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## The American Academy of Health Behavior 2018 Annual Scientific Meeting: "An Equity Approach to Health Behavior Innovations"

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## The American Academy of Health Behavior 2018 Annual Scientific Meeting: "An Equity Approach to Health Behavior Innovations"

### Abstract

The American Academy of Health Behavior (AAHB) hosted its 18<sup>th</sup> Annual Scientific Meeting at the Embassy Suites by Hilton in historic downtown Portland, OR March 4-7, 2018. The meeting's theme was "An Equity Approach to Health Behavior Innovations." This publication describes the meeting theme and includes the refereed abstracts presented at the 2018 Annual Scientific Meeting.

### Keywords

Annual Meeting, 2018

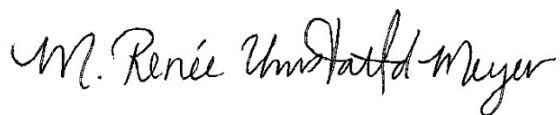
## American Academy of Health Behavior Annual Meeting Summary

**M. Renée Umstatted Meyer, PhD, MCHES\***

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The American Academy of Health Behavior (AAHB) hosted its 18<sup>th</sup> Annual Scientific Meeting at the Embassy Suites by Hilton in historic downtown Portland, OR, March 4-7, 2018. The meeting's theme was "An Equity Approach to Health Behavior Innovations." I would like to acknowledge and thank Drs. Erika Trapl (*Case Western Reserve University*) and Lisako McKyer (*Texas A&M University School of Public Health*) for serving as Conference Planning and Program Chairs for this exceptional meeting. Esteemed researchers presented their innovative and impactful scholarship reminding and informing us of persistent health equity challenges and potential solutions. Each day concluded with a panel discussion calling us to act, as health equity is woven into the fabric of all of our work. As the Board commits to continued support of content related to health equity for future AAHB conferences, my hope is that we each continue to feel the intense emotions elicited during this year's Annual Meeting discussions, and that each of us move forward in an equity approach to health behavior research.

As always, outstanding podium presentations, poster sessions, workshops, and networking opportunities invigorated and challenged us all, leaving me personally rejuvenated and anxiously awaiting next year's meeting in Greenville, SC. Table 1 lists all podium presentations and workshops in the order they were presented in Portland. All refereed abstracts presented at the 2018 Annual Scientific Meeting then follow, listed by abstract number (day # - board #, where Sunday, March 4<sup>th</sup> is day 1; Monday, March 5<sup>th</sup> is day 2; and Tuesday, March 6<sup>th</sup> is day 3).



M. Renée Umstatted Meyer, PhD, MCHES (*Baylor University*)  
2017-2018 American Academy of Health Behavior President

**Board 101**

**Device type and the ENDS experience: A qualitative examination of cigalike and tank system users' attitudes, beliefs, and behavior**

Blair Coleman, Sarah E. Johnson, Jennifer Alexander, and Peyton Williams

Purpose: The electronic nicotine delivery system (ENDS) category is comprised of a growing diversity of devices that can vary along a number of dimensions, including their look and feel, and functionality. However, relatively little is known about how device type affects ENDS users' attitudes, beliefs and behaviors about the products. Methods: Twenty-three focus groups (N=156) were conducted with adult ENDS users from June to August 2016 in four U.S. cities. Groups were segmented by geographic region (urban; rural), age (18-29; 30+), and primary device type (cigalike vs. tank). A semi-structured moderator guide was used to explore adult ENDS users' attitudes and beliefs. Focus group sessions were audio-recorded and the data transcribed and analyzed using a thematic approach. Results: Focus group discussions revealed a number of commonalities between cigalike and tank users such as the use of ENDS to quit or cut down on cigarette smoking as a primary motivation for use, as well as difficulty describing the frequency and quantity of their ENDS use. However, discussions about the device features and characteristics important to them revealed key distinctions between cigalike and tank users. For instance, product features that appealed to cigalike users surrounded the simplicity of the device (e.g., the small size, ease of using the product); conversely, tank users described as benefits their ability to modify their device and customize their experience (e.g., adjust the battery, nicotine level, and flavor). Importantly, users of both device types expressed satisfaction with their product. Conclusion: The impact that ENDS use has on population health depends, in part, on how it affects cigarette use among smokers – and whether, for instance, ENDS promotes vs. inhibits smoking cessation. Understanding the extent to which different device types and characteristics influence smoking trajectories will be important for regulatory decisions surrounding this increasingly diverse product class.

**Board 103**

**Correlates of cigar brand use among US youth, young adults and adults from the Population Assessment of Tobacco and Health Study (2013-2014).**

Allison M. Glasser, Amanda L. Johnson, Ashley Mayo, Ollie T. Ganz, Emily Harvey, Jennifer Cantrell, and Shyanika Rose

Purpose: To characterize cigar brand preferences and sociodemographic/tobacco use correlates of the top 3 brands among youth (12-17), young adults (YAs; 18-24), and adults 25+ in the U.S. Methods: Weighted analyses were conducted using data from Wave 1 of the Population Assessment of Tobacco and Health Study. Current cigar smokers [youth: n=340 (2.6%); YAs: n=1,750 (19.5%); adults 25+: n=3,052 (13.8%)] reported a regular cigar brand. Results: Across all age groups, Black & Mild (B&M) and Swisher Sweets (SS) were the most popular brands, followed by White Owl among youth and YAs and Dutch Masters among adults 25+. There were no significant correlates of use of the top 3 brands among youth. Males 25+ were more likely to report B&M as their regular brand compared to females (aOR=1.86; 95%CI: 1.21-2.85). Black respondents (vs. White respondents) were more likely to report B&M as their regular brand among YAs (aOR=2.22; 95%CI: 1.52-3.22) and adults 25+ (aOR=2.57; 95%CI: 1.59-4.15), as were respondents usually purchasing single cigars compared to those purchasing a box/pack [YAs (aOR=2.31; 95%CI: 1.58, 3.38); 25+ (aOR 2.15; 95%CI: 1.37, 3.36)]. Black respondents (aOR=0.44; 95%CI: 0.27-0.70) and current cigar smokers who ever (vs. never) smoked "fairly regularly" (aOR=0.61, 95%CI: 0.38-0.99) had lower odds of reporting SS as their regular brand among adults 25+. Among YAs, daily (vs. non-daily) cigar smokers had higher

odds (aOR=2.31; 95%CI: 1.34-3.96) of reporting White Owl as their regular brand. Conclusions: Cigar brand use differs by race, gender, level of tobacco use, and purchase patterns among YAs and adults 25+ in the U.S. Tobacco companies have a history of creating brand loyal consumers through targeted marketing, including price promotions in neighborhoods with a high proportion of black and young residents, which has been documented for both SS and B&M brands. Findings from this study could inform future marketing/sales restrictions.

### **Board 104**

#### **Predictors of youth e-cigarette use and susceptibility in the US**

Elizabeth Kwon, Dong-Chul Seo, Hsien-Chang Lin

Purpose: Electronic cigarette (e-cigarette) use has exponentially increased in youth population. Given the addictiveness of nicotine and potential route of progression from e-cigarette use to conventional cigarette use among youth, it is crucial to identify youth who are susceptible to e-cigarette use. The present study was conducted to identify predictors of youth susceptibility to e-cigarette use to better inform intervention and policy development. Methods: Population Assessment of Tobacco and Health (PATH) Study Wave 1 youth dataset collected from 2013–2014 was analyzed (N=13,651). Based on Problem Behavior Theory, we tested the effects of various psychosocial factors on youth susceptibility to e-cigarette use. Specifically, we investigated the effects of demographics, substance use, perceptions of e-cigarettes, attitude towards e-cigarette advertisement, psychological, and parental factors on youth susceptibility. Weighted logistic regression analysis was conducted using Stata to represent U.S. youth population. Results: Overall, 27.4% (n=2,926) of youth who have never used e-cigarettes were susceptible to future e-cigarette initiation. Logistic regression analysis revealed that age, race/ethnicity, cigarette smoking, ever use of alcohol, marijuana, or other substance, attitudes toward e-cigarette ads, perception of e-cigarettes, psychological problems, rebelliousness, curfew, family structure, and secondhand smoking at home are statistically significantly associated with youth susceptibility to e-cigarette initiation after adjusting for other covariates. Conclusions: Multi-level approach should be taken to prevent youth from being exposed to nicotine through e-cigarettes. In particular, marketing of e-cigarettes and “health claims” made by e-cigarette companies should be regulated based on the finding that youth who believed e-cigarettes are healthier than conventional cigarettes were more susceptible to e-cigarette use than their counterparts. Overall improvement of youth mental health would help decrease susceptibility to use e-cigarettes. Parents can cooperate by keeping their child from being exposed to secondhand smoking.

### **Board 105**

#### **Misperceptions of Peer Norms for Tobacco Use and Personal Use: Evidence from Students in Grades 6-12 Across 63 Schools in the United States**

Jessica M. Perkins, H. Wesley Perkins, and David W. Craig

Social norms within the school context may be an important determinant of tobacco use initiation and frequency among adolescents as youth look to peers for social cues on what to believe and how to behave. This study distinguishes between actual and perceived peer norms about tobacco use attitudes and behavior, and examines the associations of both actual and perceived norms with personal attitude and personal use among U.S. students in grades 6-12. Data were collected from 27,545 students across 63 schools in 11 states from 1999 to 2014 via anonymous surveys. Even though permissive attitudes about tobacco use and the actual prevalence of tobacco use increased across grade and age levels, believing that tobacco use is okay or actually using tobacco during the year was rarely the norm in any grade level in any school. However, dramatic misperception was found across a diversity of schools and students.

Although 77% of students said tobacco use was never good, 64% of students thought that most others in their grade thought use was okay. Similarly, although 78% of students reported never using tobacco, 67% of students perceived that students in their grade most typically used tobacco monthly or more often. Misperceptions were pervasive across all racial categories, socio-economic status of schools, size of grade cohort, and survey years, with greater prevalence of misperceptions and more extent of inaccuracy across increasing grade and age levels. In addition, perception of the attitudinal norm was highly predictive of personal attitude about use. Further, misperceiving tobacco use as the norm among same-grade peers strongly predicted personal tobacco use even after adjusting for the actual same-grade prevalence of tobacco use, personal attitude about use, and several other individual and school-level factors. Results show that there is opportunity to reduce misperceptions and presumably reduce tobacco use among youth.

### **Board 106**

#### **Knowledge of Tobacco-Related Cardiovascular Disease Risks: A Study of Appalachian Youth**

Lindsay K. Tompkins, Clara G. Sears, Kandi L. Walker, Delvon T. Mattingly, and Joy L. Hart

Background: Smoking causes one of every three cardiovascular disease deaths, yet most tobacco-related health campaigns have focused largely on cancer and respiratory diseases. This study aimed to assess and compare the knowledge of tobacco-related health outcomes in a sample of Appalachian youth, a vulnerable tobacco use population. Methods: A survey with questions concerning tobacco use, knowledge, and perceptions was administered to youth in rural Appalachia (N=1143). Participants' knowledge of tobacco-related health outcomes including cancer and cardiovascular disease (high blood pressure, stroke, and heart disease) was assessed. Cardiovascular disease knowledge was further explored by participants' demographic characteristics and current cigarette use status using Chi-square tests. Results: The majority of participants were White (92.4%) and in middle school (grades 6-8; 59.8%). Approximately half of the participants were male (51.2%) and 10.2% were current cigarette users. Most participants (92.7%) agreed that smoking causes cancer; however, participants less frequently responded that smoking causes cardiovascular-related health outcomes. Nearly 20% of participants indicated that smoking does not cause high blood pressure (19.9%) or stroke (19.1%), and 13.0% responded that smoking does not cause heart disease. Middle school students were more likely than high school students to think that smoking does not cause cardiovascular outcomes ( $p<0.05$ ), and males were more likely than females to respond that smoking does not cause heart disease ( $p=0.0367$ ). Current cigarette use was significantly related to lack of knowledge concerning smoking and cardiovascular disease risk ( $p<0.05$ ). Conclusion: Efforts to educate youth about tobacco-related cancer risks have been successful in part due to anti-tobacco initiatives such as the FDA's "The Real Cost" campaign; however, cardiovascular disease has less often been addressed in such campaigns and many youth remain unaware of the cardiovascular effects associated with smoking. Tobacco-related cardiovascular disease risks should be considered as topics for future campaigns.

