ANXIETY’S EFFECT ON PERFORMANCE IN AN ATTENTION TASK

**Poster category:** Behavioral Health, Mental Health, Substance Abuse  
**Co-authors:** Bartlett Russell, B.D. Hatfield  
**Abstract:** Stress and anxiety are common features of the modern workplace. It has been estimated that anxiety and anxiety-related disorders account for almost a third of total expenditures for mental illness in the U.S. and most of that cost is attributed to lost workplace productivity (DuPont et al., 1996). Yet how anxiety affects performance in different contexts remains unclear. This study examined the effects of stress on performance in high- and low-stress situations. We measured the performance of college-age adults (N= 50) on a simple sustained attention task under “threat” (risk of mild, unpredictable shock) and “safe” (no risk of shock) conditions. Because some individuals are more sensitive to stress and anxiety than others, we also compared the performance of those with high and low Trait Anxiety.

SELECTION OF FIXED AND RANDOM EFFECTS IN LINEAR MIXED EFFECTS MODELS WITH APPLICATIONS TO TAAG

**Poster category:** Research Methods  
**Co-author:** Tong Tong Wu  
**Abstract:** Linear mixed-effect models have become popular in modeling data in a wide variety of fields, particularly in public health. These models are able to account for both the means as well as the covariance structure of clustered or longitudinal data. However, as studies are able to collect an increasing amount of data for large numbers of predictors, a major challenge has been the selection of important variables to create a more interpretable, reduced model. This poster will compare three methods that attempt to select and estimate both important fixed and important random effects from longitudinal data. The models will be compared through analysis of simulated longitudinal data. Additionally, the methods will be applied to a public health study, the Trial of Activity in Adolescent Girls (TAAG), to determine important predictors for Moderate to Vigorous Physical Activity (MVPA). The TAAG study collected data from 8th grade girls at six Maryland schools at two time points. The first time point was in the spring of the girls’ 8th grade and for the second, the girls were followed up in 11th grade. The fixed effects contain predictors at the individual, neighborhood, and social level. The random effects contain predictors at the school level, collected at the 8th grade time point.
The TAAG data contains 55 predictors for fixed effects and 19 predictors for random effects. The purpose is to select the important predictors for MVPA over time. Results of the simulations indicate that the methods are effective in selecting true fixed and random effects with minimal false selections. The preliminary results of the TAAG study’s analysis will also be presented. These methods have important implications for any public health or biomedical study where clustered or longitudinal data is collected for a large number of predictors.

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SOCIOECONOMIC AND ENVIRONMENTAL DISPARITIES IN THE RISK OF CAMPYLOBACTERIOSIS IN MARYLAND

Poster category: Environmental Health, Environmental Justice
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Abstract: Background & Objectives: Environmental and socioeconomic factors can play an important role in the risk of Campylobacter infections. Here, we evaluate for the first time in the U.S, the combined impact of community-level environmental and socioeconomic factors on the risk of campylobacteriosis. Methods: Campylobacter case data (2002-2010, n=3,694) were obtained from the Maryland Foodborne Diseases Active Surveillance Network (FoodNet). Community-level socioeconomic and environmental data were obtained from the 2000 U.S. Census and the 2007 U.S. Census of Agriculture. Data were linked by zip code. Incidence rate ratios were derived by Poisson regressions. A subset of zip code-level characteristics was mapped. Results: In zip codes that are 100% rural, incidence rates of campylobacteriosis were nearly 8 times (IRR=7.70; 95%CI=3.51-16.86) that of urban zip codes. In zip codes with broiler chicken operations, incidence rates were 2.28 times that of zip codes without broilers (IRR=2.28, 95%CI=2.21-2.34). Higher rates were also observed for zip codes that were predominantly white and had high median incomes and high owner-occupancy rates. Conclusions: Our findings show that the risk of campylobacteriosis could be largely influenced by the community and environment where one lives.

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THE ATTITUDES AND BEHAVIORS OF YOUNG ADULTS REGARDING PROVISION OF ALCOHOL TO UNDERAGE YOUTH

Poster category: Behavioral Health, Mental Health, Substance Abuse
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Abstract: Purpose: It is well known that a significant proportion of underage drinkers obtain alcohol from family, friends, and/or other acquaintances. Little data is available regarding the extent to which recently-turned 21-year-olds are approached to provide alcohol for their younger peers and how often they do so. This study aimed to understand the attitudes and behaviors of young adults related to providing alcohol to underage drinkers. Method: Participants were 756 individuals (mean age 23.1) originally enrolled as first-year college students in an ongoing prospective study who had been approached by someone under the age of 21 to provide alcohol at least once since the participants turned 21. Data were gathered on the total number of times they provided alcohol, and how provision related to the age of the recipient (18- to 20-years old or under 18 years) and their relationship to the recipient. Providers and non-providers were compared on demographic factors, drinking frequency, age at first drink, fraternity/sorority involvement, and perceptions of legal and health risks of provision. Results: The majority of young adults in the sample (84.5%) reported providing alcohol to someone under the age of 21, with fewer providing to someone under 18 (20.6%) than between the ages of 18 and 20 (82.7%). Young adults most commonly provided alcohol to friends, followed by family members, and less frequently to acquaintances or strangers. Males were more likely than females to provide alcohol, both for minors under 18 and for 18- to 20-year-olds. Past-month drinking frequency, younger age at first drink, and less perception of health and legal risks were also significantly associated with provision. Conclusions: These findings highlight that recently turned 21-year-olds represent a prevention target for strategies to reduce underage drinking. More research is needed to understand the motivations of young adults who provide alcohol to underage drinkers.
COMMUNITY HEALTH NEEDS ASSESSMENT FOR PRINCE GEORGE’S HOSPITAL CENTER & LAUREL REGIONAL HOSPITAL

