0460 S/P

GENDER, OCCUPATIONAL CLASS, AND MENTAL HEALTH: EVIDENCE FROM A RETROSPECTIVE COHORT STUDY OF U.S. ALUMINUM MANUFACTURERS Holly Stewart* Holly Stewart, David Rehkopf, Valerie Meausoone, Ellen Eisen, Mark Cullen, (UC Berkeley School of Public Health)

Past research consistently finds that blue-collar workers experience more depression and psychiatric distress as compared with higher-status white-collar workers. However, findings from contemporary U.S. working populations and evidence regarding the mental health of women in historically male-dominated blue-collar jobs is limited. We examined the health and employment records of 30,074 men and 7,137 women employed at 32 U.S. Alcoa aluminum manufacturing plants between 2003 and 2013. Cox proportional hazards models were used to estimate the association between occupational class (blue- vs. white-collar status) and depression among men and women. To explore survivor bias, we also estimated the association between occupational class and depression separately among workers hired after the start of follow-up (i.e. new hires) and among workers already employed by the start of follow-up (i.e. prevalent hires). Attained age was used as the time scale, and all models were simultaneously adjusted for race/ethnicity, marital status, number of dependent children, calendar year, and plant location. The risk of depression was increased among blue-collar workers as compared with white-collar workers among men (HR= 1.25, 95% CI 1.17 –1.33) and women (HR= 1.34, 95% CI 1.22–1.47). Among men, the HR for depression was consistent across all workers, new, and prevalent hires. Among women, however, we find evidence of an association between blue-collar status and depression among prevalent hires (HR = 1.44, 95% CI 1.29 – 1.63) but not among new hires (HR= 1.01, 95% CI 0.86 – 1.19). We find that among both men and women, the risk of depression is increased among blue-collar workers relative to white-collar workers. Further, our findings suggest that survivor bias for depression may operate differently for men and women in our study cohort.

0461 S/P

DEATHS OF DESPAIR IN AN ICONIC INDUSTRIAL COHORT OF AUTOWORKERS Suzanne M. Dufault* Suzanne M. Dufault, Holly Stewart, Ellen A. Eisen, (UC Berkeley School of Public Health)

Between 1999 and 2014, the US suicide rate rose by 24%, and deaths from drug overdoses nearly tripled. Deaths from suicide and drugs, along with alcohol-related liver diseases—collectively described as “deaths of despair”—have been increasing sharpest for working age Whites with only a high school education. However, little evidence exists regarding the specific nature of these trends within the manufacturing sector. We examined trends in deaths from suicide and alcohol-related liver disease in an iconic cohort of predominantly White male industrial autoworkers. The cohort includes 38,636 subjects who worked at least three years in one of three Michigan plants, followed for mortality from 1941 to 2010. Suicide and deaths due to alcohol-related liver diseases were identified based on ICD-9 and ICD-10 codes. We estimated the association between decade of birth and deaths of despair with hazard ratios (HR) using Cox proportional hazards models where follow up starts at leaving work, adjusting for sex and race. There was a spike in suicides within one year of leaving work accounting for 36% of all suicides with 64% occurring among employees who left work before age 55. The HR for all deaths of despair combined was 1.3 (95% CI [0.9924, 1.6248]) comparing the most recent birth cohort (born after 1950) to the earliest (born before 1930). When examined separately, the HR increased for the most recent birth cohort for both suicide and alcohol-related liver diseases (HR= 2.36, 95% CI [1.66, 3.34], HR= 2.68, 95% CI [1.96, 3.66], respectively). These rising rates from deaths of despair among autoworkers born after 1950 are consistent with national trends. However, failure to examine the trends among its components of suicide and alcohol-related liver disease may obscure the association.