### **Board 107**

#### **Examining characteristics of recorded and unrecorded alcohol consumers in Kenya**

Rahma Mkuu, Adam Barry, Francisco Montiel Ishino, and Ann Amuta

Purpose: Due to media reports of several deaths, consumption of unrecorded alcohol (illegal alcohol brewed in a home) has emerged as a public health threat in developing countries, such as Kenya. That said, data on this issue is scarce. This investigation compared demographic characteristics of Kenyans who drank recorded (legal) and unrecorded (illegal) alcohol.

**Methods:** We analyzed secondary data from the 2015 nationally representative Kenya STEPwise survey. Participants who reported alcohol consumption within the past month were included. Descriptive statistics and bivariate logistic regression was conducted using STATA14. **Results:** The mean age of the sample (N=671), was 37 years. The sample was primarily male (85%), married (65%), and middle class or higher (63%). Overall, 37% of our sample consumed unrecorded alcohol. Drinkers reported a total of 2.59 drinking events per month and 4.25 binge drinking occasions per month. Compared to those with incomplete primary education or lower, individuals who completed primary education or above were less likely to report consuming unrecorded alcohol (OR = .22,  $p < .05$ ,  $t=4.46$ ). Compared to poor respondents, those identifying as middle class or above were less likely to consume unrecorded alcohol (OR = .525,  $p < .01$ ,  $t=2.36$ ). Current smokers (OR: 2.1,  $p < .01$ ,  $t=3.0$ ) and those with higher binge drinking occasions in the past month (OR: 1.03,  $p < .05$ ,  $t=2.09$ ) were significantly more likely to consume unrecorded alcohol. **Conclusion:** Kenyan adults who consume unrecorded alcohol engage in more binge drinking occasions, have lower levels of education and socio-economic status. Given the impurities and unsafe substances often used to make unregulated alcohol, it is vital that tailored health promotion interventions aimed at reducing unrecorded alcohol be developed. Programs and resources should target individuals with low education and socio-economic status.

### **Board 108**

#### **Gender Differences in Socio-Ecological Determinants of Alcohol Use among Hispanic Adolescents**

Wura Jacobs, Ann Amuta, Adam Barry, and Tom Valente

**Purpose:** The Social Ecological Model (SEM) proposes behavior is influenced via multiple levels of interdependent factors. In this study, we used the ecological perspective to examine gender differences in alcohol consumption among Hispanic adolescents. Specifically, associations between alcohol use and the following social-ecological factors: Individual attributes (parental education, adolescents' academic achievement), Interpersonal attributes (parent, sibling and peer alcohol use behavior), Organizational attributes (school clubs' alcohol use behavior), and Community attributes (perceived social norm). **Methods:** Study sample consisted of a cross-sectional sample of 1,523 predominantly Hispanic high school students from a Los Angeles school district. Using logistic regression analyses (SPSS 24), we examined gender differences in the associations between socio-ecological characteristics and adolescent alcohol use.

**Results:** Among girls, only individual level attributes (having a mother with some college education ( $\beta=.22$ , CI=.06, .85,  $p<.05$ ); academic achievement ( $\beta=7.24$ , CI=3.1, 16.84,  $p<.01$ ) and interpersonal attributes [parent alcohol use ( $\beta=2.35$ , CI=1.45, 3.83,  $p<.01$ ); sibling alcohol use ( $\beta=1.91$ , CI=1.19, 3.1,  $p<.01$ ), and perceived peer alcohol use acceptability ( $\beta=2.01$ , CI= 1.62, 2.69,  $p<.001$ )] were associated with past 30-day alcohol use. For boys, attributes at all levels examined: individual level attribute (having a father with at most an 8th grade education level ( $\beta=8.43$ , CI=3.04, 23.36,  $p<.001$ ); interpersonal attributes [parent alcohol use ( $\beta=1.95$ , CI=1.15, 3.29,  $p<.01$ ) and perceived peer alcohol use acceptability ( $\beta=2.17$ , CI= 1.66, 2.84,  $p<.00$ )]; school attributes (membership in some school clubs-  $\beta=2.27$ , CI= 1.35, 3.80,  $p<.001$ ); and community attribute (perceived drinking norms in social community-  $\beta=1.15$ , CI= 1.03, 1.27,  $p<.01$ ) were associated with past 30-day alcohol use. **Conclusions:** Results highlight the need to approach alcohol use among school children with a comprehensive school health approach. Prevention and intervention efforts need to take into consideration gender differences in social-ecological risk and protective factors and multiple different stakeholders, all of whom have impact at different "levels" of influence.

**Board 109**

**Early Adolescent Perceptions of Harm from Substance Use and Social Self-Efficacy**

Keith J. Zullig and Robert F. Valois

Purpose: Perceptions of harm from substance use is a key predictor of adolescent engagement in substance use. Conversely, a developed self-efficacy can foster positive social relationships that serve as a buffer against stressors that can lead to poor health outcomes such as substance use. However, one attribute of self-efficacy that has received less attention among early adolescents is social self-efficacy (SSE) and its potential association with perceptions of harm from substance. We examined the association between perceptions of harm from substance use and SSE in a sample public middle school adolescents (n=4,122). Methods: First, chi-square analyses were computed on cross tabulated data to explore differences between users and non-users tobacco, alcohol, marijuana, and cocaine against the perception of harm for the same substance. Second, one-way ANCOVA analyses and post hoc tests were used to assess the relationships between perceptions of harm from each substance and SSE while controlling for the effects of grade, sex, race, and socio-economic status. Effect sizes for multiple means were calculated from post hoc comparisons to estimate practical importance. Results: Chi-square findings suggest students who reported “no use” of each substance generally reported greater perceived harm from use than students who reported “use” of each of the substances ( $p < .0001$ ) and results were consistent across males and females. ANCOVA results suggest that lower perceptions of harm from each examined substance were significantly associated with lower SSE ( $p < .0001$ ). Effect sizes were of medium practical importance ranging from .25-.31. Conclusions: Enhancing SSE in early adolescents may be an effective component of interventions designed to reduce perceptions of harm associated and subsequent substance use. More importantly, skill development to the degree where an adolescent can begin to trust their ability to reach goals when faced with challenging social-laden interactions with others may critical.

**Board 110**

**Prevalence of Depression Among College Students who use Alcohol, Tobacco and Other Drugs (ATOD); A 5 Year Analysis**

Whitney Katirai, Christine Williams, and Matin Katirai

Depression is a serious mental health issue that warrants attention and support. Depression can significantly impact quality of life and student learning. In order to improve depression rates, maladaptive coping measures must be measured to offer effective healthy behavioral coping mechanisms. It is well documented that depression succeeds stressful events and must be considered when analyzing maladaptive coping such as alcohol, tobacco and other drugs (ATOD). The purpose of the study was to determine the relationship between depression and ATOD among college students between 2010- 2015. For this study, ATOD will include alcohol, tobacco, marijuana, opioids and sedatives. The NCHA survey data was used for analysis. Survey results included 200,000 US college student participants between 2010-2015. Items included in the survey measuring ATOD, depression and stress were analyzed. Logistic regression modelling was used to determine odds ratios between the different variables while controlling for socioeconomic status, race, ethnicity and type of university. Rates of being diagnosed with depression (within the past 12 months) steadily increased every year from 2010 to 2015 from 9.75% to 13.06%. Logistical regression analysis from the two separate models indicate that students who used cigarettes, alcohol, opioids, marijuana and sedatives were more likely to have been diagnosed with depression within the past 12 months, while controlling for campus size, public/private status, religion, race and gender. Specifically, students who used marijuana (OR = 1.524, 95% C.I. 1.495 – 1.554), cigarettes (OR = 1.978, C.I. 1.936 – 2.022) and



sedatives (OR= 2.72, C.I. 2.637 – 2.805) were more likely to have been diagnosed with depression. Student depression is increasing and student stress levels remain high. Maladaptive coping measures need to be addressed to help students develop healthy coping skills that can be maintained over a lifetime.

### **Board 111**

#### **Adolescent Major Depression: National Trends, Social Determinants, and Healthcare Disparities**

Wenhua Lu

**Purpose:** To examine national trends in the prevalence, social determinants, and treatment of major depression among adolescents and investigate disparities in their mental health service use. **Methodology:** Data for adolescents aged 12 to 17 (N = 81,584) who participated in the annual, cross-sectional National Survey on Drug Use and Health (NSDUH) from 2011 to 2015 were pooled and analyzed. Time trends in the 12-month prevalence of adolescent depression and mental health service use were examined. Pearson's  $\chi^2$  test and multivariate logistic regression analyses were conducted, adjusting for sampling weights, non-response bias, and non-coverage bias. **Results:** The weighted prevalence of adolescents' major depression increased significantly from 8.3% in 2011 to 12.7% in 2015 ( $p < 0.001$ ), but their use of mental health services did not change over time (36.0% in 2011 vs. 36.0% in 2015) ( $p = 0.43$ ). Overall, higher rates of depression were observed among females (AOR = 3.58,  $p < 0.001$ ), Blacks (AOR = 0.75,  $p < 0.001$ ), and adolescents in the 14- to 15-year (AOR = 1.70,  $p < 0.001$ ) and 16- to 17-year age groups (AOR = 1.93,  $p < 0.001$ ). Single-mother household (AOR = 1.14,  $p < 0.01$ ), low level of authoritative parenting (AOR = 2.06,  $p < 0.001$ ), and negative school experiences (AOR = 2.44,  $p < 0.001$ ) further predicted adolescent depression. In regard to treatment, higher rates of service use were reported among females (AOR = 1.35,  $p < 0.001$ ) and adolescents aged 16-17 (AOR = 1.40,  $p < 0.001$ ), whereas lower rate was found among Hispanics (AOR = 0.73,  $p < 0.001$ ) and adolescents without any insurance coverage (AOR = 0.69,  $p < 0.05$ ). **Conclusion:** A growing number of adolescents with untreated major depression were noted over time. Continued policy efforts and expanded service capacity are warranted to promote mental health service use among adolescents with major depression.

### **Board 112**

#### **Association between Elevated Video-game Playing/Internet Use and Psychological Distress among U.S. Youth: Evidence from the YRBS 2009-2015**

Claudia Wang

**Objective:** The purposes of this study were to 1) provide updated information about the prevalence of elevated video-game playing/Internet use (EVG/IU) as well as psychological distress, 2) examine the association between EVG/IU and psychological health, and 3) explore whether this association varied across years using the national Youth Risk Behaviors Survey (YRBS) from 2009 to 2015. **Methods:** Data from the 2009, 2011, 2013, and 2015 national YRBS (n=61,042) were analyzed. Propensity score matching was used to reduce selection bias. Ordinal logistic regression analyses were performed for the matched samples to predict psychological distress. **Results:** The prevalence of youth having at least one of the three psychological health issues (i.e., depression, suicidal ideation, and suicidal attempts) significantly increased from 31.9% in 2009 to 35.4% in 2015 ( $P < 0.001$ ). The percentage of EVG/IU among youth has also substantially increased from 24.9 % in 2009 to 41.7% in 2015 ( $P < 0.001$ ). A consistently significant association was detected throughout all the four survey years. The odds of having a higher level of psychological distress increased approximately 1.5 times among youth who played video-games and/or used Internet more than 3 hours per day

than those who did not, controlling for age, gender, race, and behavioral confounders. Conclusion: The use of EVG/IU was consistently associated with psychological distress in U.S. youth. Given the potentially detrimental impact of EVG/IU on adolescents' psychological health, effective interventions should be developed and implemented to educate healthy use of video-game and Internet especially among at-risk youth.

