

## **54288 - Predictors and Trajectory of Post-Concussive Symptoms 12-months Post-deployment In Soldiers With and Without mTBI**

Postconcussive symptoms are believed to resolve in days or months in most instances for civilian injuries, though recent evidence suggests that recovery may be slower for injuries sustained during military deployment. The present study is based on a cohort of recently deployed soldiers from two US Army military bases (Fort Carson and Fort Bragg, followed from 2009-2015). Soldiers with and without a recent history of a deployment mild traumatic brain injury (mTBI) were evaluated within days of return and at 3, 6, and 12-months. Mixed effects models using a missing at random (MAR) approach for missing data were used to evaluate the role of mTBI and other factors on the trajectory of symptoms. Those with mTBI were more likely than non-mTBI to endorse one or more postconcussive symptoms at a severe and or very severe level (47% vs. 21% baseline; aRR=1.7 95% CI: 1.51,1.93 all-time points) and remained significant after adjusting for PTSD (aRR=1.34 95%CI: 1.41,1.82). Prevalence and relative risks (for three of most common baseline symptoms remained constant over time: sleep problems (RR=2.19), forgetfulness (RR=2.56), irritability (RR=2.73). The pattern was slightly different for headache, decreasing from RR=3.44 at baseline to RR=3.26 at 12 months, due to increased prevalence of headache in those without mTBI. . The prevalence of clinically relevant postconcussive symptoms remained relatively constant over one year of follow-up, whether or not symptoms were associated with concussion. Service members with recent mTBI reported more symptoms than non-mTBI at all time-points.

## **54291 - Health indicators among children in New York City (NYC), New York State, New Jersey, Connecticut and nationally**

"Background. City-level data is critical for characterizing the needs and strengths of NYC's 1.5 million children aged 0-12. In conjunction with state and national-level data, we can highlight variability across jurisdictions and identify the relative importance of health risk factors. Health insurance coverage gaps, food insecurity, adverse childhood experiences (ACEs) and increased screen time pose threats to children's mental and physical health. Adequate sleep and family members frequently reading to children promote positive child development.

Study Aims. To compare health indicators among NYC children aged 0-12 to findings nationally and in surrounding states (NY, NJ, CT).

Methods. A crosswalk of the 2015 NYC Child Health, Emotional Wellness, and Development Survey (n = 3,000) and 2016 National Survey of Children's Health (n = 50,000) identified common variables. CHEWDS and NSCH weighted estimates were calculated in SUDAAN.

Results. Although 99% of NYC children currently have health insurance, 6% of NYC children experienced a coverage gap in the past year, compared to 1-3% in other jurisdictions. Of the ACEs evaluated, neighborhood violence and domestic violence are more prevalent in NYC than in other jurisdictions. 31% of NYC households with children experience food insecurity. 32% of NYC children aged 7-12 engage in 4+ hours of screen time on a typical weekday, compared to 37% in other jurisdictions. 59% of NYC families read to their young children daily, compared to 35-47% in other jurisdictions. 88% of NYC children aged 7-12 sleep for the recommended 9+ hours per day, compared to 63-67% in other jurisdictions.

Conclusions. While NYC reports higher estimates of family members reading to children and sleep quantity, results suggest that efforts should address gaps in health insurance coverage and substantial food insecurity. This analysis monitored NYC's progress towards improving the health of NYC children and will inform future NYC programs and policies."

**54298 - The association between occupational exposure to textile fibre dusts and lung cancer in a population-based case-control study in Montreal: a preliminary analysis comparing results from three analytical methods**

"Objectives: To compare results estimated using two causal inference methods, inverse probability of exposure weighting (IPW) and G-computation, to that estimated using the conventional multivariable logistic regression, on the association between occupational exposure to textile fibre dusts and lung cancer risk.

Methods: A population-based case-control study on lung cancer was conducted from 1996 to 2001 in Montreal, Canada. Cases were individuals diagnosed with incident lung cancer and population controls were randomly selected from electoral lists and frequency-matched to cases by age, sex and electoral district. Questionnaires on lifetime occupational history, smoking and demographic characteristics were collected during in-person interview. Experts reviewed subjects' work history and assessed exposure to 294 agents, including textile fibre dusts. Odds ratios (OR) and their 95% confidence intervals (CIs) for the association between ever exposure to textile fibre dusts and lung cancer risk were estimated using three different methods: 1) IPW, 2) G-computation, and 3) conventional multivariable regression.