0462 S/P

NIGHTSHIFT WORK BEFORE AND DURING PREGNANCY AND OFFSPRING MENTAL HEALTH DISORDERS IN ADOLESCENCE Susanne Strohmaier* Susanne Strohmaier, Elizabeth E. Devore, Celine Vetter, Stacey Missmer, Heather Eliassen, Olivia Okereke, Eva S. Schernhammer, (Brigham and Women's Hospital and Harvard Medical School)

Studies suggest that nightshift work induces epigenetic alterations and especially exposure surrounding pregnancy may lead to behavioral programming in the offspring. We investigated the association between maternal rotating nightshift work history before pregnancy (4,044 mothers, 4,813 children) and nightshift work during pregnancy (545 mother-child pairs) and offspring mental health outcomes through adolescence among children enrolled in the Growing Up Today Study 2 between 2004 and 2013, and their mothers participating in the Nurses Health Study 2. Outcome definitions were based on self-reported physician diagnosed depression or anxiety, regular antidepressant use, and depressive symptoms (assessed via the Center for Epidemiologic Studies Depression Scale). Generalized estimating equations regression models were used to estimate multivariable adjusted ORs and 95%CIs. We observed no association between maternal nightshift work before pregnancy and risk of any of the considered mental health disorders in their children. Similarly, longer duration of nightshift work was not associated with the risk of any of the considered outcomes (all PTrend>0.09). However, compared to offspring of women without a history of rotating nightshift work, risk of depression was significantly elevated for offspring of women with any rotating nightshift work before pregnancy if they were definite morning chronotypes (OR=1.92; 95%CI=1.16–3.18), whereas this was not the case for women with intermediate or evening chronotypes (OR =0.92; 95%CI=0.67–1.26; PInteraction=0.004). Risks of mental health outcomes for children of women with or without nightshift work during pregnancy were not significantly different. Overall, while nightshift work before or during pregnancy was not associated with offspring mental health in our study, our results indicate that maternal chronotype might play a role in the relationship between nightshift work before pregnancy and offspring depression outcomes.

0463 S/P

CUMULATIVE OCCUPATIONAL EXPOSURE TO DIESEL ENGINE EXHAUST AND HEMATOLOGIC PARAMETERS IN THE UK BIOBANK Jason Y.Y. Wong* Jason Y.Y. Wong, Bryan Bassig, Rena Jones, Jinming Zhang, Wei Hu, Bu-tian Ji, Debra Silverman, Nathaniel Rothman, Qing Lan, (National Cancer Institute)

Diesel engine exhaust (DEE) is a known human lung carcinogen. Previous studies have found alterations to immune cell counts and markers in workers occupationally exposed to DEE. We further investigated associations between occupational DEE exposure and hematologic parameters. We analyzed data from 119,255 volunteers aged 40-69 years who enrolled in the UK Biobank in 2006-2010 and provided an occupational history. DEE exposure was self-reported at baseline as: rarely/never (intensity coefficient (IC)=1), sometimes (IC=2), and often (IC=3) for each job. Cumulative exposure was calculated by multiplying IC and years at each job, and summing across all jobs. Blood was collected at baseline and complete blood count was measured. Linear regression models were used to estimate associations between quartiles (Q) of cumulative exposure (Q1: 0-55 (ref), Q2: 56-97, Q3: 98-154, Q4: ≥155) and log-transformed hematologic parameters, adjusted for center, age, sex, race, body mass index, smoking status/intensity, and Townsend deprivation index. Increased cumulative DEE exposure was non-linearly associated with elevated lymphocyte counts (Q2: β (SE)=2.3E-3 (2.6E-3), p=3.7E-1; Q3: 6.0E-3 (2.6E-3), p=2.3E-2; Q4: 5.5E-3 (2.7E-3), p=3.9E-2; p-trend=0.18). There was evidence of increased eosinophil (Q2: 1.1E-2 (5.5E-3), p=4.8E-2; Q3: 2.1E-3 (5.5E-3), p=7.0E-1; Q4: 1.1E-2 (5.7E-3), p=5.6E-2; p-trend=0.15) and decreased neutrophil counts (Q2: 4.6E-3 (2.7E-3), p=8.9E-2; Q3: -7.8E-3 (2.7E-3), p=4.5E-3; Q4: -4.2E-3 (2.8E-3), p=1.4E-1; p-trend=0.93) with higher exposure. No associations were found for basophil, monocyte, and total white blood cell counts. Similar trends were found in never-smokers, excluding those with prevalent immune/blood conditions, and comparing years of often/sometimes exposure to rarely/never exposed. Our findings provide further evidence that DEE exposure may alter immune processes, which are increasingly recognized for their mechanistic roles in lung carcinogenesis.

Society for Epidemiologic Research

51st Annual Meeting

Abstract Book

Baltimore, Maryland – June 19-22, 2018