Poster category: Surveillance, Community Needs Assessment, Pedagogy
Co-authors: Lori Simon-Rusinowitz

Abstract: The research team will produce a Community Health Needs Assessment ("CHNA") report for two (2) hospitals: Prince George's County Health Center and Laurel Regional Hospital. The University of Maryland Medical Center CHNA will be utilized as a model for the Dimension hospitals' CHNA reports. The CHNA reports will be comprised of the following components: I. Community Health Needs Assessment Approach and Methods II. Purpose and Scope of the Assessment III. Data Collection and Analysis • Hospital Data and Assessment • Community Input Random Household Survey Data (publicly available) • Input from Community Leadership • Input from Health Experts • Health Statistics Comparisons to our findings based on County, State and National Health Priorities (publicly available) IV. Selection of top 3-5 Health Priorities for each CHNA V. Documenting and Communicating Results VI. Assist Dimensions with Development of Implementation Strategies to Address Health Priorities. A presentation of the findings will be made to Dimensions’ staff and a final report will be completed for each of the hospitals and presented to the Dimensions’ board for approval. Dimensions will make the report available to the public, and put a copy of the report on their website.

ASSOCIATION BETWEEN PSYCHOLOGICAL DISTRESS & UNINTENTIONAL NON-OCCUPATIONAL INJURIES AMONG U.S. ADULTS

Poster category: Behavioral Health, Mental Health, Substance Abuse
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Abstract: Background: Previous studies have demonstrated that individuals with mental illness have an elevated risk of intentional injuries, but the association between poor mental health and unintentional injuries is not well understood. Methods: We used the 2010 National Health Interview Survey to assess the association between psychological distress and the 3-month prevalence of unintentional non-occupational injury in adults. Psychological distress was measured by the Kessler Psychological Distress Scale, a validated scale that identifies community-dwelling persons with serious mental illness. Multivariable logistic regression was used to estimate adjusted odds ratios (AOR) and 95% confidence intervals. Results: Of the 27,157 participants, 2.5% (weighted %) reported a medically-attended unintentional injury in the past three months. Those with moderate and severe levels of psychological distress had 1.5 [1.2-1.9] and 2.1 [1.5-3.0] times higher odds of injury, respectively, as compared to those with low distress levels, after adjusting for age, sex, race, marital status, education level, alcohol use, physical functional limitation, presence of chronic disease, employment status, and health insurance status. Severe psychological distress was significantly associated with falls [AOR 2.3 (1.5-3.7)] and overuse/strain injuries [AOR 3.4 (1.4-8.1)] but not transportation-related injuries [AOR 1.7 (0.7-4.2)]. Conclusion: Among community-dwelling U.S. adults, psychological distress is significantly associated with unintentional non-occupational injury, and the magnitude of association increases with severity of distress. The association between psychological distress and injury may be particularly strong for fall and overuse/strain injuries. Screening for psychological distress to identify and intervene in high-risk groups should be considered as part of prevention strategies for both intentional and unintentional injuries.
DRUG DELIVERY BY NOVEL CUCURBIT[N]URIL-TYPE MOLECULAR CONTAINERS

**Poster category:** Infectious Diseases  
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**Abstract:** Background. Many drug delivery systems are based on the ability of certain macrocyclic compounds – such as cyclodextrins – to act as molecular containers for pharmaceutical agents in water. Cucurbit[n]urils (CB[n]) are a class of molecular containers that bind to a variety of cationic and neutral species with high affinity (Ka > 10^4 M^-1) and therefore show great promise as a drug delivery system (Isaacs, 2009). Initial in vitro toxicity analysis demonstrated good biocompatibility of five different CB[n]-type compounds (Hettiarachchi et al., 2010). We hypothesized that these nanocontainers can be used to increase solubility of hydrophobic small chemical compound drugs. Methodology. In this study we investigated the toxicology and bioactivity of one novel cucurbit[n]urils CB[n]-type container (named Motor1). The container induced no toxicity at concentrations of up to 10 mM in human cell lines originating from kidney, liver or blood tissue using assays for metabolic activity and cytotoxicity. Furthermore, the Motor1 container was tolerated in mice without any toxicity after intravenous dosing of up to 1.5g/kg bodyweight. Interestingly, Motor1 was able to bind the cancer drug paclitaxel/taxol and increase its solubility in water by a factor of 2000. Furthermore, Motor1 bound to three additional drugs and increased their aqueous solubility by 700fold (Melphalan), 400fold (Cinnarizine) and 1200fold (Clopidogrel). Finally, bioactivity assays showed that the increase in solubility by paclitaxel via Motor1 led to a more efficient killing of the cervical cancer cell line HeLa. Conclusion. Our study reveals very low toxicity of a novel member of the cucurbit[n]uril family of nanocontainers. It demonstrates the increase in solubility of four commercially available drugs by the containers by factors ranging from 400-2700fold. Importantly, the increase in solubility of paclitaxel/taxol led to increased killing of cancer cells in vitro. These results provide initial proof-of-concept towards the use of CB[n] molecular containers as an advanced drug delivery system for the treatment of cancer.