### **Board 113**

#### **Differences in Male Undergraduate Student Mental Health Literacy and Help-Seeking Behaviors**

Amy Gatto, Gregor Rafal, and Rita DeBate

Background: University students with higher mental health literacy (MHL) have more positive attitudes toward seeking help thus more likely to receive professional help. Current research notes low MHL among college-aged males; thus, limiting their ability at recognition, management, and treatment of mental health (MH) issues in addition to the risk for developing poor coping strategies and self-destructive behaviors. A social marketing approach focused on increasing MHL, help-seeking behaviors, and university resources provides primary prevention tailored to male college students. Methods: A cross-sectional study of males attending a large southeastern U.S. urban university was implemented (n=1242). The survey included pre-existing validated scales to assess MH knowledge, beliefs, attitudes, stigma, perceived norms, and behavioral intention. Employing SPSS, data analyses included descriptive statistics, correlations, and independent sample t-tests. Results: Results reveal poor MH attitudes and beliefs, high MH stigma, and low help-seeking intentions. Statistically significant differences were observed between undergraduate and graduates with undergraduates exhibiting less MH knowledge ( $p < .001$ ), poorer attitudes ( $p < .001$ ), and greater self-stigma ( $p \leq .001$ ). Undergraduate students were less likely to receive help for mental health issues ( $p \leq .001$ ), academic issues ( $p = .004$ ), and for themselves or others ( $p \leq .001$ ). Significant differences were observed between undergraduate students with science, technology, engineering, and mathematics (STEM) majors and other majors. STEM majors exhibited less MH knowledge ( $p < .001$ ), more negative attitudes to seek help ( $p \leq .001$ ), greater self-stigma ( $p = .034$ ), and are less likely to seek help for mental health issues ( $p = .003$ ) and for themselves or others ( $p = .007$ ). Additional demographic comparisons were conducted with non-significant findings. Conclusions: Male college students, particularly undergraduate and those with STEM majors, may be at risk for developing poor coping mechanisms and self-destructive behaviors due low MHL and high MH stigma. Implications include increasing MHL among college-age males in addition to social marketing programs aimed at reducing stigma associated with MH and improving help-seeking behaviors.

### **Board 114**

#### **Associations between Religiosity/Spirituality and Mental Health Behaviors in Young Adults**

Shannon Gwin, Laurette Taylor, Marshall Cheney, Paul Branscum, Melissa Frey, Sarah Maness, and Ying Zhang

The purpose of this study was to evaluate the association between religiosity and mental health outcomes among young adults. Young adults (n=775) from colleges and universities in a southwestern state were surveyed to assess associations between young adult depressive symptoms and suicide ideation, religiosity beliefs, and protective assets of the relationships with dad and mom. Logistic regression, which produced odds ratios (ORs), was used to determine significant associations between religiosity and depression and suicide ideation. Findings indicated significant inverse associations between higher scores in higher levels of organizational religious activities (OR range = 0.208 - 0.555), higher levels of non-organizational

religious activities (OR range = 0.282 - 0.399), and the most positive responses to the three items measuring [TEL1] intrinsic religiosity (OR range = 0.216 - 0.489) with young adult depressive symptoms during the last week. In addition, higher scores on the religiosity subscales were significantly associated with fewer reports of suicide ideation in the last 12 months. OR findings suggest that participants with higher scores in religiosity had less risk for development of depression and suicide ideation. Overall, religiosity beliefs and practices appear to be associated with fewer depressive symptoms and suicide ideation. Inclusion of religious/spirituality-oriented components may be important to include in mental health programming for those emerging adults that report having high religiosity.

### **Board 115**

#### **The Relationship between Lifetime Stress Perceptions and Prenatal Health Behaviors**

Teresa Smith, Elaina Johns-Wolfe, Jennifer Malat, George Slavich, and Farrah Jacquez

**Purpose:** Previous research has established that childhood, pregnancy-specific, and perceived stress increase the likelihood that women will engage in negative prenatal health behaviors (e.g., smoking cigarettes, unhealthy diet), which exponentially increase the risk of poor birth outcomes. However, to our knowledge no study has examined the cumulative impact of stress across the lifespan on prenatal health behaviors. Further, those studies that examine lifetime stress often use checklists as a way to collect information about the number of stressful experiences, which incorrectly assumes that all individuals perceive stress in the same way. Therefore, the current study aimed to examine the association between prenatal health behaviors and lifetime stress perceptions, above and beyond current stress. **Methods:** One hundred sixty-six women were interviewed at one of two urban hospitals after delivering their first infant. Participants completed a measure of prenatal health behaviors, current stress, and the Stress and Adversity Inventory, an innovative measure of lifetime stress, which inquires about stressful events as well as the perception of those events (i.e., severity). We used ordinary least squares regression models to test the relationship between lifetime stress severity, and prenatal health behaviors. **Results:** The current study found that there was a significant association between lifetime stress, current stress, and prenatal health behaviors. Further, our findings indicate that severity of lifetime stress accounted for significant variance in negative prenatal health behaviors above and beyond current stress. **Conclusions:** Increased stress severity throughout the life course is associated with negative prenatal health behaviors, above and beyond current stress. Therefore, the life course perspective appears to be a valuable framework for examining stress and negative prenatal health behaviors. The current findings suggest that it is critical to implement interventions aimed at decreasing lifetime stress in childhood or adolescence to ensure positive prenatal health behaviors as adults.

### **Board 116**

#### **Examining rural Latino men's perceptions and attitudes towards health and health priorities: A Photovoice Study**

Jason Daniel-Ulloa, Jimmy Reyes, Daisy Y. Morales-Campos, Edna Villareal, Laura Crocker, Himar Hernandez-Santana, and Barbara Baquero

Studies have linked masculinity to risk behaviors and attitudes, such as unsafe sex, risky drinking, poor health screening behaviors; few have examined these links among Latino men. Further, research into masculinity tends to focus on negative masculine attributes and risky behaviors. This study sought to explore and examine how rural Latino men thought about and experienced their health using Photovoice in a Community-based Participatory Research partnership. We recruited 8 Latino men living in a small town in southern Iowa. Photovoice is a qualitative method that uses participant photo-assignments to elicit in-depth thought and

discussion and emphasizes mutual learning. A range of 4-8 men attended 4 sessions and a conducted a community forum. All of the men were foreign-born, Latino, between 34 and 67 and had lived in the US at least 7 years. Five themes were identified from the discussions; (1) cultural conflict, (2) too much information and discordant information, (3) lifestyles conflict, (4) sacrifice, and (5) family connectedness. The men reported having difficulty resolving conflicts between U.S. and their country of origin's lifestyles and cultural expectations. They feel disconnected from their families. The men felt that they had sacrificed a lot by leaving their communities to provide a better future for their family, to be singularly defined as the provider for the US family. An important implication of this study derives from familial and community connections and sacrifice. Potentially, feeling disconnected could impact mental health and health promoting behaviors. Future research should explore the link between these beliefs and health seeking behaviors, to inform developing community and family level interventions to bind immigrant men strongly to their family and community and help them to master their own health.

### **Board 117**

#### **Total body skin examination adherence among young adults with an increased risk for skin cancer**

Julie W. Merten, Jessica L. King, and Erin Largo-Wight

Background: Skin cancer is the most common form of cancer, 20% of the US population will develop skin cancer during their lifetime, and annual treatment costs top four billion dollars. Routine full body skin cancer screenings conducted by a health professional can identify skin cancer at an earlier stage, significantly reducing mortality and morbidity. The purpose of this study is to examine skin cancer screening rates among young adults who are considered high risk including those with fair skin, a history of sunburn, use of indoor tanning, excessive UV exposure, and poor sunscreen use. Methods: A sample of 953 students at a southeastern university were surveyed via email about their skin cancer prevention behaviors. Results: Only 26% of participants reported ever having a skin cancer screening yet many participants engaged in high-risk behavior. Sunscreen use was poor with 63% not regularly using protection, 25% have used a tanning bed, 43% reported spending more than two hours outside during the previous summer, and 63% had a painful sunburn in the previous year. White, older students with fair skin who regularly use sunscreen were more likely to report a skin cancer screening.

Conclusions: Young adults at greater risk for skin cancer are not being adequately screened for skin cancer. There are inconsistent guidelines in the US for screenings and these finding reinforce the need for a public health education campaign to educate primary care physicians to recommend screenings for their young patients.

### **Board 118**

#### **Prediabetes and Diabetes Prevention: Attitudes and Behaviors of Young Women in a Low-Income, Majority Hispanic Community**

Rachel J. Strodel, Sonia G. Khurana, Claire H. Chang, Anne W. Camp, Elizabeth A. Magenheimer, and Nicola L. Hawley

Purpose: The aim of this study was to explore differences in preventive behaviors and attitudes towards type 2 diabetes in young women with and without prior prediabetes diagnosis in a low-income, majority Hispanic population. Methods: A convenience sample of women aged 18-49 (n=256, Mage = 34.2, 74% Hispanic, 15% Black) recruited from the waiting room of a community health center completed a 77-item questionnaire. 'Personal control' and 'worry' were measured using a validated instrument, the Risk Perceptions Survey: Developing Diabetes. Of those surveyed, 19 women were also interviewed with a semi-structured questionnaire to further explore diabetes risk and lifestyle change. Interviews with 19 providers at the clinic



complemented patient interviews. Chi-square tests were used to analyze associations between prediabetes diagnosis and measures of attitudes or lifestyle change. Women diagnosed with type 2 diabetes ( $n=30$ ) were excluded from the analysis. Interviews were analyzed using thematic analysis. Results: The prevalence of prediabetes and type 2 diabetes were 21% and 12%, respectively. Women diagnosed with prediabetes were more likely to report worry about diabetes ( $p=0.016$ ) and perceived themselves at higher risk for developing diabetes in the next 10 years ( $p<0.001$ ) than non-diabetic women. There was no significant association between having prediabetes and recent adoption of lifestyle changes or personal control over health ( $p>0.05$ ). The theme of prediabetes diagnosis triggering a shift in concern about diabetes emerged from patient and provider interviews. Patients and providers also identified substantial financial, cultural, and environmental barriers to lifestyle change that may be more influential than prediabetes diagnosis. Discussion: Our results suggest prediabetes diagnosis is associated with worry about diabetes and heightened perception of risk, but not lifestyle change in this population. Although previous studies have found an association between prediabetes diagnosis and preventative lifestyle change, the specific barriers this population faces may hamper behavior change.

### **Board 119**

#### **Geospatial and individual-level factors associated with diabetes education exposure among at-risk adults**

Samuel D. Towne Jr., Timothy H. Callaghan, Yi Cai, Matthew Lee Smith, Alva O. Ferdinand, Marcia G. Ory, and Jane N. Bolin

Objective: Given millions of individuals are affected by diabetes, it is critical to identify solutions that enable individuals to avoid costly complications associated with their diabetes. One such effort may be exposure to diabetes education that may work to better equip adults with diabetes with valuable knowledge of diabetes-related management. Thus, we sought to identify factors related to diabetes education exposure among US adults. Methods: We used 5 years of national data leading up to 2015 from US adults representing all 50 states to assess whether adults have ever been exposed to any diabetes education aimed at managing their disease. Adjusted analyses (logistic regression) accounted for individual-level characteristics (e.g., age, sex, race, ethnicity) and geospatial characteristics (e.g., rurality, census region). Results: Overall, 51-54% of adults had been exposed to diabetes education in the past. Being Asian versus white ( $p<.05$ ) and having lower education versus having a college/technical degree ( $p<.05$ ) were associated with lacking exposure to diabetes education in the past. In addition, rural residents versus urban ( $p<.05$ ) were also more likely to lack exposure to diabetes education. Those in the North were most likely ( $p<.05$ ) to lack exposure versus those in the South; while those in the South were more likely ( $p<.05$ ) to lack exposure than those in the West and Midwest. Conclusion: Identifying individual and geospatial factors associated with diabetes education that helps individuals better manage their complex disease can help target outreach efforts to those most at-risk. Practitioners and other key stakeholders can use this information to identify targets for intervention in practice.