Results: The two causal inference methods produced higher point estimates (OR\_IPW=1.17, 95% CI=0.86-1.57; OR\_G-computation=1.11, 95% CI=0.80-1.49) compared to that estimated using the conventional multivariable logistic regression (OR=0.87, 95% CI=0.68-1.11). However, all three sets of OR results were close to the null value.

Conclusion: The different methods provided rather similar results, albeit not identical. They are compatible with a null association between occupational exposure to textile fibre dusts and lung cancer."

## **54302 - National trends in characteristics, management, and outcomes of metastatic cancer**

"Purpose: Metastatic cancer represents the most advanced stage of cancer and leads to high mortality. We assessed changes in sociodemographic characteristics, treatments, and survival among metastatic patients in order to better inform public health practices.

Methods: This is a retrospective cohort study using data from the Surveillance, Epidemiology, and End Results (SEER) program from 1973-2015 and the National Cancer Database (NCDB) from 2003-2014. Data regarding patient characteristics came from SEER and clinical management from NCDB. We examined changes in patient characteristics and clinical management over time and conducted multivariable survival analysis to identify factors associated with the overall survival of patients. Simple linear regression models for the year of diagnosis (X) and the relative percentage of patients receiving treatment (Y) were performed for NCDB data.

Results: There were a total of 8,057,570 patients, the average patient age was 65 years and the majority of patients were white (83%). The male-to-female ratio was about 1:1. The most common cancer types were female breast (1,342,410 cases), prostate (1,262,181 cases), and lung/bronchus (1,207,208 cases). The diagnosis of metastatic disease increased by 13.1% from 385.4 per 100,000 people in 1973 to 436.0 in 2015 ( $p < 0.05$ ). There was a 19.1% increase in diagnoses for females vs. 4.2% for males; 16.1% increase for whites vs. 4.5% for blacks). White patients had a longer OS than blacks (mean 70 months vs 58,  $p < 0.0001$ ); females had a longer OS than males (mean 75 vs 63,  $p < 0.0001$ ). Changes in treatment modalities, examined by % slope change per year showed an increasing trend for more surgery and immunotherapy.

Conclusion: Patients who are younger, white, and female have the longest survival. There is a growing disparity in the diagnosis and survival of metastatic disease in demographic subgroups."

## **54322 - Application of Machine Learning to Identify Potential Risk Factors for Gastroschisis**

Gastroschisis, a major abdominal wall defect, affects ~1,900 U.S. pregnancies annually, and is becoming more common, notably among young mothers; few other risk factors have been identified. We applied tree-based machine learning to identify potential risk factors of gastroschisis using the Slone Epidemiology Center Birth Defects Study (1998-2015). Within 6 months of delivery, mothers of cases and non-malformed controls completed telephone interviews, which ascertained socio-demographic, reproductive and pregnancy history, and behavioral factors, including medications, supplements, and diet. We restricted this analysis to isolated gastroschisis and frequency-matched on study center, yielding 273 cases and 2591 controls. Data reduction was used to avoid sparse data and model overfit. Data were then evaluated using random forest (1,000 trees, 43 variables with 5 sampled at each node, minimum 20 observations per split). Variable importance was derived from the area under the curve with out-of-bag trees. This process identified 16 factors which contributed to the predictive accuracy. Maternal age was by far the most important factor, followed by whether or not the parents were together, paternal age, smoking, maternal education, maternal BMI, whether or not it was the mother's first pregnancy, whether or not the mother was Black, frequency of intake of high fat and sodium foods, household income, alcohol intake, marijuana use, paternal education, parental employment status, whether or not the father was Black, and pregnancy planning. In traditional univariate logistic regression models, higher maternal and paternal age and education, income, and BMI and planned pregnancy were protective; not partnered, not employed, first pregnancy, and the other factors increased risk. Our results support previous studies, and also put forward several novel predictors. Future research should explore interactions in more detail, with the goal of identifying modifiable risk factors.

## **54324 - The effect of resistance training on health-related quality of life in older adults: Systematic review and meta-analysis.**

