561-S

TRANSITIONS THROUGH STAGES OF PROBLEM DRINKING AMONG WOMEN WITH MOOD AND ANXIETY DISORDERS: A LATENT TRANSITION ANALYSIS. *L La Flair, B Reboussin, K Green, C Storr, A Alvanzo, L Pacek, R Mojtabai, B Goggins, R Crum (Johns Hopkins Bloomberg School of Public Health, Baltimore, MD)

Little is known about whether mood and anxiety disorders alter transitions through stages of problem drinking, particularly for women. Study objectives were to 1) identify stages of women's alcohol involvement, 2) examine probability of transitions in alcohol involvement, and 3) evaluate the impact of mood and anxiety disorders on these transitions. Data are from 11,785 women identified as current drinkers in Wave 1 (2001-2002) and followed up in Wave 2 (2004-2005) of the National Epidemiological Survey on Alcohol and Related Conditions. Latent class analysis identified stages of alcohol involvement using 11 DSM-IV abuse/dependence criteria. Latent transition analysis was used to model transition probabilities between stages across waves. Impact of lifetime diagnoses of major depressive disorder (MDD) and generalized anxiety disorder (GAD) on transitions was examined, adjusting for potential confounders. Three stages of drinking were identified: severe (prevalence: 1.2-1.5%), moderate (9.7-11.6%), and no problems (89.0-86.9%). Women with GAD were more likely to transition from no problems at Wave 1 to severe at Wave 2 compared to women without GAD (adjusted odds ratio; AOR 3.56, 95% CI: 1.46-8.69). Women with GAD in the severe class were also less likely to recover to no problems (AOR .20, 95% CI: .04-.94). Depressed women were more likely to advance from no problems to severe (AOR 2.85, 95% CI: .90-9.01) and less likely to transition from severe to moderate compared non-depressed (AOR .288, 95% CI: .10-.86). These findings support both MDD and GAD as drivers of progression in women's problem drinking.

562

MODELING LONGITUDINAL COUNT DATA WITH EXCESS ZEROS IN AN EPIDEMIOLOGICAL STUDY. *R Gupta, R D Vandyke, M Macaluso (Cincinnati Children's Hospital, Cincinnati, OH)

Counts are often modeled with a Poisson distribution, but overdispersion due to excess zeros is common. This problem also hampers treatment of repeated measures. Longitudinal zero-inflated Poisson (ZIP) models are mixtures of Logistic and Poisson models where the logistic portion models structural zeros, and the Poisson portion models the mean non-zero count. The model can account for within-subject correlation and can be fit with standard software. We compared a ZIP model with a traditional Poisson model using data on problems with condom use reported by women at high risk of sexually transmitted diseases (STDs). These were mainly African American (84%), 18-35 years old, with high school education and low income; 57% reported no problems with condom use. The ZIP model provided better fit than the traditional model (Bayesian information criterion: 2608 vs. 2912). The ZIP model also produced richer observations than the traditional model: the odds of reporting no problems increased with age [Odds Ratio (OR) = 1.1, 95% CI: 1.0-1.3, $P = 0.02$] in the longitudinal ZIP model but not in the traditional model. The odds of no problems with female condom use increased over time [OR = 2.9, 95% CI: 1.6-4.0, $P < 0.01$]. Strong belief in the benefits of condom use decreased the odds of repeat problems [OR = 0.9, 95% CI: 0.8-0.9, $P = 0.03$]; women with no reported STDs at baseline were less likely to report new failures than those who reported STDs [OR = 0.7, 95% CI: 0.6-0.8, $P = 0.03$]. Repeat problems decreased during follow-up [OR = 0.8, 95% CI: 0.7-0.9, $P < 0.01$]. With increasing use of female condoms, reports of problems increased [OR = 1.1, 95% CI: 1.0-1.1, $P < 0.01$]. The longitudinal ZIP model provided better fit and additional insight into the determinants of condom failure.

563

AN ALTERNATIVE APPROACH FOR FITTING MODELS FOR DOUBLY-CLUSTERED HIERARCHICAL DATA: AN APPLICATION TO LONGITUDINAL MEASURES OF MEDICATION SAFETY IN AMBULATORY CARE PRACTICES. *P J Nietert, A W Wessell, R G Jenkins, L S Nemeth, C B Litvin, V Ramakrishnan (Medical Univ of South Carolina, Charleston, SC)

Background: Generalized linear mixed models (GLMMs) are often used for modeling longitudinal data in epidemiological research, and typically random effects are used to handle dependence of observations within clusters and within subjects over time. With large numbers of subjects, model convergence may require computing resources beyond the ability of many desktop computers. We propose a strategy using a resampling approach that is computationally less demanding, and we apply our findings to measures of medication safety gathered over time on patients in PPRNet®, a U.S.-based practice based research network. Methods: The novel strategy estimated the degree of change in a binary outcome (prescription for any "inappropriate" medication) obtained monthly on 25,713 patients within 20 PPRNet® practices, over a 2-year period. The strategy involved repeatedly drawing subsamples of patients with replacement, constructing a full model with 2 random effects for each subsample, and pooling results across models. The novel strategy was then compared to the traditional GLMM. Results: Our sampling technique yielded unbiased parameter estimates, with estimated standard errors within 5% of the standard errors from the complete 2-level GLMM. Conclusions: Our strategy for modeling clustered longitudinal data is a promising alternative. When limited computational resources preclude using a full GLMM with 2 or more random effects, our strategy renders a solution. This simplified technique could foster improvements in modeling high-dimensional data in epidemiological research and assessment of public health interventions.

L01

WAIST CIRCUMFERENCE AND ENDOTHELIAL FUNCTION IN POLICE OFFICERS. *P Baughman, D Fekedulegn, M E Andrew, P N Joseph, J M Dorn, J M Violanti, C M Burchfiel (National Institute for Occupational Safety and Health, Health Effects Laboratory Division, Morgantown, WV)

Rationale: Police officers represent 706,900 workers in the U.S. and have high rates of cardiovascular disease (CVD). Given associations between obesity and CVD, we evaluated a less well-established association between waist circumference and brachial artery reactivity (BAR), a measure of endothelial function and early CVD risk. Methods: Demographic, anthropometric, and risk factor data were collected during 1999–2000 in the Buffalo Cardio-Metabolic Occupational Police Stress Study. BAR was measured during 2001–2003 using standardized noninvasive ultrasound scans and was calculated as percent increase in brachial artery diameter after blood pressure cuff release. Gender-stratified regression models adjusted for age, smoking, and physical activity were used to examine trends in mean BAR across waist circumference tertiles. Due to limited sample size, effect modification by several factors was evaluated among all officers combined. Results: The study included 70 officers (57.1% men) with a mean age of 40.9 years. Adjusted mean BAR decreased (5.96%, 4.26%, 3.37%; $P = 0.06$) across increasing waist tertiles (80–89.4, 89.5–97.9, 98–126 cm) among men, but not women. Alcohol use was an effect modifier; officers who had intake above the median had a significant decline in adjusted mean BAR (5.56%, 5.20%, 2.12%; $P = 0.01$) across increasing waist tertiles, whereas those with lower intake did not. Further adjustment for gender attenuated this association. Conclusion: Results indicate larger waist circumference may be associated with reduction in BAR. Larger sample size and longitudinal study are needed to confirm this relationship.

* = Presenter; S = The work was completed while the presenter was a student