### **Board 120**

#### **The Chronicity of Poverty: Chronic Disease Management Behaviors Among Rural African Americans**

Idethia Shevon Harvey and Rahma S. Mkuu

Purpose: Chronic exposure to socioeconomic inequalities, environmental, and inadequate healthcare are associated with prolonged social trauma, stress, and early onset of chronic illness among African Americans. Rural African Americans who live in pathogenic environments

experience disproportional chronic comorbidities and are especially vulnerable due to the interaction rural deprivation and persistent structural factors compared to White Americans. Addressing T2D and hypertension among rural African Americans using syndemic theory can forge new ground in rural minority health research. Methods: Semi-structured interviews and photo-documentation among African Americans (N = 30) diagnosed history of T2D (N = 15.9 years) and hypertension (86.2%). Questions and probes elicited descriptions for self-management behaviors within the context of social and physical environment. Digital audio files were transcribed verbatim. Researchers captured photographs based on participants' interviews. Data were analyzed using thematic content analysis and critical visual methodology. Triangulation of data occurred when themes of photos occurred in conjunction with themes from the interviews. Findings: This mixed methods approach revealed common themes that reflected shared concerns and insights regarding socio-environmental disparities in rural communities. Narratives were consistent with syndemics theory, indicating that individuals diagnosed with diabetes experienced magnified health-related and socio-environmental burdens. The study found that African Americans experience diabetes through a complex socio-medical framework. The main themes identified were 1) chronicity of poverty and 2) socio-environmental influences on disease management. Conclusion: Using the syndemics approach to examine African Americans with type-2-diabetes contributed to a novel perspective of understanding etiologies and socio-environmental factors influencing their health. Indeed, the length of diagnosis and residing in endemic and deprived rural areas confounds the complexity of self-management behaviors. By examining how rural African Americans manage their chronic conditions, we can develop programs to support their self-management practices.

### **Board 121**

#### **Clinical and psychosocial factors associated with hypertension among Vietnam veterans with war-related amputations**

Christopher Robbins

Purpose: To examine the clinical and psychosocial factors that may be predictive of hypertension among Vietnam Veterans who sustained a war-related amputation in South East Asia. Veterans with war-related amputations are at an increased risk for developing hypertension above age and gender matched peers. In particular, Veterans with trans-femoral (both unilateral and bilateral) amputations have been associated with the highest risk. For this research study the relationship between amputation level itself as a link to increased hypertension was the primary predictor of interest. Methods: A retrospective review was conducted of data obtained from a cross-sectional survey completed by registrants who were enrolled with the Indiana-Ohio Center for Traumatic Amputation Rehabilitation Research (IOCTARR). For the original data collection, Veterans were invited to participate in a research study designed to examine the long-term effects of war-related amputation via a phone or web-based survey (n=247). Primary analysis was conducted using logistic regression which included three models: 1. isolating above knee amputations, 2. Including univariate above and below knee and bilateral above and below knee amputations, 3. A bootstrap model. In addition, a full factorial model was conducted with additional covariates. Results: Data was available for 247 male Vietnam Veterans, average age 62±2. Neither model indicated a significant relationship between amputation level itself as a predictive factor for hypertension (P=0.841). The only predictive factor that was significant for an increase in hypertension was diabetes (OR=4.59, P=0.001, CI 1.93, 10.94) adjusting for clinical and psychosocial covariates. Discussion: While previous research has shown a relationship between amputation level, in particular bi-lateral above knee amputation and hypertension, this study found no such relationship. With this study population there was a high prevalence of hypertension among all



amputation levels, including upper extremity, which may indicate additional factors that were not measurable in this particular study.

### **Board 122**

#### **Patients' trust in physicians, perceived service quality, and treatment-before-deposit policy in China**

Shinduk Lee, Wenxin Wang, David J. Washburn, and Jay E. Maddock

Background: The treatment-before-deposit (TBD) policy in China enables a patient to receive health care before paying the full medical bill. The policy should alleviate patient's financial burden, and therefore improve access to health care and perceived service quality. Given the strong association between patients' perceived service quality and trust in physicians, it was hypothesized that the TBD policy would improve patients' perceived service quality and trust in physicians, and perceived service quality would mediate the relationship between the TBD policy and trust in physicians. Methods: Self-administered surveys were collected from in- and outpatients from the departments of medicine or surgery in the summer of 2014 from a cross-sectional study conducted in 12 regional hospitals in China. Mediation analysis was performed to test the hypothesized mediation model, and the indirect effect was examined using the Sobel approach. Results: This study included 3313 patients. The majority of the patients were younger than 55 years old (70%), had less than a college education (73%), had an insurance (94%), or were inpatients (62%). Also, 21% of the patients reported that they benefitted from the policy. Patients who benefitted from the TBD policy reported greater service quality ( $\beta=1.32$ ,  $p<0.01$ ) and higher trust in their physicians ( $\beta=0.57$ ,  $p=0.02$ ). The association between whether patients benefitted from the TBD policy and trust in physicians was fully-mediated by perceived service quality with the statistically-significant indirect effect of 0.37 ( $p<0.01$ ). Discussion: The results support the hypothesis that the TBD policy improves patients' perceived service quality and trust in physicians by improving perceived service quality. Furthermore, the study highlights the potential benefits of the TBD policy.

### **Board 123**

#### **Assessing Health Literacy among Populations with Limited English Proficiency: A Case of Chinese American Immigrants**

Xuwei Chen, Patricia Goodson, Sandra Acosta, Adam E. Barry, and Lisako E.L.J. McKyer

Purpose: Health literacy measurement instruments serve as an essential component of any needs assessment and provide the foundation for a successful intervention plan to reduce health disparities. This study aims to assess the health literacy levels among U.S. Chinese immigrants who have limited English proficiency using a modified theory-based health literacy assessment survey. Methods: We modified and tested the All Aspects of Health Literacy Scale (AAHLS) with a sample of Chinese immigrants who have limited English proficiency in the U.S. The AAHLS is a theory-based health literacy survey with 13 self-reported questions, assessing functional health literacy, interactive health literacy, information appraisal, and empowerment. We examined the health literacy score distributions and performed (Confirmatory Factor Analysis) CFA to evaluate the appropriateness of our modified AAHLS to elicit valid data. Results: 405 participants completed our AAHLS survey. Compared to the English language scenario, aside from the item assessing if participants would question healthcare providers, participants had statistically higher health literacy levels when they were immersed in communication using Chinese ( $p < 0.01$ ). We also found most participants (62.7%) were not likely to question their doctor and nurse's advice regardless of language scenarios and most of them (69.4%) had limited empowerment capabilities at the level of community and social engagement. The CFA results showed that the modified English model exhibited adequate fit

(RMSEA = 0.077, CFI = 0.977, TLI = 0.969, WRMR = 1.098), as did the modified Chinese model (RMSEA = 0.062, CFI = 0.978, TLI = 0.970, WRMR = 1.001). Discussion: The results showed that our modified AAHLS yielded reliable and valid data among Chinese immigrants. Researchers should consider native languages and cultures before conducting health literacy assessments. Public health professionals should incorporate health interventions and policy approaches to improve Chinese immigrants' English language proficiency and empowerment capabilities.

#### **Board 124**

#### **Investigating the association between acculturation and health literacy among U.S. Chinese-speaking populations with limited English proficiency**

Xuwei Chen and Ming Li

Purpose: More than 30 million people in the U.S. have limited English proficiency (LEP). Language barriers further compounds the problem of acculturation and low health literacy, making populations with LEP vulnerable to health disparities. The purpose of this study was to clarify the measurement of acculturation and investigate the relationship between acculturation and health literacy among populations with Chinese LEP in the U.S. Methods: We recruited native Chinese speakers with LEP in southwestern U.S. Totally, 405 participants completed our paper-and-pencil survey. We measured their acculturation level using Anderson and colleagues' acculturation scale, health literacy score using the short version of Test of Functional Health Literacy for Adults (S-TOFHLA), and demographic information (i.e., age, education, and years having lived in the U.S.). We applied three steps for data analysis: Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM). Results: EFA results indicated a four-factor solution for the 14-item acculturation scale: family and friends, neighbors, English proficiency, and Chinese proficiency. The CFA measurement model of acculturation had a good fit (RMSEA=0.064, CFI=0.979, TLI=0.970, SRMR=0.037). The SEM full scale structural model of demographics, acculturation, and health literacy had an adequate fit (RMSEA=0.068, CFI=0.962, TLI=0.951, SRMR=0.066). Demographics (age, education, and years having lived in the U.S.) explained 69% of the variance in acculturation score ( $p < 0.01$ ). Acculturation and demographic explained 60.4% of the variance in health literacy level ( $p < 0.01$ ). Conclusions: The results showed acculturation is a key indicator for health literacy among Chinese populations with LEP. Acculturation including the constructs of language barriers and social networks is a critical component to promote health communication among populations with LEP. This study contributes to clarifying the acculturation measurement and refining the health literacy theory.

#### **Board 125**

#### **Modifiable health risk factors, self-rated health, and readiness to change among homeless adults**

Sarah B. Maness, Lorraine R. Reitzel, Daphne C. Hernandez, Diane M. Santa Maria, Melissa A. Batson, Darla E. Kendzor, and Michael S. Businelle

Background: Homeless adults have poorer health than the general population, and are at increased risk for early death. Contributors to poor health may be avoidable by modifying health risk factors. The goals of the current study were: 1) determine prevalence of smoking, low fruit/vegetable consumption, inadequate physical activity, overweight/obese and at-risk drinking; 2) assess readiness to change; 3) examine the relationship between modifiable risk factors and self-rated health; and 4) examine the relationship between readiness to change and self-rated health among homeless adults in Oklahoma City. Methods: Survey data were collected from 581 adults in 2016. Readiness to change was examined using "ladder of change" variables



specific to each aforementioned modifiable health risk factor. Individuals that stated they had begun or had a plan to make positive changes were classified as ready to change. Self-rated health was reported as a five-point scale from excellent to poor. Linear regression models were used to predict self-rated health and readiness to change. Results: The greatest prevalent health risk factors included smoking (79%), low fruit/vegetable consumption (64%), and overweight/obese (64%). More participants were ready to change fruit and vegetable intake (74%), overweight/obesity (74%), and at-risk drinking (56%). Simple regression analyses indicated that low fruit and vegetable consumption ( $F(1, 576) = 5.30$ ;  $p < .05$ ) and insufficient physical activity ( $F(1, 577) = 8.73$ ,  $p < .01$ ) were associated with poorer self-rated health. However, poorer self-rated health was not significantly related to a readiness to change any modifiable health risk factors. Conclusion: Among homeless adults, the prevalence of modifiable health risk factors was high; however, current plans and actions to address these risk factors was also high. More research is needed to understand barriers to formulating a plan to effectively change factor. Shelter based interventions that support health factor change are needed.

