar a ausência de associações consistentes, particularmente em idades precoces.

OBJETIVOS: Avaliar a associação de diferentes padrões alimentares definidos aos 7 anos com parâmetros cardiometabólicos aos 10 anos.

METODOLOGIA: Crianças da coorte Geração XXI aos 7 e 10 anos de idade foram incluídas (n=3350). O consumo alimentar foi avaliado através de um QFA aos 7 anos e foram estudados padrões alimentares previamente definidos através dos métodos: *partial least squares* (PLS) (explica a variância das escolhas alimentares e do z-score IMC aos 10 anos), análise de componentes principais e análise de classes latentes (ambos explicativos da variância das escolhas alimentares apenas). Aos 10 anos, mediu-se pressão arterial sistólica (PAS), diastólica (PAD), glicose, triglicéridos (TG), colesterol-HDL (c-HDL), colesterol-LDL (c-LDL) e calculou-se a resistência à insulina (HOMA-IR), padronizados para idade e sexo. Calcularam-se coeficientes de regressão linear e intervalos de confiança a 99% (co-variáveis: peso, idade gestacional, atividade física, idade e escolaridade maternas).

RESULTADOS: Um padrão alimentar explicativo do z-score IMC aos 10 anos (PLS-1, caracterizado pelo consumo de carne processada, alimentos de elevada densidade energética e baixo consumo de sopa) associou-se significativamente com PAS ($\beta = 0,052$, IC99%:0,022;0,082), PAD ($\beta = 0,043$, IC99%:0,022;0,065), TG ($\beta = 0,065$, IC99%:0,026;0,104), c-HDL ($\beta = -0,059$, IC99%:-0,099;-0,019), c-LDL ($\beta = 0,040$, IC99%:0,001;0,080) e HOMA-IR ($\beta = 0,09$, IC99%:0,071;0,149). Após ajuste para o IMC aos 10 anos, a magnitude das associações diminuiu. Os outros padrões alimentares não mostraram uma associação significativa com a saúde cardiometabólica.

CONCLUSÕES: A adesão aos 7 anos de idade a um padrão alimentar relacionado com obesidade (cuja definição já explica a variação de IMC) influencia um perfil cardiometabólico menos favorável aos 10 anos.

FINANCIAMENTO: FEDER através de COMPETE; EPIUnit-ISPUP e FCT (IF/01350/2015; POCI-01-0145-FEDER-030334).

CO2: INFLUÊNCIA DOS SOCIAL MEDIA NO COMPORTAMENTO ALIMENTAR, ATIVIDADE FÍSICA E SATISFAÇÃO CORPORAL EM JOVENS ADULTOS

Diana Oliveira¹; Sandra Abreu¹

¹Faculdade de Desporto da Universidade do Porto

INTRODUÇÃO: A sociedade ocidental é influenciada pelos *Social Media*, sendo adolescentes e jovens adultos as populações com maior probabilidade de desenvolverem comportamentos de risco, relativamente à alimentação e exercício físico.

OBJETIVOS: Avaliar a influência dos *Social Media* no comportamento alimentar, atividade física e satisfação corporal em jovens adultos.

METODOLOGIA: Recolheram-se dados de 100 indivíduos, sócios de três ginásios do distrito de Aveiro, com idades entre 18-30 anos. Para avaliar comportamentos alimentares, atividade física, imagem corporal e influência dos *Social Media*, aplicaram-se o *Eating Attitudes Test-26*; o *International Physical Activity Questionnaire*, o *Behavioural Regulation in Exercise Questionnaire-3*, *Countour Drawing Rating Scale*, Autoestima de Estado de Heatherton e Polivy; *Sociocultural Attitudes Questionnaire in Relation to Appearance-3*, respetivamente. Mediram-se dados antropométricos e calculou-se o Índice de Massa Corporal. A associação entre *Social Media* e comportamento alimentar, atividade física e satisfação corporal foi verificada através de modelos de regressão linear ajustado para sexo e IMC.

RESULTADOS: O IMC médio da amostra é normoponderal, contudo a maioria encontra-se insatisfeito com a sua imagem corporal (80%) e tem comportamentos alimentares de risco. As mulheres praticam mais atividade física, contudo obtiveram pontuações mais elevadas nas escalas de Motivação Controlada e Amotivação, havendo diferenças significativas entre sexos na Amotivação ($p=0,01$). Verificou-se associação positiva entre a motivação para a prática de atividade física e a subescala ideal de corpo ($B=1,01$; IC95%:(0,32;1,71); $p=0,01$). Ajustando para o sexo e IMC, registou-se associação negativa entre a motivação para a prática de atividade física e a subescala *Social Media* como fonte de informação sobre a aparência ($B=-0,76$; IC95%:(-1,38;-0,15); $p=0,02$). Não se verificaram associações significativas entre Atitudes Socioculturais em Relação à Aparência e a atividade física e autoestima.

CONCLUSÕES: Os *Social Media* têm influência no comportamento alimentar e na atividade física da amostra, existindo uma relação inversa entre os *Media* e a satisfação corporal.

CO3: AVALIAÇÃO DA MASSA GORDA CORPORAL POR BIOIMPEDÂNCIA: ERROS E NÃO CONFORMIDADE COM AS RECOMENDAÇÕES

Paula Santos¹; Rita S Guerra^{1,2}

¹Faculdade de Ciências da Saúde (Ciências da Nutrição) da Universidade Fernando Pessoa

²Unidade de Integração de Sistemas e Processos Automatizados do Instituto de Ciência e Inovação em Engenharia Mecânica e Industrial

INTRODUÇÃO: A bioimpedância (BIA) permite estimar a percentagem da massa gorda (%MG) corporal. O exame deve ser realizado cumprindo pré-requisitos, nomeadamente jejum de alimentos e líquidos. O não cumprimento poderá traduzir-se em erros nas estimativas.

OBJETIVOS: Com este estudo pretendeu-se obter estimativas da %MG por BIA em jejum e após uma refeição, quantificar o erro das estimativas nas duas condições analisadas e comparar com o método das pregas cutâneas.

METODOLOGIA: Incluíram-se 55 participantes (44 mulheres e 11 homens; idade: 20-75 anos). Avaliou-se a %MG por BIA em jejum e após ingestão e pelo método das pregas cutâneas recorrendo às equações de Durnin & Womersley, de Siri e de Brozek. Quantificou-se o valor energético total ingerido (VET), o volume de líquidos ingeridos (VoLL) e o tempo decorrido entre a ingestão e a realização do segundo exame de BIA (Tempo).

RESULTADOS: A diferença média entre a de %MG BIA em jejum e %MG BIA após ingestão foi 0,15% (DP=1,06%), $p=0,289$. Observaram-se diferenças entre as

estimativas obtidas por BIA, nas duas condições testadas (jejum e após ingestão) e as estimativas obtidas pela equação de Siri: $\leq -1,22\%$ (DP: 3,13%), $p \leq 0,024$. Quando se recorreu à equação de Brozek as diferenças foram: $\leq -0,51\%$ (DP: 3,17%), $p \geq 0,281$. O VET foi ≤ 1000 kcal, o Vol $\leq 0,540$ ml e o Tempo ≤ 270 minutos. A diferença na %MG obtida por BIA em jejum e após ingestão não se correlacionou com nenhum destes fatores: $r \leq 0,217$, $p \geq 0,112$.

CONCLUSÕES: A diferença nas estimativas de % MG obtidas em jejum e após ingestão foi pequena ($-0,15\%$, DP=1.06%), $p=0,289$, para as condições: VET ≤ 1000 kcal; Vol $\leq 0,540$ ml; Tempo ≤ 270 minutos. A ingestão hídrica e de alimentos parece ter pouco efeito no erro das estimativas de MG obtidas pela BIA comparativamente com o método das pregas cutâneas, apresentando resultados mais próximos recorrendo à equação de Brozek.

CO4: MAY PARENTAL CHILD-FEEDING PRACTICES AT 4 YEARS-OLD PROSPECTIVELY INFLUENCE DIETARY PATTERNS OF 7 YEARS-OLD CHILDREN THAT EXPLAIN BODY MASS INDEX LATER IN LIFE?

Catarina Barbosa¹; Alexandra Costa¹; Carla Lopes^{1,2}; Andreia Oliveira^{1,2}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUCTION: Parental child-feeding practices can influence the establishment of children's dietary patterns, and therefore their weight. To our knowledge, the effect of these parental practices in dietary patterns with explanatory ability of body mass index was not previously studied.

OBJECTIVES: To study the effect of parental child-feeding practices at 4 years-old, in dietary patterns identified at 7 years-old, that explain BMI z-scores at age 10.

METHODOLOGY: Singleton participants from the Generation XXI birth cohort with data at 4, 7 and 10 years-old were included ($n=3281$). Parental child-feeding practices were evaluated at 4 years-old using a validated and adapted Portuguese version of the Child Feeding Questionnaire and the overt/covert control scales. Three child-feeding patterns were previously identified by principal component analysis: Perceived Monitoring (including monitoring, perceived responsibility and overt control); Restriction (including covert control, restriction and concerns about child's weight) and Pressure-to-Eat (including pressure-to-eat and overt control). At 7 years-old, diet was assessed by a validated food-frequency questionnaire (38 items/food groups), and a dietary pattern (PLS-1: high consumption of energy-dense foods, processed meats and low in vegetable soup) explaining 5% of WHO BMI z-score variation at age 10 was previously derived by Partial Least Squares. Associations were evaluated by generalized linear regression models, after adjustment for maternal age, education and maternal BMI.

RESULTS: In crude analysis, Perceived Monitoring and Pressure-to-Eat were inversely associated with the obesity-related dietary pattern in girls ($\beta = -0.089$; 95%CI: -0.145 ; -0.034 ; $\beta = -0.066$; 95%CI: -0.091 ; -0.012 , respectively). After adjustment for potential confounders, the previous associations remained significant ($\beta = -0.102$; 95%CI: 0.156 ; -0.048 ; $\beta = -0.106$; 95%CI: -0.158 ; -0.053 , respectively). In addition, boys whose parents use more Pressure-to-eat practices had lower probability of following the PLS-1 dietary pattern ($\beta = -0,062$; 95%CI: $-0,118$; $-0,006$).

CONCLUSIONS: Girls whose parents use monitoring strategies to control their feeding have lower probability of having an obesity-related dietary pattern at 7 years-old. The same association was observed for Pressure-to-Eat, but the effect was similar in both sexes.

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CO5: EVALUATION OF THE NUTRITIONAL INTAKE, BODY COMPOSITION AND REDOX STATUS IN ENDURANCE ATHLETES

Rui Amaro¹; Roberto Mendonça¹; Lara Costa e Silva²; Andreia Matos^{3,5}; Olga Valentim²; Carlos Cardoso⁶; João Paulo Moita²; Isanete Alonso^{1,3,7}

¹Atlântica Escola Universitária de Ciências Empresariais, Saúde, Tecnologias e Engenharia

²Escola Superior de Saúde da Atlântica

³Instituto de Saúde Ambiental da Faculdade de Medicina da Universidade de Lisboa

⁴Instituto de Investigação e Inovação em Saúde da Universidade do Porto

⁵Instituto de Investigação Científica de Bento da Rocha Cabral

⁶Laboratório de Análises Clínicas, Grupo Dr. Joaquim Chaves

⁷Laboratório de Genética da Faculdade de Medicina da Universidade de Lisboa

INTRODUCTION: In endurance sports, the athlete's performance is influenced by the interaction of multiple factors, such as diet, body composition and training. The evaluation of athletes in the beginning of the season is necessary to acknowledge the best strategy to optimize the performance throughout the season.

OBJECTIVES: The aim of this study was to assess the nutritional intake, body composition, and redox status among endurance athletes in the beginning of a competitive season.

METHODOLOGY: In this cross-sectional study, 47 athletes of cycling, triathlon and mountain bike were recruited and split in four groups: boys ($n=14$), girls ($n=6$), amateur adults ($n=17$) and professional adults ($n=10$). Nutritional intake was evaluated by a Food Frequency Questionnaire, and body composition was assessed by tetrapolar bioelectrical impedance. Blood samples were collected, plasma was used for 8-Oxo-2'-deoxyguanosine, lipid peroxidation and nitrite plus nitrate determinations; glutathione, glutathione disulphide levels, and superoxide dismutase, glutathione peroxidase and reductase activities, were measured in erythrocytes.

RESULTS: The nutritional intake has shown a carbohydrate consumption (5 ± 0.5 g/kg body weight) below current recommendations ($7-10$ g/kg body weight) in both adult groups, while fat consumption was above 35% of the total energy intake. All groups report protein intake above 2 g/kg of body weight, while the intake of several micronutrients remained below the recommended values for endurance athletes. Professional adults exhibit significantly lower body fat mass when compared to amateurs, as well as boys when compared with girls. Differences in the redox status have been found between groups, e.g., professional adults showed significantly higher levels of 8-Oxo-2'-deoxyguanosine, a product of DNA damage.

CONCLUSIONS: Overall, the data suggests that endurance athletes may have an unbalanced diet and a non-optimal body composition that could affect their ability to protect themselves against exercise-induced oxidative stress, compromising their physical performance and health.

CO6: MATERIAIS DE EMBALAGEM ALIMENTAR NA POPULAÇÃO PORTUGUESA: UTILIZAÇÃO E FATORES ASSOCIADOS

Sofia Almeida Costa¹; Sofia Vilela¹; Daniela Correia¹; Milton Severo^{1,2}; Carla Lopes^{1,2}; Duarte Torres^{1,3}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

³Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

INTRODUÇÃO: Nas últimas décadas tem-se verificado um crescente aumento da exposição da população a xenobióticos alimentares com um impacto negativo na saúde.

OBJETIVOS: Analisar os fatores associados à utilização do material de embalagem alimentar pela população portuguesa.

METODOLOGIA: Utilizou-se uma amostra representativa da população portuguesa dos 3 meses aos 84 anos (n=5811) do Inquérito Alimentar Nacional e de Atividade Física 2015-2016. A informação foi recolhida em duas entrevistas presenciais, realizadas por entrevistadores treinados. O material de embalagem foi reportado através de dois diários alimentares/questionários às 24h anteriores. O Índice de Massa Corporal foi classificado de acordo com critérios da Organização Mundial da Saúde, usando medições antropométricas. Utilizou-se uma árvore de classificação para definir um modelo de imputação simples para a informação do tipo de embalagem em falta. A utilização de embalagens, ponderada para a população, foi analisada por regressão de Poisson com função ligação logarítmica e offset para logaritmo do número de itens reportados.

RESULTADOS: Dos alimentos reportados 67% eram embalados, sendo o material mais frequente o plástico, seguido de vidro, papel e TetraPak. O risco de utilização de plástico é inferior nos homens (RR=0,97;IC95%:0,96-0,99), adultos (RR=0,94;IC95%:0,92-0,95), nas pessoas com excesso de peso (RR=0,97;IC95%:0,95-0,99). Também os homens e os adultos são os grupos que apresentam maior risco de utilizarem vidro. Os mais escolarizados mostraram um menor risco de utilização de papel (RR=0,80;IC95%:0,68-0,94) e TetraPak (RR=0,89;IC95%:0,79-0,99). Os grupos alimentares que mais contribuíram para a utilização de plástico foram “sal de adição” e “gorduras e óleos”, para a utilização de TetraPak o “leite” e o “vinho” para vidro. Os “hortícolas” e “fruta fresca” são os mais reportados sem embalagem.

CONCLUSÕES: A população Portuguesa apresenta uma grande utilização de alimentos embalados. A população feminina e as crianças/adolescentes foram identificadas como grupos de risco para a exposição a xenobióticos derivados dos materiais de embalagens.

FINANCIAMENTO: Programa EEA Grants-Iniciativas de Saúde Pública, FEDER (POCI-01-0145-FEDER-031949)

C07: CONTRIBUTION TO THE STUDY OF FOOD INSECURITY AMONG STUDENTS OF HIGHER EDUCATION

Ana Lírio¹; João PM Lima^{1,3}

¹ Escola Superior de Tecnologia da Saúde de Coimbra do Instituto Politécnico de Coimbra

² GreenUPORTO

³ LAQV – Requimte

INTRODUCTION: Healthy and balanced nutrition for each age group provides not only better health but also better quality of life. Food insecurity occurs when the right to adequate quality and quantity on a regular basis is disrespected. The transition from secondary education to university education leads to many changes in the lives of the young and those around them, where food can undergo various changes for a number of factors.

OBJECTIVES: The project aims to assess food insecurity among students housed in university residences of higher education institution in Portugal.

METHODOLOGY: A self-administrated questionnaire composed by nutrition insecurity scale and sociodemographic characteristics was delivered (N=192) to students housed the high school residences. Sampling was selected for convenience and 114 responses were obtained. Informed consent was obtained and the anonymity of the participants was guaranteed. Statistical analysis was performed with SPSS®, considering a significance level of 5%.

RESULTS: There were no statistically significant differences in levels of food insecurity between genders, social scholarship, cooking skills and health concern. However, 69.2% of student-workers were in slight food insecurity and 7.7% in severe or moderate food insecurity and non-student workers 39.6% and 1%, respectively (p=0,020).

CONCLUSIONS: Food insecurity seems to be a question of concern in higher education institution, particularly in student-workers.

C08: NÍVEL DE ADESÃO AO PADRÃO ALIMENTAR MEDITERRÂNICO DOS PROFISSIONAIS DA ARS ALGARVE

Teresa Sofia Sancho¹; Inês Silva¹; Francisco Sousa¹

¹Departamento de Saúde Pública e Planeamento da Administração Regional de Saúde do Algarve

INTRODUÇÃO: A Dieta Mediterrânica tem sido reconhecida como linha estratégica importante na promoção da saúde da população, sendo também responsável por uma menor incidência de doenças, nomeadamente cardiovasculares, oncológicas e metabólicas. Neste contexto, pretende-se promover a Dieta Mediterrânica (DM) com os profissionais da Administração Regional de Saúde do Algarve, IP (ARS Algarve), no âmbito da literacia em saúde, neste setting laboral.

OBJETIVOS: Avaliar o nível de adesão ao Padrão Alimentar Mediterrânico (PAM) dos profissionais da ARS Algarve, como forma de diagnóstico da situação, antes de iniciar a intervenção de literacia em DM neste setting laboral.

METODOLOGIA: O nível de adesão ao PAM foi avaliado por aplicação do índice PREDIMED (PREvenición com Dieta MEDiterránea), constituído por 14 componentes, os quais avaliam a utilização de azeite e outras gorduras, o consumo de hortícolas, frutas, leguminosas e frutos gordos, a ingestão de peixe e de carnes diversas, a toma de vinho e bebidas açucaradas/gaseificadas, o consumo de produtos de pastelaria industrial e ainda o tipo de culinária. O PREDIMED foi administrado aos 1535 colaboradores da ARS Algarve, sede e três Agrupamentos de Centros de Saúde, através de preenchimento online, entre 8 e 22 de Fevereiro de 2019.

