

scores of DAPOS ( $p < 0.05$ ). Patients with high scores on DAPOS exhibited higher risk for worse pain-disability after follow-up. Additionally, patients with higher baseline scores on TSK ( $> 38$ ) had a lower step count over time ( $p < 0.05$ ).

**Conclusion** Depressed mood and fear of movement affect the outcomes of disability, the level of physical activity and the pain intensity in patients with acute LBP.

#### P2-463 USE OF SUBSTANCE AMONG RESIDENTS OF KARACHI: REASONS AND COSTS OF USING SUBSTANCES

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**Introduction** Use of substances (pan, chaalia, ghutka, niswar) is associated with serious health risks. In Pakistan most people use substances from early years of life which keeps them on risk of short life span. The aim of this study was to estimate the costs of using these substances and to understand the reasons for using substances.

**Methodology** This was a cross-sectional study conducted in two residential colonies in Karachi, Pakistan during 2008–2009. Pre-coded structured questionnaire was administered to collect the data on socio demographics, use of substance, costs and reasons for use of substances.

**Results** From 124 randomly selected residents, 107 (86%) agreed to respond. All the selected participants were between the ages 10–71 years (mean  $\pm$  SD age  $36.2 \pm 16.4$ ). Daily use of substances was significantly higher among males ( $p < 0.001$ ). Further, the use was higher among adolescents than adults ( $p < 0.001$ ) and interestingly less educated consumed less than high educated ( $p = 0.06$ ). Males are spending significantly higher on substances; Rs.  $37 \pm 11.5$ /day [Rs.930 or (US\$13)/month] compared to females. Overall, 41% of the cost is spent on cigarettes followed by 27% on local ghutka. The main reasons for using substances were peer pressure, easy availability of substances, stress, liking of taste and to treat toothache.

**Conclusion** This study concluded that use of substances is higher among young males and they are spending substantial amount on those substances. To prevent this population, regular awareness campaigns may be held at community and school level so that, continuous re-enforcement make them to quit from using any substances.

#### P2-464 INCIDENCE AND MAIN CAUSES OF SEVERE MATERNAL MORBIDITY IN SÃO LUÍS/MARANHÃO-BRAZIL: A LONGITUDINAL STUDY

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**Introduction** The evaluation of severe maternal morbidity has been used in the monitoring of maternal health. The objective of this study is to estimate its incidence and main causes in São Luís-Maranhão, one of the poorest cities in Brazil.

**Methods** A prospective longitudinal study, carried out in two public high risk maternity clinics and two intensive care units (ICUs) of reference to obstetrical cases of the city. During the period of 1 March 2009 and 28 February 2010, all cases of severe maternal morbidity were identified following Mantel's and Waterstone's criteria. Socio-demographic characteristics and healthcare data of the extremely severe cases were compared to the less severe cases.

The Fisher,  $\chi^2$ , Student t, and Mann–Whitney tests were used for a statistical analysis, with significance levels of  $< 0.05$ .

**Results** 127 cases of severe maternal morbidity among 8493 deliveries were identified, leading to an incidence of 15.0/1000 deliveries. 122 women were interviewed, five cases were lost (3.9%). 121 cases fell under Waterstone's criteria and 29 under Mantel's criteria, corresponding to incidences of 14.1/1000 and 3.4/1000 deliveries, respectively. These rates are lower than those described in the literature, possibly due to case loss. The main causes of morbidity were hypertension during pregnancy, more frequent in less severe cases ( $p = 0.001$ ) and obstetrical haemorrhage, more common among extreme severe cases ( $p = 0.01$ ).

**Conclusion** The obstetrical disorders are the main causes of severe maternal morbidity in São Luís/Maranhão. The investigation and monitoring of severe morbidity can contribute to improve the obstetrical assistance in the city.

