

The School Environment and Health

Chairpersons: I McCartney, C Macpherson

O – 57

Mapping the school food environment in Dominica

L Riley, C Henry, D Ramdath
Division of Nutrition, University of Saskatchewan,
Saskatoon, Saskatchewan, Canada
E-mail: ler149@mail.usask.ca

Objective: To map the current food environment of primary schools in Dominica. Specific objectives were to: 1) assess food outlets available, 2) audit the food sold, 3) determine the frequency of consumption of food sold and 4) engage stakeholders in developing healthy recipes.

Subjects and Methods: A brief telephone survey was conducted among primary schools (n = 41) to assess food outlets available. Key informant interviews were conducted with the principals of a subsample of eight purposefully selected schools to audit the food sold. Food outlets and food sold were tabulated. Students' consumption of food sold was measured using a food frequency questionnaire. Baseline mapping data informed an intervention that promoted a "healthy bakes" challenge among students.

Results: Food outlets within the school food environment included tuck shops, vendors, shops and school feeding programmes; they sold a variety of commercially-prepared and home-made snack foods. High fat high sugar foods were popular among items sold at these outlets. Food vending was seen as profit-generating and this influenced the nutritional quality of the items sold. The most commonly consumed food on a daily basis was local juice (32.6%), followed by fried bakes and cheese (21.1%). The "healthy bakes" challenge yielded a variety of reformulated bakes; however, there was much room for exploring non-fat methods of preparation.

Conclusions: The findings demonstrate the comprehensiveness of the food environment of public primary schools in Dominica. Information presented is useful to stakeholders and can impact the types and quality of food made available in and around school premises.

O – 58

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O – 59

Mental health, sexual and reproductive health, substance use and connectedness among adolescents in the overseas Caribbean territories

S Caffè, S Munoz, CF Allen, S Jones, C Bianchessi, N Jack
Pan American Health Organization (PAHO), Washington,
DC, USA; Department of Public Health-CIGES,
Universidad de La Frontera, Chile; Independent
consultant, Barbados; PAHO, Barbados; PAHO, Jamaica
E-mail: caffes@paho.org

Objective: To analyse mental health, sexual and reproductive health (SRH) and substance use behaviours and outcomes among adolescents in the overseas Caribbean territories and their association with family and school connectedness.

Subjects and Methods: The data were collected through a school-based survey administered to secondary school students in Aruba, British Virgin Islands (BVI), Cayman Islands, Montserrat, St Eustatius and St Maarten. Multi-country analysis was conducted through pooling and weighting of the data from the six territories. Data analysis included descriptive analysis and odds ratios to examine associations between family and school connectedness and mental health, SRH and substance use.

Results: Data on 4883 respondents in the age group 15–19 years were used for the analysis, equally divided in males (49%) and females (51%). More than half (58.8%) of the girls reported feelings of sadness or hopelessness for more than a day and 31.2% seriously considered suicide. Approximately one-third (34.9%) made a suicide plan and 70.6% of these girls attempted suicide at least once. A quarter (23.2%) of the girls and 30.1% of the boys initiated sex before age 15 years; 58.2% of the females and 57.7% of the males used alcohol in the past 30 days and 44% of the boys got very drunk at least once. More than half of the adolescents reported lifetime marijuana use. Statistically significant associations were found between low

family and school connectedness, and feeling sad or hopeless, suicidal thought, sexual initiation before age 15 years, pregnancy, alcohol and substance use.

Conclusions: The results highlight the critical importance of connectedness for adolescents to be healthy and thrive.

O – 60

Cardio-metabolic risk from early adolescence to early adulthood in an ethnically diverse British cohort

S Harding, M João Silva, OR Molaodi, ZE Enayat, A Cassidy, A Karamanos, UM Read, P Dall, B Stansfield, JK Cruickshank
King's College London, London, UK; University of Glasgow, Glasgow, UK; University College London Hospital, London, UK; Glasgow Caledonian University, Glasgow, UK
E-mail: seeromanie.harding@kcl.ac.uk

Objective: To examine the potential impact of adolescent growth on cardiovascular disease (CVD) markers from early adolescence in the Determinants of young Adult Social well-being and Health (DASH) study.

Subjects and Methods: Of 6643 London children aged 11–13 years, from 51 schools in samples of ~1000/ethnic group, 4785 were seen again at 14–16 years. In 2013, 665 (97% of invited) participated in a pilot follow-up study at 21–23 years. Body size, blood pressure (BP), blood biomarkers and socio-environmental factors were measured. Regression models examined the impact of adiposity on BP trajectories, glycated haemoglobin (HbA_{1c}) and allostatic load (AL) at 21–23 years.

Results: Approximately 40% were overweight/obese at 21–23 years, with steep increases in body mass index (BMI), waist-to-height ratio (WHtR), obesity and fat mass index between 14–16 years and 21–23 years. Increase in WHtRs was greatest for the Pakistanis/Bangladeshis (+0.02, 0.00 to 0.04). Compared to UK whites, black Africans/Caribbeans were taller (2–3 cm) at 11–13 years but not at 21–23 years and more likely to be overweight at every age. Pakistanis/Bangladeshis were consistently ~5 cm shorter and ~3 kg lighter but had more % fat mass. Growth indices were related to systolic BP, HbA_{1c} and AL, with a significant impact from measures in early adolescence on HbA_{1c} and AL. Between 11–13 years and 21–23 years, overweight was associated with +3 mmHg rise and obesity with +5% mmHg rise in systolic BP compared with normal weight. Higher HbA_{1c} in black Caribbeans was explained by more adiposity at 11–13 years.

Conclusions: Adiposity at 11–13 years had a powerful impact on CVD risk at 21–23 years, regardless of ethnicity.

O – 61

Association between obesity and lung function among teenagers in Trinidad

D Khan, F Lutchmansingh, S Teelucksingh, L Pinto Pereria, S Pooransingh, S Nayak, V Tripathi, T Seemungal
Department of Mathematics and Statistics; Departments of Paraclinical, Pre-clinical Sciences and Clinical Specialties, Faculty of Medical Sciences, The University of the West Indies, St Augustine, Trinidad and Tobago
E-mail: dezkhana@yahoo.com

Objective: To examine association between obesity and lung function among teenagers in Trinidad.

Subjects and Methods: This study is part of an ongoing five-year cohort study in which five schools in the St George East educational district of Trinidad were selected and students entering form one were followed up to form three (2012 to 2015). A questionnaire was completed on previous pulmonary disorders, eating and exercise habits along with demographic data. Data were available on 584 male students and 502 female students for three years. Descriptive analyses were performed according to year. General linear model analyses were performed to determine relationship of lung function variable ratio (forced expiratory volume in 1st second/forced vital capacity [FEV1/FVC]) to independent variables.

Results: Analysis of variance, according to year, showed that among the male students, FEV1, FVC, forced expiratory flow (FEF), peak expiratory flow rate (PEFR) in L/min, waist circumference, diastolic and systolic blood pressure, age and FEV1/FVC (%) were significant, whereas moderate exercise, FEV1, FVC, FEF, PEFR, age and FEV1/FVC (%) were significant in female students. The mean (year of study) PEFR in males were 285 (1), 302 (2) and 384 (3). The mean (year of study) PEFR in females were 273 (1), 278 (2) and 338 (3). General linear model analysis showed PEFR to be a common significant factor for FEV1/FVC in both male and female students. In addition to PEFR, age, body mass index (BMI)-for-age-Z-score, ethnicity and interaction of religion and ethnicity were also significant among females.

Conclusion: Based on results, BMI-for-age-Z-score is significantly associated with FEV1/FVC in female students, but not in male students.

O – 62

Analysis of intervention and counselling for at-risk youth to reduce crime, violence and improve outcomes for the individual, the schools and the family

S Celestine, O Olusesis, M Chatoor
Health Services Unit, The University of the West Indies, St Augustine, Trinidad and Tobago
E-mail: sandra.celestine@sta.uwi.edu

Objectives: In this study, we examined how counselling of students and their parents can change youth misbehaviour and reduce school violence and crime. Our primary objective was to derive empirical data on successful counselling therapies for at-risk secondary school students within Trinidad and Tobago.

Subjects and Methods: Participants included 145 secondary school students from selected secondary schools in one school district in Trinidad and Tobago. Of these, 49 (17.3%) participants were referred by the school principals as suspended or at risk of being suspended. Participants had to complete a 12-week counselling programme consisting of individual, group and parent guidance sessions.

Results: After controlling for demographic characteristics, results indicate that a 12-week counselling intervention and participation in multi-modal therapeutic counselling

sessions was statistically significant in changing at-risk youth negative mood states and student misbehaviour and school violence.

Conclusion: The results of this study show that the socio-economic environmental factors present in high-risk communities contribute to hopelessness and depression which manifest themselves in physical and mental health problems. In our study, more than 50% of school youth involved in school crime and violence are afflicted with health problems. These health problems include maladies such as depression, emotional, verbal, or physical abuse, unresolved grief and loss. Research is needed to determine the potential causal nature of the relationships between mental health problems (*ie* hopelessness, depression) on youth violence and crime and its potential effects on health and well-being.