Background: Resistance training (RT) is recommended as part of our national physical activity guidelines which includes working all major muscle groups on two or more days a week. Older adults can gain many health benefits from RT, such as increased muscle strength, increased muscle mass, and maintenance of bone density. Additionally, certain dimensions of health-related quality of life (HRQOL) have been shown to improve in older adults due to RT intervention. The purpose of this study was to use systematic review and meta-analytic techniques to examine the effect of RT on HRQOL in older adults. Methods: A systematic review of current studies (2008 thru 2017) was conducted using PUBMED. Studies were included if they used a randomized controlled design, had RT as an intervention, measured HRQOL using the SF-36/12 assessment, and included adults 50+ years of age. Eight dimension scores (physical functioning, bodily pain, physical role function, general health, mental health, emotional role function, social function, and vitality) and two summary scores (physical component and mental component) were extracted. Ten meta-analyses were performed using standardized mean effect sizes and random effects models. Study quality, moderator and sensitivity analyses were conducted. Results: A total of 16 studies were included in the analyses with a mean PEDro score of 4.9 (SD=1.0). Among the mental health measures, RT had the greatest effect on mental health (ES=0.64, 95% CI: 0.30-0.99, I<sup>2</sup>=79.7). Among the physical health measures, RT had the largest effect on body pain (ES=0.81, 95% CI: 0.26-1.35, I<sup>2</sup>=85.9). Initially, RT did not significantly affect measures of emotional role function, social function or physical role function. However, after removing a single study, RT significantly increased all HRQOL measures. Conclusion: The meta-analytic evidence presented in this research clearly supports the promotion of RT in improving HRQOL in older adults.

### **54327 - The association between cardiovascular disease and life satisfaction**

**Introduction:** Little is known about the impact of cardiovascular events on life satisfaction for males and females. The objective of the present study is to determine the gender-specific association between the three most common cardiovascular conditions (stroke, angina, heart attack) and life satisfaction.

**Methods:** The Behavioral Risk Factor Surveillance System (BRFSS) database for 2014-2016 was utilized. The final dataset (n = 50,906) for the study consisted of respondents from four states where the module “Emotional Support and Life Satisfaction” was used. The outcome of interest was life satisfaction. The type of cardiovascular event was determined by three questions in the survey about heart attack/angina/stroke. To examine the predictors of life satisfaction in association with the cardiovascular condition, logistic regression models were used. A stratified analysis was conducted by gender to examine potential differences. **Results:** Respondents who had three cardiovascular events were dissatisfied with life in 15% of cases. Only 6% were dissatisfied after the heart attack, and 8% were not happy with their life among those who had stroke or angina. The statistically significant association between stroke/heart attack and life satisfaction in males was identified after adjusting for potential confounders. Men who reported stroke were 50% less likely to be dissatisfied with life when compared to those who did not report stroke (OR=0.5, 95% CI: 0.3-0.8, p= 0.01). At the same time, the association between stroke and life satisfaction was not found in women. Surviving a heart attack decreased the odds of being dissatisfied with life by 60% in males (OR=0.4, 95% CI: 0.2-0.8, p=0.01). The association between heart attack and life satisfaction in females was found to be not statistically significant.

**Conclusions:** Men who had a stroke or heart attack were more satisfied with life when compared to healthy controls. Further studies are needed to evaluate this observation.

### **54329 - Comorbid Drug Use Disorders and Affective Disorders as Vulnerabilities to Current Smoking**

"Significance: Individuals with mental illness or drug use disorders have a higher prevalence of cigarette smoking than adults without these disorders. This study aims to identify subgroups of adults based on comorbid conditions, important vulnerabilities for current smoking.

Methods: The National Epidemiologic Survey on Alcohol and Related Conditions-III, 2012-2013, sampled, recruited, and assessed 36,309 adults, with interviews on drug use and other characteristics. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-5 Version (AUDADIS-5) was used to identify psychiatric conditions and latent class models were developed based on various diagnoses (i.e., opioid, cannabis, alcohol, and cocaine use disorders¼ depression, anxiety). Multinomial logistic regression estimated the significance of covariates in predicting class membership.

Results: Four latent classes optimally distinguished the population: no comorbid conditions (62%), comorbid affective disorders (17%), those with alcohol use disorder (17%), and a highly comorbid subgroup (4%). The highly comorbid class was more than two times as likely to be current smokers compared to all other classes. They were also younger and lower income compared to the other three classes. The class distinguished by alcohol use disorder had a higher proportion of females compared to the three other classes. Interestingly, a higher prevalence of those in the class with comorbid affective disorders lived in a rural setting compared to the two other comorbid classes.

Conclusions: The class with the highest concurrent past year drug use and affective disorders reported the highest prevalence of smoking and other vulnerabilities to smoking, including younger age and lower income. Reducing tobacco use in this group with comorbidities may require targeted efforts in young adults, those of lower income, and individuals with affective disorders, as well as addressing concurrent drug use in tobacco or drug treatment."