#### P2-465 REGIONAL VARIATION IN HISTOPATHOLOGY-SPECIFIC INCIDENCE OF INVASIVE CERVICAL CANCER AMONG PERUVIAN WOMEN

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**Introduction** This study aimed to evaluate cervical cancer patterns in Peru by examining the variation in two common histopathologic types, squamous cell carcinoma (SCC) and adenocarcinoma (ADC), and analysing differences over time.

**Methods** Data on invasive cervical cancer incidence was obtained from three population-based cancer registries in Peru: Lima, Arequipa, and Trujillo. A cervical cancer-specific quality assessment was performed on each registry. Crude and age-specific incidence rates per 100 000 were calculated for overall, SCC- and ADC-specific cervical cancers, and time trends analysed.

**Results** Lima and Trujillo demonstrated acceptable data quality; however, Arequipa was questionable. Incidence rates for overall cervical cancer were significantly different across registries: Arequipa (47.2), Trujillo (36.1), and Lima (18.9). Rates for SCC were significantly lower in Lima (14.0) as compared to Arequipa (29.7) and Trujillo (30.0). Rates for ADC did not differ significantly across registries. Time trend analyses showed significant declines in overall and SCC-specific rates in Trujillo. No other time trends were found. Age-specific analyses showed that young women (15–29 years) in Trujillo and Arequipa experienced significant increases in ADC-specific rates over time.

**Conclusion** Cancer registry data showed that overall and histopathology-specific cervical cancer incidence rates varied across regions of Peru, and over time. The use of cancer registry data proved to be an efficient method for evaluating cervical cancer incidence patterns in Peru. We suggest supplementing current screening methods with newer preventive methods to combat the rising incidence of ADC among young women in Peru.

#### P2-466 AIR POLLUTION EFFECTS IN RESPIRATORY HEALTH IN SICK POPULATION: A MULTILEVEL STUDY IN BUCARAMANGA, COLOMBIA

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A previous study in Bucaramanga, Colombia had shown that there were not association between outdoor air pollution and incidence of respiratory symptoms related to asthma in healthy paediatric population. We investigated whether exposure to different levels of outdoor air pollution are associated to incidence of respiratory symptoms in population with chronic diseases. Three pollution zones were selected according to historic measures of particulate matter <10 µg/m<sup>3</sup> (PM10): low (<40 µg/m<sup>3</sup>), medium (40–60 µg/m<sup>3</sup>) and high (>60 µg/m<sup>3</sup>). A total of 756 patients with chronic cardiovascular and respiratory disease were selected around the air quality stations at each zone. This was a cohort study with the follow-up-phase lasting 6 months using daily calendar of symptoms and clinic visits. Symptoms with higher incidence rates were sneeze and hacking cough. Incidence rate of total symptoms per 100-participant-day was 46 with differences between zones. Incidence rate ratio of total symptoms between low and high zone was 1.14 (95% CI 1.11 to 1.16). Except for wheezing (IRR 0.84; 95% CI 0.78 to 0.91) and inhalers use (IRR 0.68; 95% CI 0.64 to 0.73), all symptoms were higher in middle pollution area, but multivariate analysis using Poisson multilevel approach shown after adjustment for confounding variables, high pollution area is associate with 64% and 77% more symptoms compared with middle and low pollution area, respectively. These results suggest that in populations with morbidity outdoor air pollution is a key determinant of respiratory symptoms and respiratory negative effects are seen over 60 µg/m<sup>3</sup>.

## P2-467 TWO-SIDED NUTRITIONAL PROBLEMS AMONG SCHOOL-AGED CHILDREN IN VIETNAM

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**Objective** To estimate the prevalence of underweight, overweight and obesity in Vietnamese children and adolescents aged 6–18 years in both urban and rural areas.

**Methods** A cross-sectional study was conducted in 2006. Data on height and weight of 6354 children living in rural areas and 5280 children in urban areas were used for analysis. The prevalence of underweight/thinness, overweight and obesity was estimated according to the United States Centers for Disease Control (CDC) growth charts and WHO child growth standards (WHO Reference 2007).