### **Board 126**

#### **Purpose in Life and Successful Aging among Individuals Living with HIV**

Desbelet Berhe, Imamah Younus, and Annie L. Nguyen

Purpose: 45% of Americans living with HIV are at least 50 years old. Although HIV infection is now a chronic condition it is important to focus on efforts to improve quality of life for this population in efforts to achieve health equity in later life. Purpose in life is a psychological asset that promotes quality of life. We investigated the psychosocial and mental health factors related to purpose in life in individuals with HIV. Methods: The data was collected from a cross-sectional study on HIV+ individuals (N=154) from HIV clinics in Los Angeles, CA and New Orleans, LA. Univariate, bivariate analyses and multiple regressions were conducted.

Results: The mean age of participants was 56.7 years with a mean of 29.7 years since diagnosis. The majority of participants were male (72.6%), Black/African American (63.6%), and heterosexual (54.8%). Purpose in life scores was calculated by a ten-item measure. In bivariate analyses, greater purpose in life was significantly associated with perceived successful aging ( $p < 0.01$ ), Black race ( $p = 0.02$ ), older age ( $p = 0.02$ ), fewer depressive symptoms based on the CES-D ( $p = 0.04$ ), less anxiety based on the GAD-7 ( $p < 0.01$ ), greater social support based on the Lubben Social Network scale ( $p < 0.01$ ) and greater medication adherence self-efficacy ( $p < 0.01$ ). Gender, sexual orientation, education and years since HIV diagnosis were not significantly associated with purpose in life. In a multiple linear regression, purpose in life remained significantly associated with successful aging, CES-D, social support, and Black race ( $R^2 = 0.27$ ,  $p < 0.001$ ). Age was marginally significant and adherence and GAD were not significant. Conclusions: Purpose in life is an indicator of life quality and is associated with important psychosocial and mental health factors. Health and social services that focus on screening for and treating depression and promoting social support are important aspects of HIV care for aging individuals to enhance life quality.

### **Board 127**

#### **Interplay of agency, community, and attitudinal factors related to HIV pre-exposure prophylaxis by advanced practice nurses in Indiana: A structural equation model**

Greg Carter, Wasantha Parakrama Jayawardene, Jon Agley, and Beth E. Meyerson

Purpose: Pre-exposure prophylaxis (PrEP), a recent biomedical intervention to address the HIV epidemic, is a promising tool to help prevent the HIV transmission. It can reduce the risk of HIV infection in high-risk individuals by up to 92%. However, identifying individuals at high risk for acquiring HIV and initiation of PrEP remain low among primary care providers. This study

examined the associations between agency-, and community-related variables and advanced practice nurses' (APN) PrEP-related clinical practice behaviors in Indiana. Methods: Researchers randomly selected 1,358 APNs (of 4,733 registered in Indiana) to participate in a Qualtrics survey consisting of 98 closed-ended questions. The overall response rate was 32% (n=435); 367 responses met eligibility criteria and were included in structural equation modeling using the CALIS procedure in SAS-9.4. Following confirmatory factor analysis with three correlated factors in the conceptual model (agency, community, and attitudes), researchers conducted path analysis. Model fit and factor structure were determined based on meaningfulness and desirable range for a majority of indices. Results: The sample was representative of Indiana APNs: predominantly non-Hispanic white, female, nurse practitioners in urban practices (mean age=46yrs). Standardized path estimates were highest for agency-related variables: intervention adoption (t=30.11), intervention implementation (t=29.05), awareness of evidence-based practices (t=21.41), and organizational climate (t=20.40), followed by attitude-related variables: practice of sexual risk assessment (t=7.64), perceived barriers to PrEP (t=5.87), attitudes toward evidence-based practices (t=5.74), and age (t=2.20), and were low for community-related variables: community awareness (t=3.57) and perceived community risk (t=2.89). While there was a bi-directional relationship between agency and community (t=3.05), they separately had effects on attitudes (t=3.51 and t=2.36, respectively). Conclusion: Agency-related variables seemed to influence the attitudes and behaviors of Indiana APNs regarding PrEP, while community-centered variables were less significant. These findings may facilitate strategies to increase the uptake of biomedical interventions focused on HIV prevention.

### **Board 128**

#### **HPV-related knowledge and acceptability of an HPV-vaccine college-entry requirement among Florida college students**

Coralia Vazquez-Otero, Cheryl A. Vamos, Stacey B. Griner, Rachel Logan, Erika L. Thompson, and Ellen M. Daley

Objectives: College students are at increased risk for Human papillomavirus (HPV) due to high-risk sexual behaviors. The HPV vaccine is recommended for 'catch-up' groups until age 26 yet, only 52.3% of college students report they have received it. The Community Preventive Services Task Force recommends college-entry vaccine requirements as a way to increase vaccination rates. The purpose of this study was to assess college students' HPV-related knowledge and acceptability of an HPV vaccine college-entry requirement. Methods: College students 18 to 26 years old (N=448) that attended a Florida university completed an online survey. A 16-item adapted scale measuring HPV/HPV vaccine knowledge (maximum score=16) was used. Respondents also reported their acceptability of an HPV vaccine school-entry requirement on a 5-point Likert-scale (Strongly agree-Strongly disagree). Statistical analyses included ANOVA with Bonferroni post hoc test, and were conducted using SPSS v.23. Results: Mean HPV-related knowledge score was 9.22 (SD=4.67). The majority (63%) of students indicated ever receiving the HPV vaccine, while fewer reported not receiving it (26%) or not knowing (12%) if they received it. Overall, 34% of students strongly agreed with an HPV vaccine requirement for college-entry, 23% agreed, 27% neither nor disagreed, 9% disagreed, and 6% strongly disagreed. Mean knowledge scores for those who strongly agreed (10.35, SD=4.29, p<0.05), agreed (9.27, SD=4.46, p<0.05), and disagreed (10.75, SD=3.88, p<0.05) were significantly higher than those who neither agreed nor disagreed (7.14, SD=4.97). Conclusions: Most students agreed that an HPV vaccine college-entry requirement was acceptable. Findings underscore a u-shape pattern, indicating a curvilinear relationship between HPV-related knowledge and acceptability to an HPV vaccine requirement for college-entry. Future efforts should target deficits in HPV-related knowledge to address misconceptions and



maximize support and uptake of the HPV vaccine, ultimately decreasing rates of vaccine-preventable diseases and promoting health equity in HPV-related outcomes.

### **Board 129**

#### **Social Determinants of Health and HPV Vaccination among Young Adult Males, NHIS 2016**

Sarah B. Maness, Erika L. Thompson, and Brittany Rosen

Introduction: Human Papillomavirus (HPV) causes anogenital cancers; yet, HPV vaccination has the potential to reduce cancer morbidity. Unfortunately, vaccine uptake remains poor, especially among young adult men who have significantly lower uptake compared to women. Social Determinants of Health (SDoH) are societal level conditions that may indirectly influence health behaviors, including HPV vaccination. The purpose of this study was to determine the associations of SDoH variables with HPV vaccination among young adult men. Methods: The National Health Interview Survey (NHIS) 2016 was restricted to men, ages 18-26, completing the Sample Adult Questionnaire (N=1,714). The Healthy People 2020 SDoH Framework was used to identify NHIS variables in the areas of economic stability, health and healthcare, education, social and community context, and neighborhood and built environment. Survey-weighted logistic regression models identified the SDoH variables significantly associated with HPV vaccination. Results: Among participants, 15% (N=288) were vaccinated. Men with lower income (\$14,000 or below in last year) were significantly more likely to be vaccinated (OR=1.40, 95%CI 1.01-1.89) (economic stability). In addition, men who did not report looking up health information on the internet in the past 12 months were significantly less likely to be vaccinated (OR=0.87 95%CI 0.80-0.94) (health and healthcare). Conclusion: Significant SDoH areas for HPV vaccination were economic stability and education. These findings can inform future vaccine uptake efforts by focusing specifically on these areas, such as targeting vaccine uptake interventions among men with low health literacy. Men with lower incomes reported higher levels of vaccine uptake, which is reflected in the literature and may indicate greater access to immunization services through government programs such as Vaccines for Children. Identifying SDoH leverage points is critical to promoting HPV vaccination among men and ultimately reducing HPV-associated cancers.

### **Board 130**

#### **Exploring military youth's increased risk for suicide attempts**

Teresa McGeeney, Steve Cambron, Phyllis Millspaugh, Patti Clark, and Ben Birkby

Purpose: The purpose of this study was to identify whether youth with a personal connection to the military were at an increased risk for suicidal behavior, and to identify potential causal pathways. Methods: Every Kentucky school district was invited to participate in a school-based behavioral health survey of middle and high school students. Demographics, peer victimization, and suicidal behaviors were assessed. The number of types of peer victimization a student reported was summed into a victimization score. Multivariable logistic regression was used in reported analyses. Results: 154 out of 173 school districts participated, and 111,700 students completed the survey. 43% of students had one or more family members in the military, 6.4% had attempted suicide in the past year, and students on average reported 1.2 types of peer victimization in the last year. Students who had a family member currently or formerly in the military had 34% higher odds of attempting suicide than their peers, after controlling for demographics (model 1). When the peer victimization score was added into the model (model 2), it explained 85% of the excess risk of military connection (Adjusted Odds Ratio, model 1=1.34, p<.001; AOR, model 2=1.05, p=0.06). The effect of victimization was statistically significant (AOR=1.62, p<.001). These results suggest that victimization may be a partial or

complete mediator between military connection and suicide attempt. Conclusions: Students with military connections have an increased likelihood of attempting suicide. This is partly due to the fact that they are more likely to be victimized by their peers, and victimized youth are more likely to attempt suicide. However, even after controlling for victimization, military-connected youth are still at a marginally significant increased likelihood of attempting suicide. Additional research is needed to understand additional factors military youth face that put them at higher odds for suicide attempts.

### **Board 131**

#### **Military youth and prescription opioid abuse risk factors**

Teresa McGeeney, Steve Cambron, Phyllis Millsbaugh, Patti Clark, and Ben Birkby

Purpose: Kentucky had the 3rd highest rate of drug overdose deaths in 2015, with opioids as the leading cause of overdose deaths. Military youth are at an increased risk for substance use, but the causal pathway has not been identified. This study sought to determine whether parental, peer, and personal disapproval of nonmedical opioid use (NMOU) and perceived risk of NMOU mediated the relationship between military connection and NMOU. Methods: Every Kentucky school district was invited to participate in a school-based behavioral health survey of middle and high school students. Demographics, substance use, and perceptions of risk and parental/peer disapproval of substance use were collected. Multivariable logistic regression was used in reported analyses. Results: 154 out of 173 school districts participated, and 111,700 students completed the survey. 43% of students had one or more family members in the military, and 2.6% of students reported NMOU in the past 30 days. After controlling for grade, gender, race/ethnicity, and free/reduced lunch, students who had a family member currently or formerly in the military were 42% more likely to use prescription opioids than their peers (model 1). When personal, parental, and peer disapproval and personal risk perception were added into the model (model 2), the relationship between military connection and NMOU was changed by less than 1% (Adjusted Odds Ratio, model 1=1.42,  $p<.001$ ; AOR, model 2=1.41,  $p=0.04$ ). This indicates that, though personal and peer disapproval of NMOU and personal perceived risk of NMOU are strong significant predictors of NMOU, they do not mediate the relationship between military connection and NMOU. Conclusions: Military youth are at an increased risk for NMOU, but this elevated risk is not explained by personal, peer, or parental disapproval of NMOU, or by personal risk perception. Additional research is needed to identify the causal pathway between military connection and NMOU.

### **Board 132**

#### **Rural-Urban Disparities in Physical Activity among Military Service Member and Veteran Cancer Survivors**

Justin T. McDaniel, Fanta S. Hangadumbo, Kristen Brewer, Ashley Moss, Musa Yahaya, Nathan Henkenius, Brione H. Lockett, and Maali Alruwaili

Introduction: Physical activity (PA) has been prescribed as a non-pharmacological intervention for cancer survivors to ameliorate the negative physiological and psychological effects of treatment and condition management. Little is known about the prevalence of PA among military service member and veteran (SMV) cancer survivors and how said intervention adherence differs among this population in rural and urban areas. Using an ecological approach – which accounts for individual, interpersonal, and environmental factors, – we assessed the unique effect of rurality on the PA of SMV cancer survivors. Methods: The present study was cross-sectional in design. Secondary data from the Center for Disease Control and Prevention's (CDC) 2016 Behavioral Risk Factor Surveillance System (BRFSS) were retrieved on a national sample of SMV cancer survivors ( $n = 16,643$ ). Geographic information systems (GIS) were used

in order to understand the spatial distribution of any monthly PA (non-job related) among SMV cancer survivors. The effect of rurality on engagement in PA was assessed with multiple logistic regression. Results: Results of our spatial descriptive-epidemiological analysis showed that self-reported PA by SMV cancer survivors was lower in states along the Mississippi Delta Region (MDR) – a federally designated region of rural socioeconomic disadvantage – than many other non-MDR adjacent states. Further, after controlling for demographic characteristics, socioeconomic status, comorbid conditions, BMI, and substance use, results of the logistic regression analysis showed that rurality was independently associated with decreased likelihood of engagement in PA among SMV cancer survivors [OR = 0.889 (95% CI = 0.809, 0.977)]. While 72.700% of SMV cancer survivors in urban areas reported engaging in PA, only 68.300% of SMV cancer survivors in rural areas reported engaging in PA. Conclusions: This is the first study to examine rural-urban disparities in PA adherence among SMV cancer survivors. Interventions aimed at increasing PA among rural dwelling SMV cancer survivors are needed."

### **Board 133**

#### **Using cardiorespiratory fitness to examine the relationship between self-reported job stress and injury in female firefighters: A mediation analysis**

Sarah J. Cosgrove, Katie M. Heinrich, Walker C. S. Poston, Brittany Hollerback, Sara Jahnke, and Christopher K. Haddock

Background: Firefighting has been cited as one of the most stressful occupations. Occupational injury and chronic disease are concerns for firefighters who often have low cardiorespiratory fitness levels. Comprising just 3.9% of US career firefighters, females are an understudied group. It is unclear how unique stressors placed upon female firefighters and their cardiorespiratory fitness level may be related to occupational injuries. This study examined the relationship between job stress and injury, and whether cardiorespiratory fitness mediated this relationship. Methods: Of 2,022 female career firefighters (Mage=40.2, SD=9.1) completing a national online survey, 1,758 (86.9%) provided data for injuries sustained and the amount of stress experienced on-duty in the previous year. Cardiorespiratory fitness (estimated VO<sub>2</sub>max) was calculated from self-reported height and weight, age, and self-reported physical activity. A mediation model using logistic regression was conducted with SPSS 24. Results: Experiencing on-duty stress was dichotomized as none at all, a little, or some (n= 1,285, 73.1%) or a lot (n= 469, 26.7%). Reported injury rates in the last year were dichotomized as none (n= 951, 54.1%) or 1 or more (n= 802, 45.6%). Estimated VO<sub>2</sub>max values ranged from 3.88 to 45.56 (M=32.3, SD=6.5). Injury was significantly higher in individuals reporting experiencing a lot of stress (OR=1.6, CI 95%=1.3, 2.0), with those reporting high levels of stress having a 60% greater risk of injury. However, the full mediation model was not significant, showing no significant relationship between injury and estimated VO<sub>2</sub>max. Conclusions: While on-duty stress and injury were significantly related, cardiorespiratory fitness – which were below average– did not mediate the relationship. Due to the cross-sectional nature of the data, the direction of the relationship between on-duty stress and injury is unclear. Future research should examine the ability of worksite stress management strategies to reduce the rate of injuries among female firefighters

### **Board 134**

#### **Gender Differences in Determinants for Meeting Aerobic and Muscle Strengthening Physical Activity Recommendations**

Grace Fairchild and Paul Branscum

Health behavior research on physical activity (PA) typically focuses on aerobic PA, while overlooking muscle strengthening PA. While interrelated, these two health behaviors are intrinsically different, because they have different recommendations, require different skills to perform, and have some different health benefits. There are also greater gender disparities between meeting muscle strengthening PA recommendations, compared to aerobic PA recommendations. To illustrate, while slightly more men (53.1%) meet aerobic PA recommendations compared to women (50.2%), significantly more men (34.4%) meet muscle strengthening PA recommendations compared to women (24.5%). Therefore, the purpose of this study was to explore gender differences for psychosocial predictors of both types of PA. The theoretical underpinnings of this study were housed within the Integrative Behavioral Model (IBM). College students [female (n=272); male (n=120)] attending a large, Southwestern University, completed an online survey, measuring all the IBM constructs (intentions, attitudes, perceived norms and perceived behavioral control (PBC)), and both types of PA. Results from independent t-tests revealed that women had significantly more social pressure to perform aerobic PA ( $p=0.036$ ), and significantly less PBC to perform muscle strengthening PA ( $p=0.032$ ), compared to men. All other differences between psychosocial determinants were not significant. Using linear regression to model determinants for intentions for both groups, it was found that attitudes, perceived norms and PBC accounted for a significant proportion of the variance for aerobic [women (43.6%); men (47.7%)] and muscle strengthening [women (57.4%); men (53.8%)] PA. Standardized beta coefficients revealed that while predictors for aerobic PA were the same for men and women, for muscle strengthening PA, attitudes explained more of the variance of intentions for men, while PBC explained more of the variance for women. Results suggest that gender differences exist for factors that shape muscle strengthening PA, therefore gender-tailored interventions are warranted.

### **Board 135**

#### **Influence of Self-Rated Health Status on Exercise Behavior and Healthy Eating Habits: Implications for Health Promotion Research and Practice**

Ann Amuta, Divya Talwar, Kathleen Flowers, and Luis Espinoza

**Background:** The association between self-rated health, morbidity and mortality has been studied extensively. However, this relationship is still poorly understood; mostly because, health behaviors which are associated with prevention of disease and mortality have not been adequately included in the self-rated health literature. It is imperative to examine self-rated health, because it reflects psychological judgments that will inadvertently guide an individual's engagement in health protective behaviors. **Methods:** Data collection was started and completed in August 2017. Participants were recruited via Survey Sampling International (SSI). This study comprised of a nationally representative sample of U.S. adults who completed self-report measures of demographic characteristics, perceived health status, physical activity level, fruit and vegetable consumption behaviors, calorie intake monitoring and limiting. Multiple regressions and SPSS 24.0 were used for all analyses. **Results:** 501 adults (53% female, mean age: 44.22 years, mean body mass index (BMI): 28.06). The healthier an Individual self-rated their health, the less vegetables they consumed ( $\beta = -.181, p < .001$ ); less fruit they consumed ( $\beta = -.105, p < .001$ ), and engaged in less exercise ( $\beta = -.267, p = .043$ ). **Conclusions:** Overall, results show perceiving oneself as healthy was associated with less engagement in healthy behaviors. It is possible that if people believe they are healthy, they may be less inclined to engage in health protective behaviors, thereby underestimating the effect of healthy behaviors. Future research is needed to understand the reasoning's behind such relationship. A collaborative effort between different disciplines like biology, sociology and psychology, may improve the understanding of this key measure of health status. Healthcare professionals in

both clinical and non-clinical settings need to encourage both healthy and unhealthy individuals to engage in health protective behaviors."

### **Board 136**

#### **Differences Between Type 2 Diabetes and Cancer Risk Perceptions and Varying Influences on Diet and Physical Activity Behaviors**

Ann Amuta, Wura Jacobs, Divya Talwar, and Marrison Wallace

Purpose/Background: Risk perceptions are a key part of several health behavior change theories. Current research suggests that disease related risk perceptions are important factors of health behavior. Individuals perception of disease risk are likely to be different depending on specific diseases. Limited research has been done to study variations between disease specific risk perceptions on health behaviors. Such distinctions are important aspects to study, as findings may inform program planning efforts and health education strategies. Methods: Survey Sample International agency, an online data collection company was used for this study to reach a large diverse number of U.S adults. Data collection concluded in August 2017. Risk perceptions for T2D and cancer were analyzed separately to investigate distinctions in risk perceptions based on the disease in question. Behaviors examined were vegetable consumption and regular exercise behavior. Descriptive statistics, multiple linear regressions and SPSS 24.0 were used for all analyses. Results: N=501. Majority of the participants were female (n=267), married (n=239), white (n=379), normal weight (61%), average age was 44 years old and average annual household income was \$50,000 – \$75,000. Although most respondents had higher worry and risk perceptions of cancer, this did not translate into engaging in healthy behaviors ( $p > .05$ ). Conversely, risk perceptions for T2D were generally low but were associated with healthy behaviors like increased vegetable consumption ( $\beta = .113$ ,  $p = .013$ ) and engaging in regular exercise ( $\beta = -.109$ ,  $p = .015$ ). Conclusions: Although risk perceptions were generally higher for cancer than T2D, higher T2D risk perceptions was associated with healthy behaviors. High cancer risk perception did not influence behavior. This may be because T2D has clear linkages with diet/exercise while cancer does not. Future research should explore how health professionals discuss and standardize preventive behaviors to increase adoption of better nutrition behaviors, specifically for cancer patients and prevention.

### **Board 137**

#### **Differences in how Hispanic mothers monitor sugary drink and fruit and vegetable intake for preschoolers**

Paul Branscum and Karina Lora

Childhood obesity is a complex public health issue, and interventions are greatly needed for obesity prevention, especially in the Hispanic community. Interventions that can help mothers monitor their preschoolers' diet, have the potential to predispose children early in life to become accustomed to consuming certain foods (i.e. fruits and vegetables), and avoiding others (i.e. sugary drinks). The purpose of this study was to explore differences in how Hispanic mothers monitored their preschoolers' sugary drink and fruit and vegetable intake. The theoretical underpinnings of this study utilized the Integrated Behavioral Model of Prediction (IBM). Hispanic mothers of preschoolers (n=238) completed a valid and reliable survey evaluating the IBM constructs (attitudes, injunctive norms, descriptive norms, capacity, and autonomy), and monitoring behaviors for both fruits and vegetables and sugary drinks. Mothers were recruited from numerous settings in the community (i.e. churches, and preschools) in five zip codes in the southwest part of Oklahoma City where a majority of the Hispanic population resides. Most of the mothers (92%) were born outside of the US, and a majority had been in the US at least 11 years (61%). Additionally, almost all of the mothers (80%) spoke only Spanish or Spanish

better than English at home. Results from dependent t-tests showed that Hispanic mothers have a much more difficult time monitoring sugary drinks, compared to fruits and vegetables. Mothers monitored sugary drinks significantly less than fruit and vegetables ( $p=0.001$ /Cohen's  $d=0.53$ ), and had significantly lower intentions ( $p=0.001$ / $d=0.30$ ), attitudes ( $p=0.001$ / $d=1.59$ ), self-efficacy ( $p=0.001$ / $d=1.83$ ), and autonomy ( $p=0.007$ / $d=0.21$ ) to monitor sugary drinks, compared to monitoring fruits and vegetables. Results from this study show that mothers may need more help monitoring their preschooler's sugary beverage consumption. Additional studies are needed to understand specific motivating factors and barriers that facilitate and inhibit Hispanic mothers from monitoring their preschoolers diet.

### **Board 138**

#### **C-reactive protein moderates the food insecurity-obesity paradox among women**

Daphne C. Hernandez, Layne Reesor, and Rosenda Murillo

The association between food insecurity and obesity is not well understood. Research suggests a positive relationship for women but mixed findings for men. Pro-inflammatory cytokines, such as C-reactive protein (CRP), have been observed among food insecure individuals, and among obese individuals. Thus, the food insecurity-obesity paradox may be related to inflammation differences. The purpose of this study was to investigate whether elevated CRP moderates the association between food insecurity and elevated anthropometric measures [(i.e. body mass index (BMI) and waist circumference (WC)]. Methods: Using the 2005-2010 National Health and Nutrition Examination Survey, we focused on working-poor adults [ $\leq 2.99\%$  of the Federal Poverty Line] ( $N = 9,972$ ). Respondents were considered to be food insecure if they responded affirmatively to 3 or more of the 18-items on the USDA Food Security Scale. BMI and WC were calculated as outlined by the CDC for adults based on direct assessment of a) height and weight and b) abdominal circumference, respectively. Covariates included age, race, nativity, marital status, education, employment, income, and health insurance. Covariate-adjusted logistic regression models were stratified by gender to estimate the odds that CRP moderated the association between food insecurity and overweight/obese (vs. normal weight) and elevated WC. Results: On average the sample was 49 years old, 25% food insecure, 66% overweight/obese, and 57% elevated WC. Higher CRP was observed among women, food insecure adults, overweight adults, and adults with elevated WC. In adjusted models, CRP moderated the association between food insecurity and overweight/obese [OR = 5.98, 95% CI = 2.91 – 12.28,  $p<.001$ ] and elevated WC [OR = 4.13, 95% CI = 2.30 – 7.40,  $p<.001$ ] for women but not men. Conclusion: CRP appears to be a potential moderator of the food insecurity-obesity paradox among women. Reducing food insecurity may assist with lowering rates of inflammation and obesity among women.

### **Board 139**

#### **The individual- and school-based factors associated with adolescent adiposity and the level of blood lipids in Taiwan adolescent**

Wei-Ting Lin, Chien-Hung Lee, Sharon Tsai, and David Wyatt Seal

Purpose: This study investigated the multilevel effects of individual- and school-based characters on adolescent obesity-related markers and clinical examinations. Methods: Participants were recruited from junior high schools in southern Taiwan using a multi-stage, geographically stratified sampling approach. Detailed information on individual demographic, dietary, physical, and lifestyle parameters was collected via self-administered written questionnaires. Health outcomes of interest were the following anthropometric and biochemical measurements: body mass index (BMI), waist circumference (WC), body fat, triglyceride (TG), total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), high-density



lipoprotein cholesterol (HDL-C), and serum uric acid (SUA). School-level factors included the number and type of sport facilities and annual health promotion activities. We used multilevel regression models to estimate the effect that individual- and school-level factors had on health outcomes. Results: 2,727 adolescents, aged 12-15 years old, from 36 junior high schools in Kaohsiung, Pingtung, and Taitung participated in this study. Among individual covariates, elevated levels of body fat, WC, SUA, blood lipids (TC, LDL-C, and low HDL-C concentration) were all associated with being male and having a higher BMI (All  $p$ 's  $\leq 0.001$ ). In the multilevel null model, 10.0-30.5% of blood lipids and 4.3-8.9% of WC and SUA differences in adolescents were attributed to between-school variation (All  $p$ 's for Intraclass Correlation Coefficient  $< 0.001$ ). That is, health outcomes tended to cluster among students in the same school. After adjusting for individual characteristics in the full multilevel model, an increased number of annual school health promotion activities was associated with decreased TC and LDL-C, but also lower HDL-C, concentration (all  $p$ 's  $< 0.041$ ). Conclusion: This study highlights adolescent body fat, WC, SUA, and blood lipids levels were associated with individual factors, while only the latter was associated with school-level factors.

### **Board 140**

#### **Factors Impacting Adolescent Fruit and Vegetable Consumption: Data from the National Cancer Institute's Family Life, Activity, Sun, Health, and Eating (FLASHE) Study**

Mary Odum, Jeff M. Housman, and Ronald D. Williams Jr

**Purpose:** The objective of this study was to examine the role of demographic (race/ethnicity, sex, grade, nativity, literacy, body mass index) and individual-level (normative beliefs, knowledge, perceived barriers, food preference, and self-efficacy) factors on U.S. adolescent fruit and vegetable consumption. **Methods:** Hierarchical multiple regression analysis was conducted on a sample of adolescent participants from the National Cancer Institute's 2014 Family Life, Activity, Sun, Health, and Eating (FLASHE) study. The FLASHE study included a web-based questionnaire administered to U.S. adolescents aged 12-17 years and their parents/guardians. The resulting sample ( $n=1737$ ) is nationally-representative in terms of sex, income, age, household size, and region. **Results:** Result from hierarchical multiple regression analysis results indicated no collinearity concerns with input variables. Model 1 (demographic variables alone) explained very little variance ( $R^2 = .013$ ) in adolescent fruit and vegetable consumption variance; Model 2 (demographic and individual-level variables) explained approximately 31% ( $R^2 = .312$ ) of variance. The  $R^2$  change from model 1 to model 2 of .297 indicated variance in consumptions was mostly explained by the intrapersonal variables. All intrapersonal variables were statistically significant predictors of consumption ( $p < .001$ ); food preference ( $\beta = .274$ ) and self-efficacy ( $\beta = .214$ ) were the strongest predictors. **Conclusions:** Given the conflicting literature to date on the factors impacting U.S. adolescent fruit and vegetable consumption, often from studies with small sample sizes, the current study provides results from a large, nationwide sample. While food taste is highly genetic and remains a primary factor influencing food preference, research has suggested that preferences can change due to a variety of social experiences. Thus, health promotion efforts might build upon the social experiences of adolescent nutrition behaviors to positively impact adolescent fruit and vegetable consumption.

### **Board 201**

#### **Parent Awareness of Adolescent Tobacco Use: Results from a Population-Based Study of US Youth**

Jessica L. King, Julie W. Merten, and Kimberly G. Wagoner

Background: Parental awareness is a protective factor for smoking initiation, and parents are often crucial to youth seeking cessation. Low rates of parent awareness could indicate a need for additional education for parents. Methods: We used data from Wave 2 (2014-2015) of the Population Assessment of Tobacco and Health (PATH) Study Youth/Parent Dataset, a nationally representative study of 12,172 U.S. youth and their parents. We conducted weighted analyses comparing parent awareness of their child's ever tobacco use to youth-reported ever use for any tobacco product, and for cigarettes, e-cigarettes, hookah, little cigars and cigarillos (LCC), and smokeless tobacco. We then examined associations between parents' awareness of adolescent use and sociodemographic factors. Results: Among youth who reported using tobacco (n=2,779; 22.8%), 61.9% of parents were unaware of their adolescent's tobacco use. Parent unawareness varied by product: e-cigarette (57.9%), hookah (53.3%), smokeless (49.5%), LCC (44.7%), and cigarette (44.6%). We identified several factors associated with parent awareness of youth tobacco use: youth age (67.8% of 12-14 year old tobacco users had parents unaware vs. 59.9% of 15-17 year olds;  $F=11.8$ ,  $p=.001$ ), youth gender (58.3% of males had parents who were unaware vs. 65.8% of females;  $F=17.5$ ,  $p<.001$ ), youth ethnicity (67.8% of Hispanic youth had parents unaware vs. 59.9% of non-Hispanic;  $F=17.7$ ,  $p<.0001$ ), youth race (57.9% of white youth had parents unaware vs. 73.4% of black and 68.5% of other races;  $F=19.0$ ,  $p<.0001$ ), and parent tobacco use (54.8% of parents who used tobacco were unaware of youth use vs. 66.7% of non-tobacco using parents;  $F=26.8$ ,  $p<.0001$ ). CONCLUSIONS: Among youth who use tobacco, most have parents unaware of their use. Parents were less aware of tobacco use among youth who used e-cigarettes and other non-cigarette tobacco products. Educational campaigns targeting specific sociodemographic factors could be developed to increase parent awareness of adolescent tobacco use."

### **Board 202**

#### **Perceptions and use of hookah and exposure to an anti-tobacco advertisement**

Allison M. Glasser, Amanda L. Johnson, Yitong Zhou, Morgane Bennett, Jennifer Cantrell, Elizabeth Hair, and Donna Vallone

Purpose: Hookah smoking has increased in the US over the past decade. Hookah is frequently smoked in social settings among young adults. Prior studies have shown hookah smokers inaccurately believe hookah is less harmful and addictive compared to cigarettes, despite evidence indicating a single session can expose users to higher levels of nicotine and toxicants than cigarette smoking. This study was intended to evaluate the impact of a hookah-focused truth® advertisement (ad) on hookah use/harm perceptions. Methods: Weighted analyses were conducted using data from youth and young adults ages 15 to 26 years in the Truth Longitudinal Cohort Study (n=6,039) to examine: 1) whether exposure to truth®'s anti-hookah ad in the past 6 months at Wave 4 (Jan. 2016) impacted harm perceptions and past 30-day use of hookah at Wave 6 (Jan. 2017); and 2) whether the impact of ad exposure on the outcomes was mediated by accurate recall of the fact from the ad ("smoking 60 minutes of hookah is the same as smoking 100 cigarettes"). Results: Controlling for exposure to other anti-tobacco ads at both waves, those who had seen the ad in the 6 months preceding Wave 4 (vs. had not seen the ad) had significantly higher odds (aOR=1.81, 95%CI: 1.41-2.34;  $p<0.001$ ) of reporting greater perceived harm (vs. less) of hookah relative to cigarettes one year later. Accounting for the partial mediation effect of recall of the fact from the ad, ad exposure remained significantly



associated with greater harm perception of hookah relative to cigarettes (aOR=1.79; 95%CI: 1.37-2.32;  $p < 0.001$ ). Past 30-day use of hookah was not associated with ad exposure in any analyses. Conclusions: Results indicate that the ad may have increased perceptions of harm of using hookah, but it may be too soon to see an impact of the ad on hookah use behavior.

### **Board 203**

#### **Portrayals of Electronic Nicotine Delivery System (ENDS) Related Content on Instagram**

Mary M. Step, Lauren Q. Malthaner, and Justin R. Bowman

**Purpose:** Use of electronic nicotine delivery systems (ENDS) is rapidly expanding, particularly for teens and young adults. Importantly, depictions of ENDS product use are common on social media, a preferred channel of communication among young people. The purpose of this study is to identify and examine source and message attributes and apparent themes of posted ENDS related messages on Instagram, a widely used image sharing platform. **Methods:** A quantitative content analysis was conducted to describe the profiles of Instagram users posting ENDS related images, and the content of the posted images. The sample frame included all Instagram posts published over the course one week that included the hashtag #ecig ( $n = 6938$ ). Following data cleaning and development of the codebook, three coders assessed 3,848 images. **Results:** The results showed that the majority (74.4%) of Instagram users who posted ENDS related images during the time frame were commercial sources (e.g., vape shops, manufacturers). Persons depicted in profile pictures were most likely to appear as young adult, White, and male. Images depicted most frequently included photos of ENDS products (42.4%), spontaneous snapshots of ENDS use (30.0%), and graphic advertising (27.2%). Modular vaping devices (57.0%) appeared more frequently than cigarette facsimile devices (1.8%). Developed themes included 1) commercial advertising (56.2%), 2) positive affiliation (30.9%), and 3) demonstration (7.9%). **Conclusions:** Review of images demonstrated how Instagram is used as significant source of positive framing for ENDS use. This suggests that social media is a primary source of commercial tobacco messaging. Given this, Public Health scholars should explore use of social media based interventions to provide a competing narrative to the growing community of young adults who are portraying their ENDS use online.

### **Board 204**

#### **Tobacco use echo chambers in social media: the reinforcement of inequalities in smoking norms**

Vinu Ilakkuvan

**Introduction:** Inequalities in smoking norms make it more likely for those in low socioeconomic or minority populations to use tobacco. These unequal social norms may be further reinforced in social media echo chambers, where smokers and those who have many smokers in their networks are likely exposed to more photos/videos of friends smoking. This study qualitatively explores how young adults are processing social media posts featuring combustible tobacco use and how what they see and how they interpret it may be different based on their – and their network's – smoking status. **Methods:** In-depth interviews were conducted with five smokers and ten nonsmokers, ages 18 to 24, from the DC metro area. Interviews were audio-recorded, transcribed, and statements coded using NVivo and sorted to identify themes. **Results:** Smokers and those with many smokers in their network regularly see posts featuring combustible tobacco use. Most said these posts did not influence their intention to smoke but did influence how prevalent and acceptable they think smoking is among peers. Smokers and nonsmokers alike said smokers in their networks fell into two categories – those that “owned” their identity as a smoker and posted smoking pictures/videos often; and those that actively avoided such posts, not wanting smoking to be part of their image. Although smoking posts were often viewed

negatively (“attention-seeking” or “pointless”), participants did not share these reactions on social media – because they did not want to embarrass the poster, felt they could not change the poster’s mind, or feared backlash from the poster or others in the network.

Conclusions: Social media echo chambers – where smokers and those who know many smokers see more smoking, and nobody speaks up against it – may reinforce inequalities in norms around prevalence and acceptability of smoking. Innovative social media interventions could be developed to mitigate or counter this influence.

### **Board 205**

#### **The ‘Reign of Error’ in Adolescents’ Perceptions of Peer Drinking Norms in US Secondary Schools**

Jessica M. Perkins, H. Wesley Perkins, and David W. Craig

Past work on social norms and alcohol use among college students has found pervasive overestimations of peer drinking norms and that the frequency and quantity a student believes peers to drink predicts personal consumption. Few studies have examined whether similar phenomena are found among middle school and high school students. Yet, students’ perceptions of peer norms within the school context may be an important determinant of alcohol use as youth look to peers for social cues on how to behave during an important development period. This study distinguishes between perceived and actual peer norms for alcohol use among 27,545 students in grades 6-12 across 63 diverse schools in 11 states from 1999 to 2014. Data were collected via anonymous online surveys (with an average response rate of 79%) on students’ perceptions of the most common drinking behaviors among same-grade same-school peers as well as on personal drinking behaviors. Within 83% of grade-school cohorts (179 out of 216), the majority of students rarely consumed alcohol (never or only 1-2x per year). This peer norm of abstinence/rare use was misperceived, however, by two-thirds of students in these grade cohorts who thought that peers typically consumed alcohol more frequently. Further, one-third of students in these cohorts erroneously believed most peers drank weekly or more often. In the other 37 cohorts where monthly alcohol use was the actual norm, peer norm overestimations were still equally pervasive. Disparities between actual and perceived norms for other consumption measures were found across all cohorts and were pervasive across individual and school characteristics. Misperceiving frequent drinking and drinking large quantities as peer norms strongly predicted personal drinking. Researchers should test interventions to reduce misperceptions among youth, and presumably reduce actual alcohol use. Practitioners could begin to explore comprehensive ways to promote awareness of positive actual norms among students.

### **Board 206**

#### **SBIRT aids in reducing substance use risk behaviors in primary care patients**

Nicole R. Kinzeler, Ellen Augspurger, Morgan Borders, Kathy Taylor, Justine Gurley, and Sanford Starr

Purpose: Considerable evidence demonstrates that Screening, Brief Intervention, and Referral to Treatment (SBIRT) is effective in reducing substance use by at-risk users and in identifying individuals who need more extensive specialized treatment. SBIRT utilizes a public health approach to universal screening aimed at providing early intervention to at-risk users. In response to high rates of substance use and a treatment gap in Ohio, the Ohio Department of Mental Health and Addiction Services (OhioMHAS) launched a statewide SBIRT initiative aimed at reducing morbidity and mortality caused by substance use. Method: Seven primary care organizations in Ohio received funding to implement SBIRT. Adult patients were prescreened to rule out low/no-risk use. Patients with a positive prescreen were administered the respective full



screen(s): AUDIT, DAST-10, and PHQ-9. Based on full screening score, three types of interventions were provided: feedback only (low-risk), brief intervention (moderate-risk), and referral to treatment (high-risk). Outcome measures were collected for positive patients (moderate to high-risk) at intake and six-month follow-up using SAMHSA's GPRA tool.

Results: Ohio SBIRT has screened 60,347 patients: 86.3% received feedback only, 8.4% received a brief intervention, and 5.3% received a referral to more extensive treatment. The most frequently used substances for positive patients at intake were alcohol (54.6%), marijuana (37.9%), and heroin (9.2%). Paired samples t-tests indicated significant reductions in alcohol and illegal drug use, as well as significant improvements in mental health outcomes ( $p < .05$ ). Compared to females, male patients demonstrated a greater reduction in the number of days using alcohol ( $p < .05$ ); however, there were no significant differences in other behavioral health outcomes by gender or race. Conclusion: Ohio SBIRT successfully aided primary care agencies in the integration of SBIRT approaches into their existing medical and behavioral health services, resulting in a sustainable program effective at reducing substance use and improving the health of patients.

### **Board 207**

#### **Strengthening self-care and coping skills improves health related outcomes in mental health professionals**

Jen J. Wright, Nicole R. Kinzeler, Kevin M. Kissell, Kelley Adcock, and Meriden Peters

Purpose: Given stressful job responsibilities, mental health professionals are vulnerable to experiencing high levels of occupational burnout, compassion fatigue, and secondary traumatization that may ultimately compromise their ability to effectively serve their clients. By building the self-care and coping skills of mental health professionals, they can experience improved well-being and higher quality of life that translates into better patient care. The Self-Care and Resilience (SCaR) intervention program aims to improve the outcomes of mental health professionals by teaching them self-care and coping skills. Methods: The 8-week SCaR program was offered to mental health professionals (N=62) working with three behavioral health agencies in Hamilton County, Ohio. Pre-test, post-test, and 3-month follow-up surveys included five validated instruments: Perceived Stress Scale (PSS), Brief Cope, Mindful Attention Awareness Scale (MAAS), Self-Compassion Scale (SCS), and the Maslach Burnout Inventory (MBI). Additionally, participants' perceived physical and emotional well-being was recorded at the beginning and end of each session. Results: Paired samples t-tests indicated significant reductions in perceived stress and increases in self-compassion from pre-test to post-test, with changes being maintained at 3-month follow-up ( $p < .05$ ). There were no statistically significant differences demonstrated for the MAAS, Brief Cope, and the MBI; though the changes were in the desired direction. Participants also reported improvement in their physical and emotional well-being throughout the 8-week program. Eighty-seven percent (87%) of participants reported continued use of the skills they learned with SCaR 3 months after completing the program. Conclusions: Equipping mental health professionals with necessary self-care and coping skills can have a positive impact on their physical, mental, and emotional health. Future studies include evaluating the effects of the program on client care, as well as expanding the program to other professional groups experiencing high levels of work related stress including other health care providers, helping professionals and law enforcement.

**Board 208**

**Barriers to medication assisted treatment (MAT) in rural Pennsylvania**

Whitney Katirai, Harry R. Holt, and Matin Katirai

Purpose: The purpose of the study was to examine the barriers that exist in receiving MAT for opioid addiction in Rural Pennsylvania (PA). Methods: All SAHMSA licensed MAT clinics in rural counties of PA were contacted by via phone at least 3 times, and were eligible to participate in the study. Interviews were conducted with MAT clinic directors in rural PA. The interviews were conducted over the phone and consisted of 18 open-ended questions based on the research question and gaps in the literature. Inductive content analysis was used to determine patterns within the data. Results: There were 160 MAT treatment facilities in rural PA that were contacted to participate in the study. After at least 3 attempts at contacting the facility, 121 facilities were verified as open and functioning. Mobile clinics were also contacted and eligible to participate. Of the 121 facilities, 24 were unable to be contacted, 2 declined to participate, 2 only partially completed the survey. Of the 97 (80% completion rate) clinics that completed the survey, 43 provided MAT services, while 43 only provided counseling services required for MAT. Content analysis revealed the following barriers to MAT treatment: public transportation, lack of childcare, travel distance to clinic, eligibility for Medicaid reimbursement, addiction stigma, hours of operation, lack of education about the disease of addiction from patients, families, and society, as well as the current legal/criminal justice system. Conclusions: There are many barriers that exist in receiving MAT in Rural PA. Our findings reveal that there are many opportunities for improving access to and removing barriers for MAT treatment.

**Board 209**

**Reformulation of Oxycodone and Associated Heroin Use**

Zhi Wang and Hsien-Chang Lin

Purpose: The current opioid epidemic hits the United States heavily with consequences of addiction and increased overdose-related deaths. Oxycodone is a widely prescribed opioid narcotic to treat pain with highly addictive potential. In 2010, the Food and Drug Administration approved the abuse-deterrent formula of oxycodone with the attempt to reduce the likelihood of misuse by making oxycodone difficult to crush and snort. However, whether the consequent rapid decline in non-medical use of oxycodone has contributed to the switch of use from oxycodone to heroin remains unclear. This study examined the association between oxycodone reformulation and heroin use among adolescents and adults. Methods: This was a multi-year cross-sectional pre-post study. Respondents aged 12 and older in the 2008-2016 National Survey on Drug Use and Health were included in this study (N= 50,5796). The Problem Behavior Theory was adopted as a conceptual framework to guide variable selection. Weighted logistic regressions were conducted to exam oxycodone reformulation and associated use/misuse of oxycodone, any pain medication, and heroin, respectively, controlling for other covariates. An interaction term of oxycodone reformation and pain medication misuse status was included. Results: After oxycodone reformulation, respondents had a lower odds of misusing pain medications (OR=0.93, p<0.01) and higher odds of using heroin (OR=1.7, p<0.01). Respondents who stopped misusing pain medication for 30 days to 12 months had higher odds of using heroin in past 30 days (OR=2.54, p<0.05). Conclusion: Findings of this study suggest that oxycodone reformulation has a 'crowding-out effect' that leads to the switch of use from pain medications to heroin. People who have stopped misusing medications for 30 days to 12 months may be at higher risk of current heroin use. While reducing misuse of prescription opioids is prominent, efforts should also be made to reduce and prevent heroin use especially among people with higher risk.

**Board 210****A Qualitative Study of Neonatal Abstinence Syndrome in Ohio: Implications for Maternal and Child Health Programs**

Danielle Madden, Jennifer Syvertsen, Hannah Toneff, and John Clapp

The U.S. has seen an alarming increase in the abuse of opioids and, in recent years, there has been a significant increase in pregnant women seeking treatment for opioid addiction and mothers giving birth to babies diagnosed with Neonatal Abstinence Syndrome (NAS). In Ohio, there were 1,691 NAS hospital admissions, or nearly five per day, in 2013 alone. In order to better understand NAS and inform prevention efforts, we conducted qualitative interviews with 18 healthcare providers and 28 at-risk women. At-risk women were recruited through clinics, treatment facilities, and word of mouth. Women were 1) currently pregnant and on medication assisted therapy (MAT) for opioid use and/or using opioids, or 2) recently delivered a child while on MAT or actively using opioids. Interviews used a life history approach to assess histories of drug use, experiences with opioid treatment and pregnancy, and perceptions of service needs to prevent NAS and promote women's health. Healthcare providers were asked about their experience providing services to women and NAS infants. All interviews were transcribed and coded using an inductive approach to identify key themes. Key informants and women agreed that NAS is a significant concern in Ohio, but there are few options for preventative care. Once pregnant, many of the women in our sample sought care in newly-established, comprehensive programs where they received MAT (methadone or Suboxone) along with prenatal and mental healthcare. While such programs were perceived as helpful by providers and women, barriers including waitlists, insurance issues, stigma, and travel from rural areas presented challenges for women. