1 The association between habitual alcohol consumption, PAI-1_{act} and fibrinogen concentration in black South Africans

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The association between alcohol consumption, PAI-1_{act} and fibrinogen concentration, as well as the influence of gender, urbanisation, waist circumference, BMI, triglyceride concentration and the 4G/5G polymorphism (latter two for PAI) in the South African PURE population was investigated.

Two thousand randomly selected rural and urban, apparently healthy, black men and women aged 35-60 years participated in this study. Habitual alcohol consumption (g/day) was determined using Quantitative Food Frequency Questionnaires.

PAI-1_{act} increased with heavy alcohol consumption in the total population after adjustment for triglycerides and waist circumference. PAI-1_{we} was significantly increased in abdominally obese and obese (BMI ≥ 30) participants who drank heavily. PAI-1_{act} was decreased with moderate alcohol consumption in participants with normal triglycerides but not in those with increased triglycerides. In the total population fibrinogen was decreased in the moderate alcohol consumers, and reached a plateau with heavy alcohol consumption. In participants with normal waist circumference and BMI, as well as overweight participants, moderate drinking was associated with reduced fibrinogen concentrations. In abdominally obese participants, and those with a BMI of more than 30, consuming alcohol was, however, not associated with decreased fibrinogen concentrations. Neither gender, the 4G/5G polymorphism (PAI-1 only) nor urbanisation influenced the association between alcohol consumption, fibrinogen or PAI-1act significantly.

Heavy alcohol consumption was associated with increased PAI-1_{act}, while moderate alcohol consumption was associated with decreased fibrinogen concentration which was not further decreased in the heavy alcohol consumers. Normal triglyceride levels and waist circumference protected against the alcohol-related PAI-1_{act} increase in this black African population.

2 The association between current weight status (BMI) and weight management practices, personal and parental weight history and taste sensitivity in obese and normal weight Caucasian women

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Background: Obesity and associated co-morbidities are significant health problems in South Africa, and development of appropriate interventions is essential and should be based on formative assessment of target populations. The study aim was to investigate associations between weight status, personal and parental weight history, weight management practices and 6-n-propyliouracil (PROP) taste sensitivity in Caucasian female adults.

Methods: A convenience sample of 89 obese Caucasian women and 102 normal weight controls completed the PROP taste tests and a self-administered questionnaire developed for this study. Group comparisons were conducted using Chi-square tests followed by multiple regression analyses to determine odds ratios, adjusting for age, language and education.

Results: Individuals more likely to be obese as adults if they were overweight as children (OR 7), as adolescents (OR 13.3) and as young adults (OR 66); if their mother was overweight during their childhood (OR 3.3), if they weighed themselves frequently (OR 2.2) and if they exhibited dietary disinhibition (OR 19.9). Weight loss attempts were prevalent in both cases (98%) and controls (67%), although cases were more likely to have tried a number of different diets (p<0.0001), to have regained lost weight within a year (OR 5.9) and to have used unhealthy weight loss methods (OR 2.4). No association was found between taster status and BMI, even after controlling for eating behaviours.

Conclusion: It is clear that intervention strategies for South African Caucasian females firstly need to target young children (prevention) and secondly, the adult population to ensure successful weight loss and maintenance.

3 Prevalence of metabolic syndrome among urban overweight/obese Zulu women: comparative analysis of two sets of diagnostic criteria

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Background: The increase in overweight and obesity, especially among urban black women results in an increased metabolic syndrome (MS) prevalence. A number of sets of MS diagnostic criteria are available, which may render different MS estimations.

Objectives: To determine and compare the prevalence of MS among overweight/obese urban, Zulu women aged 23-40 years using the ATPIII (2004) central adiposity with waist circumference WC>102cm, high blood pressure, raised triglycerides and blood glucose & lowered HDL criteria and IDF (2005) (central adiposity with WC>94cm, high blood pressure, raised triglycerides and blood glucose & lowered HDL) criteria.

Methods: BMI; WC; blood pressure (BP); fasting blood glucose, triglycerides and HDL cholesterol levels were measured in a sample of 71 overweight/obese Zulu women for diagnosis of MS according to the abovementioned criteria.

Results: Mean values were as follows: BMI 38.127kg/m², WC 100.1cm, systolic BP 122 mm Hg, diastolic BP 83 mm Hg, glucose 5.0mmol/L, HDL 1.30 mmol/L and triglycerides 1.0 mmol/L. Prevalence of MS was 19.7% according to the ATP III and 19.7% according to the IDF criteria. Although the two sets of criteria resulted in similar prevalence estimations, it is important to note that agreement between the two
methods was not 100%, this being due to different cut off criteria for WC.

Conclusion: The fact that different sets of diagnostic criteria may result in different prevalence estimation outcomes needs to be considered in the interpretation of this type of data.

**4 Diet related chronic diseases in rural and urban Dar-Es-Salaam: the case of Ilala Municipality**

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Increased energy intake and low physical activity are the major contributors to rising levels of overweight/obesity and their co-morbidities in many parts of the world. A Cross sectional survey was carried out on 270 adults aged above 25 years and residing in rural and urban areas of Ilala Municipality, Dar es Salaam. Food frequency questionnaire and 24-hour recall methods were used to assess energy intake. The Douglas bag technique assessed energy expenditure, nutrition status and body composition were assessed by body mass index, body fat content and waist hip ratio. Prevalence of overweight/obese was higher among urban (28%), female’s (21%) and subjects aged above 45 years (34%). Females had higher body fat content (32%) than males (21%). 45% females and 4% males had waist hip ratio greater than 1 and 0.85 respectively. Mean fasting blood glucose level was 103.2 mg/dl. Females (46%) and subjects aged above 54 years (61%) had fasting blood glucose level between 140-200 mg/dl. Mean total cholesterol concentration was 5 mmol/l, that of low density lipoprotein was 6.0 mmol/l and high density lipoprotein was 1.1 mmol/l. More than 55% consumed refined maize flour, Irish potatoes, vegetable oil, and coconut milk for more than 4 days per week. Mean daily energy intake was 2134 kcal, and mean daily energy expenditure was 1705 kcal; close to 94% of the subjects had a positive energy balance. Subjects know very little about their nutritional status and health risks associated with poor nutritional status. Nutrition education should be emphasised at all levels so as to prevent and decrease prevalence of obesity and associated morbidities.

**5 Dietary patterns and risk markers for noncommunicable diseases in an Indian population in KwaZulu Natal**

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Research into associations between diet and risk factors for noncommunicable diseases (NCDs) has shifted single nutrients to diet patterns, derived from data-driven methods using factor/cluster analyses. This study explored the association between dietary patterns derived from factor analysis with risk markers for NCDs in an adult Indian population in KwaZulu Natal.

Dietary data were obtained from a random sample of 250 apparently healthy Indian adults using a culturally appropriate quantitative food frequency questionnaire. Principal component factor analysis with Varimax rotation was performed on the percentage total fat derived from 11 food groups. Relationships between factors and NCD risk markers were tested using univariate Chi-squared tests and regression analyses. Two principal factors were identified. Factor 1 showed the highest loadings for the legume, cereal and vegetable groups and factor 2 for the sugars, fats and milk groups. The median values for the modified Indian risk score and blood glucose and cholesterol levels for factor 1 and waist circumference, body mass index and cholesterol levels for factor 2 differed significantly between quintiles (p<0.02). Weak but significant inverse correlations were found for blood glucose levels with factor 1 scores for males and factor 2 scores for the total sample and females (r=-0.17).

Factor 1 described a pattern of high fat intake from fat added to legume, cereal and vegetable dishes while factor 2 described a pattern of fat consumption from sugar, fat and milk groups. Factor analysis identified that the major contributors to fat intake were added fat to prepared dishes.

**6 Prevalence of risk markers for noncommunicable diseases in an Indian community in KwaZulu Natal.**

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Noncommunicable diseases (NCDs) represent the major health burden in industrialised countries and are increasing in developing countries. Indian migrants throughout the world have a high prevalence of diabetes, coronary heart disease and dyslipidaemia, but there is little data on risk markers of NCDs in the South African Indian population. The aim of this study was to determine the prevalence of risk markers for NCDs among the Indian population in KwaDukuza, KwaZulu Natal.

Two-hundred-and-fifty apparently healthy Indians, aged 35-55 years, living in KwaDukuza, were randomly selected. Physical activity level was determined by a questionnaire and pedometer. Blood pressure and fasting blood glucose, triglycerides and total cholesterol were measured under prescribed clinical conditions using Asian cut-off-points. The European SCORE and the modified doubled SCORE, were used to determine the ten-year risk of a first fatal atherosclerotic event.

Diastolic blood pressure was >85 mmHg and triglyceride levels >1.69 mmol/L for 92% of respondents. All women and 87.4% of men were classified as centrally obese. Raised fasting blood glucose was seen in 39% of respondents. 62.5% of respondents were classified as inactive (<600 METS min). When, the risk markers were used in the algorithms, respondents showed a minimal risk for cardiovascular disease. Although HDL-C levels were not measured, it is clear from the results of the clinical and anthropometric measurements that the respondents had characteristics typical of the metabolic syndrome, which supports previous reports of Indians in South Africa and India.

**7 Diet and social determinants of obesity in Kenyan women**

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Background: Little is known about the determinants of dietary intake and obesity in Kenyan women.
Methods: A national sample of women (N=1008) was randomly drawn by the Kenya Central Bureau of Statistics. Weight, height, waist and hip circumference were measured. A 24-hour dietary recall was conducted with each participant and a socio-economic questionnaire completed. Data was analyzed by age, education, location and socio-economic status. Odds ratios were calculated by age and location.

Results: Overweight and obesity (BMI>= 25) were highly prevalent in Kenya (43.3%). Obesity was most prevalent in urban women, over 45 years, and those in the highest income group. Women in the high income group (7278kJ) and in urban areas (7049kJ) had the highest mean energy intakes. There were also significant urban-rural and income differences in the contribution of macronutrients to energy intake. Total fat intake was 34.5% of energy (E) in urban areas and 29.7% E in rural areas; while carbohydrates contributed 69.9% E in rural areas and 57.4% E in urban areas (p<0.0001). Overweight was significantly more likely in the highest income group; among households where room density was low; had electricity or gas for cooking; and had own tap and/or own flush toilet.

Conclusions: The most significant differences in both diet and weight status were found between urban-rural areas, between economic status groups and in level of education. Health policymakers need to recognize that future westernization of diet will exacerbate the prevalence of obesity, at least among women.

How low can you go?

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Background: A weight loss and healthy lifestyle programme for personnel in the PEHC.

Objective: Designed in the form of a competition, the purpose was to educate personnel to make healthy lifestyle choices.

Methodology: Advertisements were posted 2 months before the start of the programme. Application forms were completed by personnel and 45 contestants were chosen using set criteria. The program was divided in 11 sessions plus a final weigh-in and announcement of the winner. “Before” and “after” photographs were taken. Anthropometrics were done weekly. Different topics were discussed. Participants received a booklet to monitor progress, weekly notes covering the topic discussed, meal plans and sample menus. A physiotherapist and psychologist advised on exercise and emotional eating. The winner of the competition was based on the overall percentage weight lost over the 12 weeks. An evaluation forms were completed by the participants at the end of the program and a certificate of completion was given.

Results: Of the 45 selected participants 18 completed the programme with an average weight loss of 5.8%. The overall winner lost 17.3%. Fifteen evaluation forms were completed. The overall content of the programme rated as Average=1; Good=5; Excellent=9. The quality of the notes rated Good=6; Excellent=9.

Conclusion: The programme was a success in creating an increased understanding of a healthy lifestyle among personnel working in the department of health hospital setting. This type of program, with full support from top management, should be part of all personnel wellness programs.

Weight gain, physical activity and dietary changes during the first year of university life

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Background: Overweight and obesity are on the increase in low-income countries, raising the risk of lifestyle-related diseases. The world over, university life is associated with adoption of lifestyles that are likely to be sustained into adulthood.

Objective: To assess weight gain, physical activity and dietary changes during the first year of university life in Malawi.

Methods: A prospective study of first-year students (mean age 19±1.7 years) of the 2008/09 cohort at Bunda College of the University of Malawi was conducted. A self-administered questionnaire was used to collect data at the beginning (November 2008, n=67) and end (June 2009, n=47) of the academic year. Weight and height were also measured. Repeated measures analysis was done for the 47 participants who completed the study.

Results: There was a significant difference in weight gain between female (7.1±3.2 kg, n=26) and male students (9.6±3.5 kg, n=21) (P=0.013). Overall, the students gained 8.5±3.6 kg (P<0.001), and a modest but significant height of 0.2 cm (P=0.04), with body mass index (kg/m²) increasing from 20.7±3.2 to 23.9±3.2 (P<0.001). The students largely lived sedentary lives, with 6.6 hours resting; 2.1 hours light activities; 1.3 hours moderate activities; and, 0.9 hours heavy activities, with no significant changes observed at the end of the study. The consumption of wheat products, meat, sugar, milk and margarine increased, while that of fish, fruits, and vegetables declined.

Conclusion: Transition into university life might be the genesis of detrimental dietary and lifestyle changes in Malawi, which if not managed, could elevate the risk of lifestyle diseases among well-educated people.

Comparison of nutrition knowledge between rural and urban primary school children

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Objective: To compare the nutrition knowledge of primary school children attending a purposively selected school in rural Qwa-Qwa and two purposively selected schools in the urban Vaal region.

Respondents: A convenience sample of 142 rural and 88 urban school pupils, six to thirteen years old.

Methods: The measuring instrument was a validated nutrition knowledge questionnaire to determine nutrition knowledge of the respondents. Data were analysed on the Statistical Package for Social Sciences (SPSS), version 17.0, for descriptive statistics (frequencies) and independent t-tests were done to measure statistically significant differences between the groups.