### **54332 - County-level rent burden in relation to individual risk factors for cardiovascular disease: The National Longitudinal Survey of Youth**



"BACKGROUND: Housing is a fundamental social determinant of health. Past studies have shown that high levels of unaffordable housing increase residents' odds of moving, often redistributing individuals into disadvantaged neighborhoods and dwellings, which may simultaneously expose individuals to health damaging factors while limiting their exposure to health-promoting factors. Residents within unaffordable housing areas may also experience adverse physical and mental health outcomes through various psychosocial, behavioral and material pathways. However, few studies have examined the relationship between housing affordability and physical health outcomes, including Cardiovascular disease (CVD), the leading cause of morbidity and mortality among Americans.

METHODS: In the National Longitudinal Survey of Youths 1979 (NLSY79), a nationally-representative sample of Americans aged 35 to 43 in 2000, we explored the association between rent burden at the county level from 2004-2006 and individual-level risk of hypertension and obesity between 2007 and 2015. Rent burden was measured as the % of household income spent on rent among renters, and aggregated to the county level. Hypertension was assessed as physician diagnosed high blood pressure and obesity was defined as BMI  $\geq 30$ . We used fixed effects logistic regression models, in order to reduce bias due to time-invariant confounders.

RESULTS: A one-percentage point increase in county-level rent burden predicted a 13% increased odds (OR=1.13, 95% CI = 1.03 to 1.25) of being subsequently diagnosed with hypertension between 2007 and 2015 and a 7% increased odds (OR=1.07, 95% CI = 0.98, 1.20) of becoming obese over the same period, controlling for multiple individual- and area-level demographic and socioeconomic factors.

CONCLUSIONS: Local policies aimed at making rent more affordable for residents may reduce the population burden of cardiovascular disease."

"*Helicobacter pylori* (Hp) infection, which causes chronic stomach inflammation and increases stomach cancer risk, has an elevated prevalence in northern Canada relative to southern Canada. This analysis investigates social inequities in the Hp-associated disease burden among participants in community-driven CANHelp Working Group projects in the Northwest Territories and Yukon. It examines how socioeconomic indicators and gender relate to this disease burden.

Selected socioeconomic indicators include the Canadian Deprivation Index (CDI) and its 3 components: home ownership; education; and food security. Income is not a component because it is difficult to ascertain accurately. We ascertained participants' home ownership and education status during 2007-2017 using a structured questionnaire, and food security during 2017-2018, using the Canadian Government Household Food Security Survey, which we adapted for Arctic communities. Selected gender variables include sex and whether the household is led by an unpartnered woman. The selected Hp disease burden variable was prevalence of Hp infection. We estimated the effect of the CDI and each component on disease frequencies in subgroups of interest. We also estimated disease frequencies in women relative to men and in households led by unpartnered women relative to other households.

Hp prevalence was higher at higher deprivation levels as measured by the CDI; this effect was strongest in households headed by unpartnered women. There was a very strong association between severe food insecurity and Hp prevalence, which was also strong in households led by unpartnered women.

Both the composite CDI indicator and the food insecurity component were positively associated with Hp prevalence among CANHelp community project participants, particularly in households led by unpartnered women. Thus, the Hp-associated disease burden appears to be influenced by social and gender inequities within Indigenous Arctic Canadian communities."

"Background: There are very few studies that examine the effect of religious involvement on attitudes about mental health, perhaps due to the underrepresentation of minorities in research. Previous studies suggest that African Americans are more likely to have chronic depression than Whites and less likely to seek treatment for it or find psychological treatment acceptable. According to the Pew Research Center's 2014 U.S. Religious Landscape Survey, 53% of African Americans report belonging to a historically Black Protestant denomination and 91% report religion being very or somewhat important to them.

Purpose: The purposes of this study are to gather information on perceptions of mental health treatment and self-reported depression and religiosity from Black Americans within predominantly Black churches and to analyze connections between (a) treatment-seeking and religiosity and (b) religiosity and depression symptoms.

Methods: A cross-sectional survey was distributed to four churches. The survey assessed demographic information, religiosity, depressive symptoms, and attitudes toward mental health treatment as a proxy for treatment seeking.

Results: The results of 455 surveys showed that subjective religiosity was a significant predictor of depressive symptoms, with participants who were highly and moderately religious were 2.30 and 2.66 times more likely to have depressive symptoms than participants categorized as least religious, respectively. Participants who had high nonorganizational religiosity scores were 4.06 times more likely to have positive attitudes toward mental health treatment than individuals in the low category.

Conclusion: It is recommended that pastors of predominantly Black congregations should use their influence to improve acceptance of traditional mental health treatment and work with local faith-based and traditional mental health care providers to increase utilization of mental health care among African American Christians."