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**Objective** This study aims to describe the relationship between body mass index (BMI) and blood pressure in three distinct Peruvian populations.

**Methods** Three population groups were recruited: Rural (born and remained in Ayacucho), Migrant (born in Ayacucho and migrated to Lima), and Urban (born in Lima). Systolic blood pressure (SBP) and diastolic blood pressure were measured using oscillometric devices (Omron M5-i, Japan) and standardised techniques. BMI was calculated from standardised measurements. ANOVA was used to test differences between groups. Multi-variable linear regression was used to describe the relationship between BMI and blood pressure, adjusting for potential confounders.

**Results** SBP was similar in the rural ( $120.9 \pm 18.7$ ) and migrant groups ( $119.9 \pm 16.4$ ), but higher in the urban group ( $128.2 \pm 22.9$ ). BMI was significantly lower in the rural group ( $23.2 \pm 2.7$ ), but similar in the migrant ( $27.0 \pm 4.3$ ) and urban groups ( $28.3 \pm 5.4$ ). There was a positive relationship between BMI and SBP (slope 0.81; 95% CI 0.59 to 1.03) after adjustment for age, sex, height and haemoglobin. A positive relationship was observed in urban residents (0.61; 0.04–1.18), but the gradient of the relationship was steeper in the migrant group (0.75, 0.48–1.02). Similar results were found for diastolic blood pressure.

**Conclusions** The relationship between BMI and blood pressure differed between our three study populations, with blood pressure rising at lower values of BMI in migrants. Migrant population in transitional countries may be at greater risk of developing hypertension, and the effect of BMI as a predictor is not uniform in migrant and urban-born residents.

## P2-192 AREA OF RESIDENCE OR SOCIAL CLASS, WHICH IS THE STRONGER DETERMINANT ASSOCIATED WITH CARDIOVASCULAR RISK FACTORS AMONG PAKISTANI POPULATION? A CROSS SECTIONAL STUDY

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**Background** Prevalence of cardiovascular disease and the risk factors associated with it are increasing globally and in particular throughout the developing world. The south Asian region is especially at risk because of the increasing prevalence of the said risk factors. The study was undertaken to investigate the impact of social class and area of residence in distribution of cardiovascular risk factors mainly hypertension and diabetes mellitus in Pakistan.

**Methods** A cross-sectional study on 2495 subjects aged between 30 and 75 years was conducted in the Punjab province covering both the urban and rural areas. A detailed questionnaire was completed; anthropometric measurements and blood samples from the chosen subjects were taken after a written informed consent was obtained. Participants were categorised into urban and rural, and assigned a social class by occupation. A logistic regression model was used to explore the association between social class and the area of residence

**Results** Overall prevalence of hypertension and diabetes was 24.21% and 16.63% respectively. Out of the total number of participants, 56.79% (n=1417) were rural area residents while 43.21% (n=1078) were urban. Urban individuals appeared significantly more likely ( $p < 0.001$ ) to be hypertensive (OR=3.03, 95% CI 2.41 to 4.82) and more likely ( $p < 0.001$ ) to be diabetic (OR=1.77, 95% CI 1.37 to 2.29)

than rural dwellers after multivariate adjustments for age, gender, BMI and social class.

**Conclusions** The study thus concludes that the area of residence is a more powerful determinant associated with cardiovascular risk factors as compared to social class in Pakistani population.

## P2-193 CONFIRMATORY FACTOR ANALYSIS OF METABOLIC SYNDROME COMPONENTS IN IRANIAN ADOLESCENTS: TEHRAN LIPID AND GLUCOSE STUDY

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**Introduction** There is no applicable model for identifying the metabolic syndrome in adolescent populations. The aim of this study was to identify the most components of risk variables associated with metabolic syndrome in Iranian adolescents.

**Methods** Anthropometry, blood pressure and biochemical measurements were assessed in a population-based study of 1307 Iranian adolescents (563 boys and 744 girls) aged 8–11 years in two phases, 1999–2001 and 2005–2007. Exploratory and confirmatory factor analysis was conducted using SPSS version.15.

**Results** A two-factor structure was identified accounting for 55.8% and 53.8% of variance for boys and girls, respectively. The factor loadings for boys (and girls) in study round one two were 0.87 (0.84), 0.88 (0.82), 0.67 (0.63), 0.75 (0.8) and –0.80 (0.81) for systolic blood pressure (SBP), diastolic BP, waist circumference (WC), triglycerides (TG) and high-density lipoprotein (HDL) respectively. In phase two, the factor loadings for boys (and girls) were 0.74 (0.86), 0.76 (0.83), 0.72 (0.43), 0.75 (0.74), –0.72 (–0.77) for SBP, DBP, WC, TG and HDL, respectively. Fasting blood sugar had a loading factor of 0.47 only in boys in study round two. The two-factor model fit the data significantly in both study rounds by sex (Comparative fit index: 0.77–0.97).

**Conclusion** The two-factor model could be used for determining metabolic syndrome in adolescents in Iran; these two factors are blood pressure, and lipid profile/obesity.

## P2-194 HIGH PREVALENCE OF METABOLIC SYNDROME AMONG JAPANESE IMMIGRANT IN SOUTH BRAZIL

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**Introduction** Prevalence of obesity and related risk factors, recognised as Metabolic Syndrome (MetS), are influenced by environmental factors including diets and physical activities, which immigrant study can show evidence.

**Objectives** To assess prevalence of obesity and its related risk factors among Japanese immigrant population in South Brazil compared with representative Japanese data in Japan.

**Methods** In August 2010, from 12 scattered colonies of Japanese immigrants in Santa Catalina and Rio Grande do Sul States, in Brazil, 274 immigrants were recruited. MetS was determined, according to Japanese Guideline, waist circumference 85 cm or over for males and 90 cm or over for females, with at least 2 accumulated related risk factors such as hypertension, high blood sugar, high triglyceride and low HDL cholesterol. Prevalence were compared

with representative Japanese data report from National Health and Nutrition Survey.

**Results** 243 participants, 117 males and 126 females, completed questionnaire and measurements. Elderly people aged 65 and over were 58.2% in males and 61.9% in females. Prevalence (%) of overweight, BMI>25.0, were 36.3/24. for males/females, whereas 28.6/20.6 in Japan. Waist circumference more than 85 cm for male and 90 cm for female, were 80.2/38.4 whereas 52.9/17.9 in Japan. Hypertension, SBP>140 and/or DBP>90, were 60.9/57.4, whereas 42.8/31.5 in Japan. Probable diabetes, FBS>126 mg/dl, and high triglyceride, >150 mg/dl, were almost same. Metabolic syndrome were noted 41.8/12.6 whereas 25.3/10.6 in Japan.

**Conclusion** High prevalence of MetS among Japanese Immigrant Population with big dietary change in South Brazil was indicated.

# **P2-195 A PROPENSITY SCORE FOR PREDICTING MAJOR ADVERSE OUTCOMES AFTER TOTAL JOINT REPLACEMENT IN MEN**

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**Objective** Prioritisation of patients for total joint replacement (TJR) represents a challenge. The objective of this study was to construct a propensity score (PS) that both predicts and informs prioritisation of TJR among elderly men.

**Methods** Clinical data from 11388 men were integrated with hospital morbidity data and mortality records. A PS quantifying each individual's probability of having TJR was calculated using multivariable competing risk regression models. The PS was then used to assess risk of incident in-hospital complications and mortality following TJR.

**Results** Younger and healthier patients were selected for TJR. Comorbidities such as diabetes mellitus, peripheral vascular disorders, and cancer lowered the probability of having TJR. Among men who had TJR, 25% developed a major in-hospital complication. The PS independently predicted both major complications and short- and long-term mortality. Patients with low PSs who nonetheless underwent TJR were more likely to experience an adverse outcome. After adjusting for risk factors, patients who were in the lowest tertile of the distribution of the PS were 67% more likely to develop a major complication (p=0.023), and 2.2 times more likely to die within 10 years after TJR (p=0.035). Other predictors of major complications following TJR included weight, injury, and having a minor complication. In-hospital complications independently increased the risk of mortality after TJR.

**Conclusion** In the presence of clinical indications for TJR, this PS informs clinical decision making about selecting patients who are most likely to benefit and least likely to be harmed as a consequence of TJR.

# **P2-196 SMOKING, BODY WEIGHT, PHYSICAL EXERCISE AND RISK OF LOWER LIMB TOTAL JOINT REPLACEMENT IN A POPULATION-BASED COHORT OF MEN**

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Adelaide Hospital, Adelaide, South Australia, Australia; <sup>5</sup>Faculty of Health Science, Australian Catholic University, Victoria, Australia

**Objective** To assess the associations of smoking, body weight and physical activity with the risk of undergoing total joint replacement (TJR) in a population-based cohort of men.

**Methods** A cohort study of 11388 men that integrated clinical data with hospital morbidity data and mortality records. In three separate age groups we modelled the risk of TJR on weight, height, comorbidity, injury, socioeconomic status, years of smoking and exercise, using Cox proportional hazards regressions and competing risk regressions.

**Results** A dose-response relationship between both weight and smoking, and risk of TJR was observed. Being overweight independently increased the risk of TJR, while smoking lowered the risk. The decreased risk among smokers was demonstrated in both Cox and CRR models and it became apparent after 23 years of exposure. Men who were in the highest quartile (48+ years of smoking) were 44%–52% less likely to undergo TJR than never-smokers. Tests for trend in the log HRs across both smoking and weight quantiles yielded p<0.001. Vigorous exercise increased the hazard of TJR, however, the association reached statistical significance only in the 70–74 year-old age-group (adjusted-hazard ratio: 1.71, 95% CI 1.26 to 2.33). Adjusting for Deyo–Charlson Index or Elixhauser's comorbidities did not eliminate these associations.

**Conclusion** Being overweight and reporting vigorous physical activity increased the risk of TJR. This study is the first to demonstrate a strong inverse dose-response effect of duration of smoking and TJR. More research is needed to better understand the role of smoking in the pathogenesis of osteoarthritis.

# **P2-197 CASE-CONTROL ANALYSIS OF THE EFFECTS OF AGE AND GEHELMINTH INFECTION ON WHEEZE AND ATOPY IN THE RURAL TROPICS**

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**Introduction** Epidemiological data suggest that a minority of asthma cases in Latin America may be associated with allergic sensitisation which could be explained by the effect of environmental factors. The aim was to explore the relationship between levels of IgE specific for allergens (asIgE), skin prick test responses (SPT) and recent wheeze and the effect of age and geohelminth infections on these associations.

**Methods** A case-control study was conducted among 376 children aged 7–19 yrs living in Afro-Ecuadorian rural communities in tropical Ecuador. Asthma cases were selected based on the presence of recent wheeze and controls as a random sample of those without symptoms by questionnaire. Atopy was measured either by asIgE or SPT. Geohelminth infection was determined by both eggs in stools and anti-Ascaris IgE.

**Results** There was a significant positive association between the markers of atopy and recent wheeze in the older (7–11 yrs) but not in the younger (12–19 yrs) age group. A positive association between anti-Ascaris IgE and wheeze was observed in both the younger (adj. OR 2.06, 95% CI 1.05 to 4.03) and the older age groups (adj. OR 3.00, 95% CI 1.37 to 6.56). Having SPT responses was significantly associated with wheeze among children with no active geohelminth infection (adj. OR 3.52, 95% CI 1.05 to 11.79), while