RESULTADOS: Obtiveram-se 592 preenchimentos (38,6%), com uma boa adesão ao PAM em 31,5% dos participantes. Observou-se maior adesão quanto ao uso de azeite como principal gordura culinária (97,1%) e menor adesão quanto ao consumo de vinho (10,0%). Verificou-se ainda uma adesão mais elevada no sexo feminino e no grupo profissional de enfermagem.

CONCLUSÕES: Esta avaliação evidencia a necessidade de promover a literacia em DM no setting laboral da ARS Algarve com os respectivos profissionais, dado que mais de metade destes apresenta baixa adesão ao PAM.

C09: MODIFICATION OF EFFECT BETWEEN AIR POLLUTION AND LUNG FUNCTION BY THE INFLAMMATORY POTENTIAL OF DIET: A CROSS SECTIONAL STUDY IN CHILDREN

Francisca de Castro Mendes^{1,3}; Inês Paciência^{1,3}; João Cavaleiro Rufo^{1,2}; Mariana Farraia²; Diana Silva¹; Pedro Cunha¹; Luís Delgado¹; André Moreira^{1,2,4}; Pedro Moreira^{2,4}

¹ Basic and Clinical Immunology, Department of Pathology da Faculdade de Medicina da Universidade do Porto

² Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

³ Institute of Science and Innovation in Mechanical Engineering and Industrial Management

⁴ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

Inhalation of fine particulate matter (PM) can cause systematic inflammation and oxidative stress, which may further aggravate the development and progression of asthma. Although nutritional intake of fatty acids and antioxidants may attenuate some effects of fine particulate matter (PM), the role of overall dietary intake has not been studied. Therefore, we aimed to investigate the modification of the association between air pollution and childhood asthma related outcomes by

the effect of the inflammatory potential of diet.

In a cross-sectional study, 501 (48.1% males, aged 7 to 12 years) of 858 children attending 71 classrooms from 20 local schools were selected. Spirometry and airway reversibility, exhaled level of nitric oxide, skin-prick testing and current symptoms (breathing difficulties and irritative cough) were assessed. Dietary inflammatory potential was evaluated by the Dietary Inflammatory Index (DII) and calculated from a 24-hour dietary recall. Indoor air quality measurements were conducted in 20 schools and 71 classrooms for one week. The proportion of effects explained by the exposures to PM2.5 and PM10 were measured by generalized linear mixed model.

After adjustments, a more inflammatory diet increased the risk of children with asthma for PM2.5 (OR=1.67, 95% CI 1.03, 2.73) and PM10 (OR= 1.75, 95% CI 1.07, 2.87) levels. Considering the inflammatory potential of diet in the exposure to PM2.5 and PM10, the risk of asthma increased in parallel with the DII, being statistically significant for children with asthma (OR= 0.89, 95% CI 0.81, 0.97 and OR= 0.92, 95% CI 0.87, 0.97).

These findings provide further support to the role of diet's inflammatory characteristics modulating the effects of indoor air pollution on lung function, highlighting the importance of children's diet as a potential solution to reduce the risk of asthma due to air pollution.

Multilevel model analysis to analyze diet inflammatory potential in the association between PM and asthma defined by Medical diagnosis under asthma treatment.

TABLE 1

	MODEL 0	MODEL 1	MODEL 2
	OR (95% CI)	OR (95% CI)	OR (95% CI)
PM2.5	0.88 (0.74; 1.01)	0.78 (0.61; 0.95)	0.76 (0.60; 0.93)
DII	0.91 (0.70; 1.18)	1.62 (0.98; 2.71)	1.67 (1.03; 2.73)
PM2.5 x DII	---	0.89 (0.81; 0.97)	0.89 (0.81; 0.97)
PM10	0.91 (0.81; 1.00)	0.85 (0.73; 0.95)	0.83 (0.71; 0.93)
DII	0.90 (0.69; 1.16)	1.65 (1.00; 2.77)	1.75 (1.07; 2.87)
PM10 x DII	---	0.93 (0.87; 0.98)	0.92 (0.87; 0.97)

PM2.5: Particulate Matter 2.5 represented per 100 units

PM10: Particulate Matter 10 represented per 100 units

DII: Dietary Inflammatory Index

PM2.5 x DII: Dietary inflammatory index as an interaction term

Model 0: Main effects

Model 1: interaction with DII

Model 2: Additionally adjusted age, sex, body mass categories according to CDC and exposure to tobacco at home

Significant differences in bold

CO10: CHARACTERIZATION OF THE OIL EXTRACTED FROM THE *STRYCHNOUS MADAGASCARIENSIS* FRUIT

Sandra SI Chemane^{1,3}; Susana Casal²; Teresa Pinho²; Maida Khan⁴; Olívia Pinho^{1,2}; Olga Viegas^{1,2}

¹ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

² LAQV/REQUIMTE, Laboratório de Bromatologia e Hidrologia, Departamento de Ciências Químicas da Faculdade de Farmácia da Universidade do Porto

³ Departamento de Engenharia Rural da Faculdade de Agronomia e Engenharia Florestal da Universidade Eduardo Mondlane

⁴ Departamento de Engenharia Química da Faculdade de Engenharia da Universidade Eduardo Mondlane

INTRODUCTION: *Strychnos madagascariensis* is a fruit tree, abundant in South-African countries. In Mozambique, rural communities produce a flour called "nfuma" from the pulp of its large fruits, which is consumed in times of shortage. Nfuma flour has a high fat content (around 30%), and some consumers separate the oil from the flour by pressing to use it both as a seasoning and as a medicine.

OBJECTIVES: With an increasingly demand for alternative vegetable oils sources,

the goal of this work was to characterize the oil from *S. madagascariensis* fruit pulp from Moçambique in terms of fatty acid profile and important bioactive components to exploit its potential applications.

METHODOLOGY: Samples were collected from Marracuene, Manhiça, Chokwé and Chicualacuala communities. After production of flour "nfuma", the oil was extracted by manual press. Fatty acids were evaluated as methyl esters after by gas chromatography with flame ionization detection, tocopherols were determined by normal-phase high performance liquid chromatography with fluorescence detection, and total carotenoids were estimated on the basis of carotene molecular absorptivity.

RESULTS: *S. madagascariensis* oil is characterized by a high content of oleic acid (62-63%), followed by palmitic (19-20%), linoleic (6-7%) and stearic (4.5-5%) acids, highly consistent between samples. The analysis of lipophilic vitamins reveals the presence of considerable amounts of tocopherols (242-355 mg/kg) and carotenoids (8-15 mg/kg).

CONCLUSIONS: The oil extracted from the fruit of *S. madagascariensis* has oleic acid as its main fatty acid, being therefore a monounsaturated oil. Together with its richness in tocopherols and carotenoids, it represents a great potential to become a promising commercial source of an edible oil for the food industry, having healthful properties associated with a potential high resistance to oxidation.

CO11: DOES COOKING HELP MITIGATE BROMINATED FLAME-RETARDANTS IN FISH?

Rebeca Cruz¹; António Marques^{2,3}; Susana Casal¹; Sara C Cunha¹

¹ LAQV/REQUIMTE da Faculdade de Farmácia da Universidade do Porto

² Instituto Português do Mar e da Atmosfera

³ Centro Interdisciplinar de Investigação Marinha e Ambiental da Universidade do Porto

INTRODUCTION: Polybrominated diphenyl ethers (PBDEs) are additive brominated flame-retardants with recognised endocrine disruptive effects. They can find their way into the environment by different routes and processes. The dietary route, through seafood consumption, is a main responsible for human exposure. Moreover, their biologically active metabolites – methoxylated PBDEs (MeO-PBDEs) have also been found in these foods.

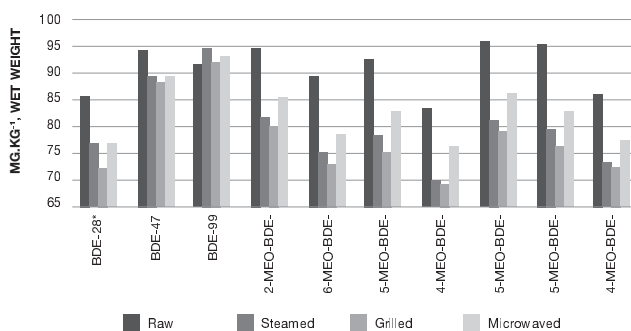
OBJECTIVES: Hence, the aim of this work was to evaluate the potential of household cooking practices as mitigation strategies for these classes of flame-retardants in fish.

METHODOLOGY: Farmed Atlantic salmon was obtained from a retail market in Porto, Portugal. Muscle without skin or bones was finely minced, then and identical cylindrical burgers (10 g) were prepared and subjected to three different and optimized cooking methods: 1) Steaming; 2) Grilling, and 3) Microwaving. Moisture and lipid contents were determined in raw and cooked samples by standardized methods. Further analyses were performed by matrix-matched validated methods and instrumental detection was conducted by GC-MS/MS.

RESULTS: Most of the tested compounds were considerably reduced after cooking (Figure 1), especially by grilling (up to 19.5% reduction). This evidence may be related to a greater loss of lipids during grilling, since PBDEs and MeO-PBDEs are highly lipophilic substances. However, BDE-47 and BDE-99, the two most prevalent congeners in seafood, do not seem to be affected by food processing (p > 0.05).

FIGURE 1

Impact of cooking on the degree of contamination



*ANOVA $p < 0.0001$

CONCLUSIONS: The outcomes of this study showed that the cooking methods tested herein were not sufficiently effective to diminish seafood contamination. Further research involving fat addition to food processing as well as bioaccessibility evaluation may provide new insights into actual human health risk.

ACKNOWLEDGMENTS: This work received financial support from PTDC/ASP-PES/28708/2017. Rebeca Cruz thanks to FCT for the PhD grant SFRH/BD/101945/2014. António Marques thanks to FCT IF program. Sara C. Cunha also acknowledges FCT for the IF/01616/2015 contract.

CO12: PERCEPTION OF RISK-BENEFIT ASSOCIATED TO THE CONSUMPTION SOME PORTUGUESE GREEN, BROWN AND RED SEAWEEDS BASED ON BIOACCESSIBILITY STUDIES

Cláudia Afonso^{1,2}; Carlos Cardoso^{1,2}; Joana Matos^{1,3}; Romina Gomes¹; Ana Gomes^{1,2}; João Francisco¹; Inês Coelho⁴; Inês Delgado⁴; Isabel Castanheira⁴; Pedro Pousão-Ferreira^{2,5}; Narcisa Maria Bandarra^{1,2}

¹ Division of Aquaculture, Upgrading and, Bioprospection (DivAV), Portuguese Institute for the Sea and Atmosphere

² Interdisciplinary Centre of Marine and Environmental Research, University of Porto

³ Faculdade de Ciências da Universidade de Lisboa

⁴ Food and Nutrition Department, National Health Institute Doutor Ricardo Jorge

⁵ Aquaculture Research Station, Olhão (EPPO), Portuguese Institute for the Sea and Atmosphere

INTRODUCTION: Marine species are increasingly viewed as a major source of food and health ingredients. Wild-harvested or cultivated seaweeds can be a solution to meet an increasing global demand for sustainable food source. Despite variation (duo to species, season, etc), seaweeds are one of the main underexploited resources that can possess valuable nutrients (like iodine) and biomolecules, many showing important biological activities. However, seaweeds can accumulate some contaminants that can represent a hazard to consumers. There are no intake recommendations and, in most countries, no special regulations enforced for the seaweeds used as human food/ingredient. Therefore, their potential for use and health benefits-risks warrant further research. Furthermore, a realistic risk-benefit assessment requires not only knowing the total compounds concentration but also their maximum fraction released from the food into the digestive tract (bioaccessibility).

OBJECTIVES: This work aims to evaluate the risk-benefit associated to the consumption of Portuguese seaweeds based on bioaccessibility studies.

METHODOLOGY: Proximate composition, fatty acids (GC) and essential/non-essential elements (ICP-MS/AAS) from seven wild-harvested/cultivated

Portuguese seaweeds (red/brown/green) were determined by standard methods. Bioaccessibility was simulated by an in vitro method. The risk-benefit was calculated by using statistical processing of the probabilities of exceeding the advised/recommended thresholds.

RESULTS AND CONCLUSIONS: Seaweed species have unique nutritional profiles. They present important levels of essential elements, particularly iodine. Contaminants (Hg, As, Cd, and Pb) contents were low and do not represent a hazard. Total fat was below 3.6% (dried *Petalonia binghamiae*). Eicosapentaenoic acid was always more abundant than docosahexaenoic acid. Bioaccessibility varied between compounds and species. Iodine bioaccessibility can reach to 75% in dried *Fucus spiralis*, 2.0 g is required to meet the recommended daily allowance. The seaweeds have potential to be a source of sustainable food but this study showed the importance of taking into account bioaccessibility results in estimating dietary intakes.

ACKNOWLEDGEMENTS: The experimental work was funded by the project I9+PROALGA (Ref.: MAR2020-16-01-03-FMP-0011) and AQUAMAX (Ref.: 16-02-01-FMP-0047). This work was supported by the following Post Doctoral Grants: IPMA-2017-48-BPD (Algared+ Project) for the author Ana Gomes, SFRH/BPD/102689/2014 ("Fundação para a Ciência e a Tecnologia", FCT) for the author Carlos Cardoso and DIVERSIAQUA (MAR2020, Ref.: 16-02-01-FEAM-66) for the author Cláudia Afonso. Doctoral grant awarded by FCT supported the work performed by Joana Matos (SFRH/BD/129795/2017).

CO13: CEREAL-BASED PRODUCTS CONSUMPTION AND SODIUM INTAKE AMONG PORTUGUESE INFANTS AND YOUNG CHILDREN

Catarina Carvalho^{1,2}; Daniela Correia^{2,3}; Géraldine Boué⁴; Ricardo Assunção^{5,7}; Paula Alvim^{5,6}; Carla Lopes^{2,3}; Duarte Torres^{1,2}

¹ Faculty of Nutrition and Food Sciences, University of Porto

² EPIUnit – Institute of Public Health, University of Porto

³ Department of Public Health and Forensic Sciences, and Medical Education, Epidemiology Unit, Faculty of Medicine, University of Porto

⁴ SECALIM, INRA, Oniris, Université Bretagne Loire

⁵ Food and Nutrition Department, National Institute of Health Doutor Ricardo Jorge

⁶ CESAM, Centre for Environmental and Marine Studies, University of Aveiro

⁷ Division for Diet, Disease Prevention and Toxicology, The National Food Institute, Technical University of Denmark

INTRODUCTION: There is evidence that Portuguese children under 3 years of age are replacing infant cereals (IC) by breakfast cereals (BC) consumption. BC are not targeted for this age group, and its nutritional composition and safety are not considered in the scope of the European regulations on "Food for infants and young children". Bearing in mind infants' particular vulnerability, this could represent an increased risk, for example concerning sodium intake.

OBJECTIVES: To evaluate the impact on current intake of sodium and the prevalence of inadequacy among Portuguese infants and young children (6 months up to 3 years old) by replacing BC for IC and vice-versa.

METHODOLOGY: Consumption data was obtained from the National Food, Nutrition, and Physical Activity Survey (IAN-AF 2015-2016) (n=779). The usual intake of BC, IC, sodium and the prevalence of inadequacy of sodium was estimated for the current and two alternative scenarios (AS) defined under RiskBenefit4EU project. Each AS corresponds to the total substitution from one cereal type to another (AS1= 100% IC; AS2= 100% BC), through an isocaloric approach.

RESULTS: Currently, the usual intake of IC and BC of Portuguese infants and young children is 12.8 g/day and 2.8 g/day, respectively. The mean intake of sodium for this age group, considering the overall diet, is 1169 mg/day, and the prevalence of inadequacy is 24.8% (Upper limit: 1500 mg/day). Considering the AS, the mean sodium intake and the prevalence of inadequacy were estimated as 1164 mg/day and 24.3% in AS1 and 1183 mg/day and 25.7 % in AS2.

CONCLUSIONS: These results reveal that the consumption of BC among Portuguese infants and young children is low. Sodium intake and the prevalence of inadequacy did not differ largely between the AS, suggesting that replacing BC by IC (and vice-versa) would not have a major impact in sodium intake for this age group.

ACKNOWLEDGEMENTS: Authors acknowledge EFSA Partnering Grant (RiskBenefit4EU, Grant Agreement Number GP/EFSA/AFSCO/2017/01 - GA02) and the National Food Nutrition and Physical Activity Survey (IAN-AF 2015-2016) (EEA Grants - Public Health Initiatives - PT06- 000088SIS).

CO14: DIETARY INTAKE MISREPORT AND ITS ASSOCIATION WITH SPECIFIC FOOD GROUPS

Vânia Magalhães¹; Sofia Vilela¹; Daniela Correia¹; Duarte Torres^{1,3}; Carla Lopes^{1,2}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses, e Educação Médica da Faculdade de Medicina da Universidade do Porto

³Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

INTRODUCTION: Dietary intake misreport may impact consumption estimates as it has been linked with specific foods/drinks.

OBJECTIVES: To identify which foods/drinks are associated with under or over-report.

METHODOLOGY: Participants from the Portuguese National Food, Nutrition and Physical Activity Survey (IAN-AF 2015-2016), aged 18-84 years were included (n=3639). Dietary intake was measured by two 24-Hour recall. Under, plausible and over-reporters were identified according to the Goldberg method. The contribution of each food group to the individual total energy intake (TEI) was estimated and categorized as below or equal vs. above the median (for "Alcoholic beverages", non-consumers vs. consumers). The association between misreport and the contribution of food groups to the TEI was assessed through binary logistic regression models.

RESULTS: Dietary misreport prevalence was 29.9%, being 28.5% of under-report and 1.4% of over-report. Compared to plausible reporters, under-reporters showed higher odds of having a contribution to TEI below the median from "Fats" and "Cereals, derivatives and tubers" (OR:2.47, CI95%:2.18-2.88 and OR:1.95, CI95%:1.68-2.27, respectively) and by the contrary, over-reporters showed lower odds of having a contribution from those food groups below the median (OR:0.39, CI95%:0.21-0.74 and OR:0.54, CI95%:0.30-0.99, respectively). Under-reporters showed higher odds of having a contribution below the median for "Meat, fish and eggs", "Sweets, cakes and cookies" and "Alcoholic beverages" (OR:1.89, CI95%:1.63-2.20; OR:1.64, CI95%:1.42-1.91 and OR: 2.48, CI95%: 2.12-2.91; respectively). Under-reporters also showed lower odds of lower consumption of "Non-alcoholic beverages" (OR:0.42, CI95%:0.36-0.48) while over-reporters reported more (OR:3.56, CI95%:1.78-7.17). For "Fruit and vegetables" and "Dairy", the contribution to TEI was similar among under, plausible and over-reporters.

CONCLUSIONS: "Fats", "Cereals, derivatives and tubers" and "Non-alcoholic beverages" were conversely associated with under and over-report. Under-reporters report less "Meat, fish and eggs", "Sweets, cakes and cookies" and "Alcoholic beverages". A particular attention should be taken with these food groups during the data collection.

CO15: MATERNAL ADHERENCE TO MEDITERRANEAN DIET: EFFECTS ON PRETERMS' GROWTH AND GUT MICROBIOTA – RESULTS FROM THE FEEDMI TRIAL

Juliana Moraes^{1,2}; Cláudia Marques^{1,2}; Diana Teixeira^{1,3}; Catarina Durão^{1,4}; Ana Faria^{1,2,5}; Sara Brito⁶; Manuela Cardoso⁷; Israel Macedo⁶; Teresa Tomé⁶; Conceição Calhau^{1,3}

¹Nutrition and Metabolism, NOVA Medical School | Faculdade de Ciências Médicas da Universidade NOVA de Lisboa

²CINTESIS, Center for Health Technology Services Research

³Unidade Universitária Lifestyle Medicine José de Mello Saúde by NOVA Medical School

⁴EPIUnit - Institute of Public Health da Universidade do Porto

⁵Comprehensive Health Research Centre da Universidade NOVA de Lisboa

⁶Neonatal Intensive Care Unit da Maternidade Dr. Alfredo da Costa, Centro Hospitalar de Lisboa Central

⁷Nutrition and Dietetics Unit da Maternidade Dr. Alfredo da Costa, Centro Hospitalar de Lisboa Central

INTRODUCTION: Preterm infants present an immature immune system with high susceptibility for early- or late-onset of intestinal dysbiosis. Maternal nutrition has been shown to be crucial for a healthy fetal growth and for the development of infant's immune system.

OBJECTIVES: The aim of this study was to evaluate the association between adherence to Mediterranean Diet (MD) during pregnancy in women delivering prematurely and preterm microbiota and clinical outcomes.

METHODOLOGY: This is an observational study including very preterm infants with gestational age lower than 32 weeks, hospitalized in the neonatal intensive care unit of *Maternidade Dr. Alfredo da Costa*. After delivery, mothers were asked to collect their own fecal samples and were invited to complete a semi-quantitative food frequency questionnaire (FFQ) in order to estimate their MD adherence. Fecal microbiota composition were quantified by real-time polymerase chain reaction. Maternal and neonatal sociodemographic and clinical data were collected from medical records. This trial is registered in clinicaltrials.gov as NCT03663556.

RESULTS: From the FEEDMI trial, 82 mothers-infants pairs were selected for the analysis. Preterm newborns delivered by mothers with MD adherence (23.7%) had significantly higher weight at birth ($p=0.016$) which is correlated with total amount of Firmicutes phylum in mothers' gut microbiota ($r=0.543$; $p<0.0001$). In addition, maternal MD adherence promote a higher bacterial colonization of meconium ($p=0.040$) and a higher amount of *Lactobacillus* in the offspring at third week of life ($p=0.011$). The mode of delivery did not influence the infants' gut microbiota composition or even their clinical outcomes.

CONCLUSIONS: MD adherence increased the fetal intrauterine growth and favored the gut microbiota composition of the preterm infants.

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CO16: COGNITIVE FUNCTION AND NUTRITIONAL STATUS IN COMMUNITY-DWELLING OLDER ADULTS (PEN-3S STUDY)

Teresa Madeira^{1,2}; Catarina Peixoto-Plácido^{1,2}; Nuno Sousa-Santos^{2,3}; Osvaldo Santos^{1,2}; Violeta Alarcão^{1,2,4}; Paulo Jorge Nicola^{1,2}; Carla Lopes^{5,6}; João Gorjão Clara^{1,2}

¹Instituto de Medicina Preventiva e Saúde Pública da Faculdade de Medicina da Universidade de Lisboa

²Instituto de Saúde Ambiental da Faculdade de Medicina da Universidade de Lisboa

³Escola Superior de Saúde de Leiria do Instituto Politécnico de Leiria

⁴Centro de Investigação e Estudos de Sociologia do Instituto Universitário de Lisboa

⁵Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

⁶Departamento de Ciências da Saúde Pública e Forenses e Educação Médica, Unidade de Epidemiologia da Faculdade de Medicina da Universidade do Porto

INTRODUCTION: Researchers and clinicians frequently point out that cognitive impairment is possibly cause and consequence of malnutrition associated with ageing. However, cognitively impaired community-dwelling older adults are frequently excluded from the analysis when malnutrition is studied.

OBJECTIVES: To characterise the association between cognitive function and nutritional status in community-dwelling older adults (≥ 65 years old) living in Portugal.

METHODOLOGY: Data reported here is based on a nationally representative sample of randomly selected community-dwelling older adults. Trained nutritionists collected data through face-to-face structured interviews regarding sociodemographic characteristics, cognitive function (Mini Mental State Examination, MMSE) and nutritional status (Mini Nutritional Assessment - Long Form, MNA[®]), among other variables of the PEN-3S study. Complex Samples Logistic Regression (SPSS[®] 24.0) was used to study the association between cognitive function and nutritional status.

RESULTS: In total, 1120 community-dwelling individuals (mean age: 75.9 \pm 8.1 years; 49.0% women) accepted to participate. Following MNA criteria, 16.9% (95% CI: 13.6–20.8) were categorised as malnourished or at risk of malnutrition. The mean MMSE score was 25.9 (25.3–26.5), and 17.7% (12.8–23.9) were classified as cognitively impaired, according to the Portuguese (education-specific) MMSE cut-offs. Cognitive impairment was significantly associated with increased chances of being at risk of malnutrition or malnourished, altogether (OR=3.2; 95% CI: 1.7–6.1), after adjusting for sex, age and monthly income.

CONCLUSIONS: These results embody the evidence of a significant association between cognitive function and nutritional status among community-dwelling older adults. Cognitive impairment becomes more prevalent as people age, and special attention should be given to their nutritional status in order to prevent malnutrition and its serious consequences.

CO17: ARTERIAL STIFFNESS IS NEGATIVELY ASSOCIATED WITH SOUTHERN EUROPEAN ATLANTIC DIET ADHERENCE AMONG HIGH CARDIOVASCULAR RISK AGE GROUP

Rita Magalhães¹; Sandra Abreu^{1,2}; José Oliveira¹; Lucimere Bohn^{1,2}

¹ Centro de Investigação em Atividade Física, Saúde e Lazer da Faculdade de Desporto da Universidade do Porto

² Faculdade de Psicologia, Educação e Desporto da Universidade Lusófona do Porto

INTRODUCTION: Evidences show that the Southern European Atlantic Diet (SEAD) is associated with lower blood pressure, and it is well known that blood pressure directly influences arterial stiffness, an independent cardiovascular risk factor. However, there is a lack of information regarding the association between arterial stiffness and SEAD.

OBJECTIVES: This study aimed to investigate the association between arterial stiffness and SEAD adherence.

METHODOLOGY: This cross-sectional study comprised 187 users (47.3 \pm 12.9 years; 58.8% female) of a primary health care centre. Participants were categorized according to age [low cardiovascular risk age group (<45 years for male and <55 years for female); high cardiovascular risk age group (age ≥ 45 years for male, age ≥ 55 years for female)]. Systemic arterial stiffness was assessed via Pulse Wave Analysis (PWA), and the indexes were Augmentation Index (AIX) and Augmentation Index corrected by 75bpm (AIX@75). Diet was assessed with a semi-quantitative food frequency questionnaire, and SEAD adherence was measured with an index that ranges from 0 (lowest adherence) to 9 (highest adherence). Data was analyzed separately for age groups, and multiple linear regression analysis was used to estimate the association between PWA indexes and SEAD.

RESULTS: Mean SEAD score was 4.3 points (P25: 3; P75: 5 points), mean AIX was 13.5 mmHg (P25: 7.0 mmHg; P75: 19.0 mmHg) and mean AIX@75 was

24.5 (P25: 15.3; P75: 35.0) After adjustments, linear regression models showed that SEAD was inversely associated with AIX (B= -1.59, CI 95%: -2.86, -0.32; p=0.015) and AIX@75bpm (B = -1.30; CI 95%: -2.33, -0.28, ; p =0.014) in the high cardiovascular risk age group.

CONCLUSIONS: SEAD adherence is associated with better arterial stiffness profile along high-risk age group, potentially conferring a protective effect in cardiovascular health.

CO18: DETERMINATION OF SODIUM LEVELS IN BURGERS ADDED WITH *SALICORNIA RAMOSISSIMA*

Maria Madalena Faria¹; Gonçalo Melo¹; Humberto Rocha²; Carlos Matos³; Cristina Saraiva⁴; José MMM Almeida^{4,5}

¹Department of Veterinary Sciences, School of Agrarian and Veterinary Sciences da Universidade de Trás-os-Montes e Alto Douro

²Escola Universitária Vasco da Gama

³Laboratory of analytical chemistry da Universidade de Trás-os-Montes e Alto Douro

⁴Department of Physics da Universidade de Trás-os-Montes e Alto Douro

⁵Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência

In Portugal, approximately 39% (first major cause) of deaths are due to diseases of the circulatory system (cardiovascular diseases). *Salicornia ramosissima*, is a halophyte belonging to *Amaranthaceae* family that can be found in salt flats and it is very common in Iberian Peninsula. It was known as an invasive plant, but recently it has awakened interest as a gourmet product due to its strong salty taste and crunchy texture. The objective of this study was to evaluate the use of glasswort (*Salicornia ramosissima*) as salt substitute in fresh meat by determination of sodium levels. Fresh beef (semitendinosus and semimembranosus muscles) was obtained from a local slaughterhouse and transported to laboratory under refrigeration. Then, beef was cut, minced in amounts (20 g) and added with different concentrations of glasswort (1, 1.5 and 2%w/w) or with salt (1%w/w). Control samples, untreated, were also prepared. Samples were packed in MAP (70%O₂/30%CO₂), stored at 2 °C and analyzed for determination of sodium levels. The sample were dried, and then digested for elimination of the organic matter, following the protocol established in the laboratory. Then sodium levels were determinate by atomic emission spectrometry. For raw samples the mean value of sodium was 12.43 mg/100 g. Comparing the samples with 1% of glasswort and 1% sodium chloride it was observed that samples with glasswort had less sodium values, 22.0 mg/100 g and 35.7 mg/100 g, respectively. For the samples with 1.5 and 2% of glasswort the obtained values were 29.4 mg/100 g and 43.23 mg/100 g. The mean value of sodium in dried glasswort was 13.15 mg/g.

It was verified that *Salicornia ramosissima* is a good alternative to sodium chloride, due to its inner lower sodium levels.

CO19: INHIBITORY EFFECT OF VINEGAR ON PAHS FORMATION IN CHARCOAL GRILLED PORK LOIN

Tânia Cordeiro¹; Olga Viegas^{1,2}; Marta Silva²; Olívia Pinho^{1,2}; Isabel MPLVO Ferreira²; Iva Fernandes³; Nuno Mateus³; Conceição Calhau^{4,5}

¹Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

²REQUIMTE/LAQV, Laboratório de Bromatologia e Hidrologia, Departamento de Ciências Químicas da Faculdade de Farmácia da Universidade do Porto

³REQUIMTE/LAQV, Departamento de Química e Bioquímica da Faculdade de Ciências da Universidade do Porto

⁴Nutrição e Metabolismo, NOVA Medical School da Faculdade de Ciências Médicas da Universidade Nova de Lisboa

⁵CINTESIS - Center for Health Technology Services Research

INTRODUCTION: Processing methods such as grilling contribute to the formation of carcinogenic compounds, namely polycyclic aromatic hydrocarbons (PAHs).

Household mitigation strategies to reduce PAH4 (Benzo(a)anthracene (BaA); Chrysene (Ch); Benzo(b)fluoranthene (BbF); Benzo(a)pyrene (BaP)) in charcoal grilled meat are of utmost relevance for consumers health. Vinegar can be used as a seasoning of meat with the purpose of assigning flavor and also tenderize meat.

OBJECTIVES: The effect of different types of vinegar on the formation of PAHs in charcoal grilled pork loin was evaluated and compared with the formation of these compounds in no-seasoning meat.

METHODOLOGY: Four independent pork loin steaks for each vinegar treatment (white wine (WWW), red wine (RWW) and apple cider (ACV) vinegars) and control (unseasoned) were used. Vinegars were sprayed homogeneously into the meat surface immediately before cooking in disposable charcoal barbecues. Acetonitrile-based extraction followed by high performance liquid chromatography coupled with fluorescence detection (doi:10.1007/s12161-018-1325-8) was conducted for PAHs analysis.

RESULTS: In control samples 31.47 ± 4.16 ng/g of PAH4 were found (Ch= 11.92 ± 1.76; BaA= 9.06 ± 1.40; BbF= 7.09 ± 0.95; BaP= 3.40 ± 0.27 ng/g). The vinegars studied inhibited significantly the PAHs formation, being WWW the most effective (6.67 ± 1.24 ng/g; BbF>Ch>BaA>BaP). Considering RWW (10.74 ± 3.16 ng/g); and ACV (10.70 ± 1.81 ng/g) the PAH4 followed the same profile of control (Ch>BaA> BbF>BaP). The inhibitory effect of vinegars was similar on formation of BaA, BbF and BaP, however, the main difference between vinegars was on Ch, where WWW (2.03 ± 0.56 ng/g) exhibited a superior effect compared with the inhibition observed by RWW (4.02 ± 1.37 ng/g) and ACV (4.06 ± 0.67 ng/g).

CONCLUSIONS: All vinegars studied inhibited significantly the PAHs formation to values below the maximum established (30 ng/g), being WWW the most effective (79%) compared with RWW and CV (66%).

CO20: APPLICATION OF AN ACETONITRILE BASED-EXTRACTION IN PROCESSED MUSCLE FOODS FOR THE DETERMINATION OF 4 POLYCYCLIC AROMATIC HYDROCARBONS

Marta Silva¹; Olga Viegas^{1,2}; Tânia Cordeiro²; Olívia Pinho^{1,2}; Isabel MPLVO Ferreira¹

¹ LAQV/REQUIMTE, Laboratório de Bromatologia e Hidrologia, Departamento de Ciências Químicas da Faculdade de Farmácia da Universidade do Porto

² Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

INTRODUCTION: The consumption of grilled, smoked and barbecued muscle foods such as meat and fish is still high, despite being long associated with increased risk of cancer, with PAHs as one of the potential carcinogenic agents. The European Food Safety Authority designated the sum of 4 PAHs - PAH4 (benzo[a]anthracene, chrysene, benzo[b]fluoranthene and benzo[a]pyrene) – as the most suitable indicator for the occurrence of these compounds in food. Later, the European Commission (EC) established criteria for these compounds analysis and maximum levels in food.

OBJECTIVES: To determine the priority PAH4 in different grilled and smoked muscle foods with an acetonitrile based-extraction, verifying its reliability in compliance with EC No. 836/2011 and the meeting of the established European maximum levels (EC No. 835/2011).

METHODOLOGY: Samples – pork, chicken, beef, salmon, chorizo – were purchased in local barbecue grill restaurant and supermarkets, and PAHs were analyzed with an acetonitrile based-extraction and partitioning with optimized amounts of magnesium sulfate and sodium chloride, followed by HPLC-FLD detection.

RESULTS: Most recoveries fall in the range of 80–110% in the different muscle foods. All the analyzed matrices were compliant with EC legislation (PAH4 < 30 ng/g and <12 ng/g for grilled and smoked respectively), excepting charcoal grilled pork loin which presented a mean value of 31.5 ng/g of PAH4, followed by grilled salmon (21.54 ng/g). Concerning Benzo[a]pyrene (BaP) none of the analyzed samples presented values exceeding the maximum established limits.

CONCLUSIONS: In general, the analyzed matrices were compliant with the EC

legislation. However, one representative sample of grilled meat exceeded the maximum levels, therefore mitigation strategies should be assessed, to decrease the risk associated with the consumption of this type of food.

CO21: EVALUATION THROUGH ARTIFICIAL NEURAL NETWORKS OF THE SOCIODEMOGRAPHIC INFLUENCES ON FOOD CHOICES

Raquel Guiné¹; Ana Cristina Ferrão¹; Manuela Ferreira¹; Paula Correia¹; Mateus Mendes²; Marcela Leal³; Vanessa Ferreira⁴; Ivana Rumbak⁵; Ayman EL-Kenawy⁶; Maria Papageorgiou⁷; Viktória Szűcs⁸; Elena Vittadini⁹; Dace Klava¹⁰; Elena Bartkiene¹¹; Lucia Muñoz¹²; Małgorzata Korzeniowska¹³; Monica Tarcea¹⁴; Ilija Djekić¹⁵; Maša Bizjak¹⁶; Kathy Isoldi¹⁷

¹ CI&DETS/CERNAS Research Centres, Polytechnic Institute of Viseu

² Politechnic Institute of Coimbra-ESTGOH and ISR, University of Coimbra

³ School of Nutrition, Faculty of Health Sciences, Maimonides University

⁴ Faculty of Biological & Health Sciences, UVFJM University

⁵ Faculty of Food Technology and Biotechnology, University of Zagreb

⁶ Genetic Engineering and Biotechnology Institute, University of Sadat City

⁷ Alexander Technological Educational Institute

⁸ Directorate of Food Industry, Hungarian Chamber of Agriculture

⁹ Department of Food Science, University of Parma

¹⁰ Faculty of Food Technology, Latvian University of Agriculture

¹¹ Lithuanian University of Health Sciences

¹² Wageningen University & Research

¹³ Wrocław University of Environmental and Life Sciences

¹⁴ University of Medicine & Pharmacy Tirgu-Mures

¹⁵ Faculty of Agriculture, University of Belgrade

¹⁶ Faculty of Health Sciences, University of Primorska

¹⁷ School of Health Professions and Nursing, Long Island University

INTRODUCTION: The EATMOT Project is a multinational study that is being carried out in 16 countries about different eating motivations, given their recognized importance in the definition of people's dietary patterns.

OBJECTIVES: This study investigated the influence of sociodemographic factors on some types of eating motivations, specifically: health related factors; economic and availability aspects; emotional determinants; social, cultural and religious influences; marketing and advertising campaigns and finally environmental concerns.

METHODOLOGY: This is a longitudinal observational study carried out on a non-probabilistic sample with 11960 participants. For the analysis of the data were used the T-test for independent samples or ANOVA with Post-Hoc Tukey HSD, depending on the case. The modelling through artificial neural networks included 7 input variables (sociodemographic characteristics) and 6 output variables (the eating motivations' groups).

RESULTS: Variables like age, marital status, country, living environment, level of education or professional area significantly influenced all the types of eating motivations analysed. However, regarding gender, no significant differences were observed for two of the six types of motivations analysed: economic & availability and marketing & commercial. The results of the ANN modelling showed that the strongest positive factors determining the eating motivations were age for health, country for emotional motivations, gender for economic & availability, country for social & cultural, country for environmental & political, and finally country also for the marketing & commercial motivations.

CONCLUSIONS: These results highlight the importance of the sociodemographic characteristics as determinants for eating patterns around the globe, and particularly the geographic location.

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CO22: INTERMITTENT FASTING INFLUENCE ON BODY COMPOSITION AND METABOLIC PARAMETERS IN NORMOPONDERAL, OVERWEIGHT AND OBESE INDIVIDUALS

Inês P Martins¹; Marta M Pereira¹; Rita Sousa¹; Tatiana R Costa¹; Cidália Pereira¹

¹Escola Superior de Saúde do Instituto Politécnico de Leiria

INTRODUCTION: Intermittent fasting is defined as the energy restriction interspersed with periods of food intake and includes a set of feeding protocols in which the feeding time is restricted. The main types of fasting are: fasting on alternate days, altered fasting, restricted feeding time, and religious fasting.

OBJECTIVES: Systematize, compare and discuss the effect of intermittent fasting types on body composition and metabolic parameters in normoponderal, overweight or obese individuals.

METHODOLOGY: Integrative review of the literature through the research of clinical trials carried out in the last 5 years published in Pubmed, Scientific Repository of Open Access of Portugal, B-on, Research Gate, Science Direct and Mendeley, regarding the different types of fasting. We analyzed nine clinical trials evaluating the impact of fasting type on body composition and metabolic parameters.

RESULTS: Significant weight reductions (5.2 ± 0.9 to 10.7 ± 3 kg) as well as in body fat (4.2 ± 0.6 to 8.7 ± 2.6 kg) were observed in the altered fasting regime in obese populations. As for the abdominal perimeter, decreases of 3 ± 1 to 10.6 ± 5 cm were observed in obese and normoponderal subjects when undergoing an altered fasting regimen. A decrease (0.29 ± 0.62 at 18 ± 6 mmol/l) in LDL cholesterol was observed, the most noticeable differences were observed in fasting associated with exercise.

CONCLUSIONS: Of the various types of fasting, the modified fasting regimen seems to have the most significant effects on body composition. Regarding metabolic parameters, intermittent fasting only has benefits in reducing LDL cholesterol. However, it's a recent topic that needs to be investigated and whose long-term effects are not fully known, therefore the adoption of this type of regime must be prudent.

CO23: SOCIODEMOGRAPHIC AND LIFESTYLE CHARACTERISTICS RELATED WITH DISCREPANCIES BETWEEN GENERAL AND ABDOMINAL ADIPOSITY MEASURES WITHIN PORTUGUESE CHILDREN

Elisabete Sousa¹; Bruno MPM Oliveira^{1,2}; Sara Rodrigues^{1,3}

¹Faculty of Nutrition and Food Sciences, University of Porto

²LIAAD- INESC TEC - Faculty of Engineering, University of Porto

³Institute of Public Health, University of Porto

INTRODUCTION: Body Mass Index (BMI), Waist Circumference (WC) and Waist-to-Height Ratio (WHtR) are measures used to evaluate general and abdominal adiposity. Several studies in other countries report the relationships between anthropometric measurements and sociodemographic and lifestyle characteristics are related to obesity but more commonly focus on BMI and in the adult population.

OBJECTIVES: To evaluate the prevalence of general adiposity by BMI and of abdominal adiposity according to WC and WHtR in Portuguese children. To identify the sociodemographic and lifestyle characteristics related with the highest discrepancies between these 3 adiposity measures.

METHODOLOGY: Portuguese participants from the IAN-AF 2015-2016 survey included 578 children aged 3 to 9 years old. Anthropometric measures, sociodemographic and lifestyle characteristics were obtained. General adiposity was defined by BMI according to IOTF criteria. Abdominal adiposity was defined by $WC \geq P90\%$ according to McCarthy, and by $WHtR \geq 0.5$ according to Ashwell.

Estimates were weighted according to sampling design. Sociodemographic and lifestyle variables relationships with anthropometric measures were analysed through weighted UniANOVA.

RESULTS: According to BMI 20.7% children presented pre-obesity and 6.8% obesity, 33.1% had $WC \geq P90\%$ and 35.9% had $WHtR \geq 0.5$. BMI showed a classification discrepancy of 17.1% with WC and of 28.2% with WHtR, respectively, a strong ($r=0.789$; $p<0.001$) and a moderate correlation ($r=0.611$; $p<0.001$). A moderate correlation between WC and WHtR was found ($r=0.688$; $p<0.001$), with 28.1% classification discrepancy. Larger discrepancies were found in children that were younger, living in Azores, male, sleeping more hours, had siblings, had parents with more education, and had less hours of screen time during the weekend.

CONCLUSIONS: Prevalence of abdominal adiposity was higher than general adiposity and there were discrepancies between BMI, WC and WHtR classifications related with sociodemographic and lifestyle characteristics.

CO24: ASSOCIAÇÃO DO ÍNDICE DE QUALIDADE DA DIETA COM A INFLAMAÇÃO SISTÊMICA DE BAIXA INTENSIDADE E INFLUÊNCIA DA COMBINAÇÃO DE GENÓTIPOS SOBRE ESSA ASSOCIAÇÃO - ESTUDO DE BASE-POPULACIONAL

Marina Maintinguer Norde¹; Regina Mara Fisberg¹; Dirce Maria Lobo Marchioni¹; Marcelo Macedo Rogero¹

¹Faculdade de Saúde Pública da Universidade de São Paulo

INTRODUÇÃO: A inflamação sistêmica e de baixa intensidade está relacionada a desordens metabólicas, sendo o padrão alimentar considerado um fator de risco para a inflamação. Polimorfismos de nucleotídeo único (SNP) podem influenciar essa relação.

OBJETIVOS: Verificar a associação do índice de qualidade da dieta (IQD-R) e de SNP em genes relacionados à resposta inflamatória com um escore inflamatório, baseado na concentração plasmática de 11 biomarcadores inflamatórios em estudo de base populacional – Inquérito de Saúde da cidade de São Paulo (ISA-Capital).

METODOLOGIA: Todos os adultos (20 - 59 anos) participantes da etapa de coleta sangue do estudo transversal de base populacional, ISA-capital 2008-2010, foram incluídos ($n=301$). Aqueles com concentração plasmática de proteína C reativa (PCR) > 10 mg/dL foram excluídos ($n=32$). Foram determinadas as concentrações plasmáticas de adiponectina, PCR, interleucina (IL)-1 β , IL-6, IL-8, IL-10, fator de necrose tumoral- α , IL-12p70, proteína quimiotática de monócitos, molécula de adesão intercelular solúvel-1 e molécula de adesão celular vascular solúvel-1, os quais compõem o escore de inflamação. Foi realizada a genotipagem de 31 SNP relacionados aos genes *ADIPOQ*, *TLR4*, *IL1B*, *IL6*, *IL10*, *TNFA*, *MCP1* e *CRP* pelo sistema Taqman Open Array.

RESULTADOS: O IQD-R é inversamente associado ao escore de inflamação após ajuste por fatores de confusão clássicos. Os genótipos GA e GG para os SNP IL1B rs1143643 e SNP TLR4 rs5030728, respectivamente, foram associados a um maior escore de inflamação. Uma interação estatisticamente significativa foi encontrada de forma que indivíduos GA/GG (rs1143643/rs5030728) tem uma variação média no escore de inflamação de -6,12 ($n=74$; $p=0,014$) entre os extremos mais alto e mais baixo do IQD-R, enquanto indivíduos com outras combinações de genótipo tem uma variação média não significativa de -3,45 ($n=194$; $p=0,071$).

CONCLUSÕES: A qualidade da dieta é inversamente associada à inflamação sistêmica de baixa intensidade e isso é mais evidente em indivíduos GA/GG (rs1143643/rs5030728).

CO25: INFLUENCE OF APPETITIVE BEHAVIORS AT 7-YEARS-OLD IN CARDIOVASCULAR RISK FACTORS IN 10 YEARS-OLD CHILDREN

Sarah Warkentin¹; Ana Cristina Santos^{1,2}; Andreia Oliveira^{1,2}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUCTION: Cardiovascular diseases are end-points of gradual progression of atherosclerosis and this process begins early in life. Studies of behavioral correlates of obesity have been published, but there is a lack of research that associates eating behaviors to cardiometabolic health at early ages.

OBJECTIVES: To investigate whether appetitive behaviors among school-aged children influence cardiometabolic markers three years later.

METHODOLOGY: This study included a sample of children from the Generation XXI birth cohort (n=3700 with complete data). Satiety Responsiveness (SR), Food Fussiness (FF), Enjoyment of Food (EF) and Food Responsiveness (FR) were assessed by the Children's Eating Behavior Questionnaire (CEBQ) at age 7. At 10 years-old (y), systolic blood pressure (SBP) was measured, and glucose, HDL- and LDL-cholesterol, triglycerides (TG) and Insulin Resistance (HOMA-IR) were obtained and standardized for age and sex. Crude correlations and multivariate linear regression models were run and controlled for maternal BMI and education, physical activity and fruits and vegetables consumption at 7y (second step: plus BMI z-score at 10y).

RESULTS: In crude analysis, Food avoidant behaviors, such as SR and FF, were negatively correlated with all cardiometabolic parameters, except glucose, and positively correlated with HDL-cholesterol. For food approach behaviors (EF and FR), the opposite effect was seen. In multivariate analysis, children less appetitive had lower cardiometabolic parameters (e.g. SR: TG $\beta = -0.09$, 99%CI: -0.15; 0.24 and FF: HOMA-IR $\beta = -0.08$ 99%CI: -0.14; -0.03) and a positive association was found for food approach behaviors with SBP (e.g. EF: $\beta = 0.15$, 99%CI: 0.11; 0.18) and HOMA-IR (e.g. FR: $\beta = 0.22$, 99%CI: 0.16; 0.27). After adjustment for BMI, associations lost statistical significance.

CONCLUSIONS: Appetitive behaviors of 7-years-old children influence cardiometabolic risk years later, but this is largely dependent on child's BMI, a strong predictor of cardiometabolic health in childhood.

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CO26: CONSUMO DE AÇÚCARES LIVRES E CARGA GLICÉMICA NA ADOLESCÊNCIA E A SUA ASSOCIAÇÃO COM PARÂMETROS CARDIOMETABÓLICOS EM IDADE ADULTA

Ana Rita Marinho^{1,2}; Milton Severo^{1,2}; Elisabete Ramos^{1,2}; Carla Lopes^{1,2}

¹Departamento de Ciências da Saúde Pública e Forenses, e Educação Médica da Faculdade de Medicina da Universidade do Porto

²Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

INTRODUÇÃO: A relação entre o consumo de açúcares livres com a saúde cardiometabólica tem sido estabelecida. No entanto, estudos que exploram o seu efeito desde a adolescência até a idade adulta são escassos.

OBJETIVOS: Avaliar a relação entre o consumo de açúcares livres e a carga glicémica com parâmetros de adiposidade e resistência à insulina, desde a adolescência até à idade adulta.

METODOLOGIA: Foram incluídos participantes do estudo de coorte EPITeen (Porto, Portugal), avaliados aos 13 e 21 anos (n=1040). Foram obtidos dados

do consumo alimentar por questionário de frequência alimentar (QFA). Para cada item do QFA atribui-se uma média estimada de açúcares adicionados e valores de carga glicémica, de acordo com uma metodologia sistemática. Através da definição proposta pela OMS estimou-se o consumo de açúcares livres. Como parâmetros cardiometabólicos foram calculados z-scores de IMC, razão cintura-peso, e o *homeostasis model assessment of insulin resistance* (HOMA-IR). Foi realizada uma análise de caminhos cruzados para estimar associações longitudinais entre as exposições alimentares e os z-scores de IMC, a razão cintura-peso ou o HOMA-IR.

RESULTADOS: Não se verificou nenhuma associação significativa entre o consumo de açúcares livres ou carga glicémica aos 13 com as medidas de adiposidade ou resistência à insulina aos 21 anos. Verificou-se uma associação negativa e significativa entre os valores de z-score de IMC aos 13 anos com consumo de açúcares livres ($\beta = -0,602$; 95%CI: -0,832; -0,372) e a carga glicémica ($\beta = -0,668$; 95%CI: -0,852; -0,484) aos 21. Os indivíduos com maior consumo de açúcares livres e carga glicémica, bem como com maior adiposidade aos 13 mantinham esse padrão aos 21 anos.

CONCLUSÕES: Não se observou uma associação significativa entre o consumo de açúcares livres ou carga glicémica aos 13 com parâmetros cardiometabólicos aos 21 anos. No entanto, observou-se uma persistência do consumo alimentar desde a adolescência até à idade adulta, suportando um possível efeito a longo prazo.

CO27: AS MUDANÇAS DOS COMPORTAMENTOS ALIMENTARES PROBLEMÁTICOS ENTRE OS 4 E 7 ANOS SÃO MAIS INFLUENCIADAS POR FATORES PARTILHADOS OU CARACTERÍSTICAS INDIVIDUAIS? UM ESTUDO EM GÉMEOS

Cláudia Ribeiro^{1,2}; Milton Severo^{1,2}; Andreia Oliveira^{1,2}; Elisabete Ramos^{1,2}

¹Unidade de Investigação em Epidemiologia do Instituto de Saúde Pública da Universidade do Porto

²Departamento de Ciências da Saúde Pública e Forenses e Educação Médica da Faculdade de Medicina da Universidade do Porto

INTRODUÇÃO: A hereditariedade dos traços comportamentais está bem estabelecida, mas reconhece-se que os fatores ambientais também sejam fundamentais para determinar os comportamentos alimentares. As amostras de gémeos apresentam a configuração ideal para separar os efeitos do ambiente partilhado do efeito das características individuais no desenvolvimento de comportamentos alimentares problemáticos.

OBJETIVOS: Avaliar se mudanças em comportamentos alimentares específicos entre 4 e 7 anos são influenciadas preferencialmente por fatores partilhados entre irmãos gémeos ou por características individuais.

METODOLOGIA: Os participantes são gémeos da coorte de nascimento da Geração XXI. Um total de 86 mães de gémeos forneceu informações sobre os comportamentos alimentares das crianças aos 4 e 7 anos de idade, incluindo questões relativas à recusa de alimentos, atitudes negativas da criança durante as refeições e menor gosto pela comida. A partir das 6 perguntas foi calculada uma pontuação composta para avaliar comportamentos alimentares problemáticos. O modelo "common fate" foi usado para estimar o efeito de fatores compartilhados e individuais. O modelo decompõe as associações num componente diádico que representa o efeito dos fatores compartilhados e um componente que representa o efeito das características individuais de cada gémeo.

RESULTADOS: No componente diádico, a pontuação do comportamento alimentar aos 4 anos de idade foi significativa e positivamente associado com o comportamento alimentar aos 7 anos ($\beta = 0,402$, $p = 0,008$). No nível individual, não foi observada uma associação significativa ($\beta = 0,020$, $p = 0,701$).

CONCLUSÕES: Estes resultados suportam que, em gémeos, os fatores partilhados explicam mais as diferenças de comportamento alimentar entre os 4 e os 7 anos de idade do que às características individuais.

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CO28: AVALIAÇÃO DO CONSUMO DE ETANOL E FATORES ASSOCIADOS EM MULHERES EM IDADE FÉRTIL, GRÁVIDAS E LACTANTES NO DISTRITO DE CANTAGALO, SÃO TOMÉ E PRÍNCIPE (STP)

Rita Clare Neves¹; Teresa F Amaral¹; Carolina Reynolds²

¹ Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto

² ONGD Helpe – São Tomé e Príncipe

INTRODUÇÃO: O etanol tem a capacidade de atravessar a placenta e passar para o leite materno, afetando o desenvolvimento fetal e do recém-nascido. É recomendada a abstenção do consumo de bebidas alcoólicas durante os períodos pré e pós-natal. Em STP são escassos os dados acerca da ingestão de bebidas alcoólicas, sabendo-se que este é dos países africanos que apresenta políticas menos restritivas sobre o consumo de etanol.

OBJETIVOS: Conhecer o consumo de etanol e os fatores associados em mulheres em idade fértil, grávidas e lactantes no distrito de Cantagalo, STP.

METODOLOGIA: Avaliou-se uma amostra de conveniência constituída por 75 mulheres e 50 crianças, num estudo descritivo. As participantes aplicou-se um questionário e avaliou-se o estado nutricional através do cálculo do Índice de Massa Corporal. Calculou-se e classificou-se um índice de consumo de bebidas alcoólicas (g etanol/dia) de acordo com os pontos de corte da OMS: baixo (1-20 g), médio (21-40 g) e elevado risco (>40 g). Avaliou-se o estado nutricional das crianças através dos indicadores z-scores de Peso para a Idade, Peso para a Estatura e Estatura para a Idade. Considerou-se malnutrição a partir de z-scores inferiores a -2. Realizou-se uma análise bivariada.

RESULTADOS: 72% das grávidas, 76% das lactantes e 88% das mulheres em idade fértil consumiam bebidas alcoólicas, sendo que 55,9% apresentava uma ingestão de risco e 43,5% um consumo esporádico excessivo. Observou-se que mulheres consumidoras eram mais velhas, com menor escolaridade, desempregadas e tinham filhos. Da totalidade de mulheres com filhos, 39% já lhes tinha fornecido bebidas alcoólicas. Verificou-se uma prevalência de 31% de desnutrição crónica, 16% de aguda e 22% de insuficiência ponderal.

CONCLUSÕES: Em STP, o consumo de bebidas alcoólicas apresenta uma forte componente cultural, parecendo ser influenciado por crenças e pelo desconhecimento. Neste estudo, a maioria da população estava em risco de desenvolver problemas físicos e psicológicos a curto e longo prazo, comprometendo a saúde e o desenvolvimento dos seus filhos. Estes factos revelam a importância do desenvolvimento de planos de intervenção, que englobem o aconselhamento, educação e prestação de cuidados de saúde, de forma a minimizar o consumo e, em última instância, as consequências do etanol.

C.O. VENCEDORES

1.º Prémio

CO4 | May parental child-feeding practices at 4 years-old prospectively influence dietary patterns of 7 years-old children that explain body mass index later in life?

2.º Prémio

CO9 | Modification of effect between air pollution and lung function by the inflammatory potential of diet: a cross sectional study in children

3.º Prémio

CO14 | Dietary intake misreport and its association with specific food groups