**Results** In urban areas, the prevalence of underweight, overweight and obesity among children and adolescents aged 6–18 years was 9.5 %, 21.0% and 8.4% in boys and 10.0%, 9.7% and 1.8 in girls, respectively, based on the CDC cut-offs. In rural areas, the corresponding rates were 26.2%, 1.2% and 0.3% in boys and 20.4 %, 0.7% and 0.1% in girls, respectively. Urban children were more likely to be overweight than rural children. Conversely, rural children were more likely to be underweight than urban children.

**Conclusions** The co-occurrence of overweight and underweight among urban children and adolescents and persistent underweight epidemic among rural peers are the main health concerns in Vietnam. Policy planner should develop appropriate health strategies for urban populations to reduce the rising epidemic of over nutrition, while also focusing on the needs underweight children. In rural areas, it the government should provide more effective intervention to reduce poverty and improve the nutrition status of rural children.

## P2-468 INEQUITIES IN THE EARLY CONDITIONS OF LIFE: EFFECTS ON THE MORTALITY OF ELDER. RESULTS FROM THE SABE STUDY - SÃO PAULO - BRASIL: 2000–2006

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**Introduction** Studies indicate connections between childhood conditions and health in old ages. Early conditions of life may be related to individual factors of development. Thus, rural areas can harbour states of child development different from those in the urban ambience.

**Objective** To evaluate the impact of rural origin on mortality of elders living in a urban region.

**Methods** Data are from SABE: a longitudinal survey in São Paulo—2000/2006. The explanatory variable “origin”, was obtained from the question: “Have you lived in the countryside for more than 5 years before the age 15?” Control variables are sex, age, education, income; having had malaria, pneumonia or typhoid fever before the age of 15. Outcome was “death”: people alive in 2000 (n=2143) and confirmed dead before or during the second round in 2006 (n=649).

**Results** Rao-Scott tests showed differences according to the origin of the elders for all variables except age and typhoid fever. A Poisson regression was applied to evaluate the associations between “origin” and “death” in the presence of all other variables, controlling for time of exposure. Incidence Rate Ratio (IRR) for rural origin was 1.54 (p=0.03). That is, having lived in the countryside before the age of 15 increased the death rate by 54%. Sex, age and income were also significant, with IRR of 1.79; 3.57 and 1.69.

**Conclusions** These results demonstrate that inequities such as rural-urban inequality, even occurring in the young ages, can perpetuate differences through a person's life, including an increased chance of dying when older.

## P2-469 MATERNAL VITAMIN D STATUS AND DELIVERY BY CESAREAN

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**Introduction** Factors which increase risk of delivery by cesarean include older maternal age, obesity, nulliparity, minority status and a prior history of cesarean delivery. In all probability less well defined factors exist at least one of which may be nutritional—maternal vitamin D deficiency and insufficiency during pregnancy. We examined the association of circulating levels of vitamin D to risk of cesarean delivery using prospective data.

**Method** Circulating maternal 25-hydroxyvitamin D and intact parathyroid hormone at entry to care (13.8±0.17 weeks - mean, SEM) were assayed by HPLC (25 hydroxyvitamin D) and radioimmunoassay (parathyroid hormone) in a cohort of 1153 low income and minority gravidas from Camden, NJ.

**Results** The prevalence of vitamin D deficiency (19.8%) and insufficiency (50.5%) at entry was high and accompanied by increasing concentrations of parathyroid hormone, a functional indicator of vitamin D status. Risk for primary cesarean, for secondary cesarean, as well as for all deliveries by cesarean was increased approximately twofold for vitamin D deficient women (<37.5 nmol/l) except for primary cesarean delivery where risk also was increased 1.5-fold with levels suggestive of insufficiency (37.5–80 nmol/l). Vitamin D deficiency was linked to indications for cesarean including a twofold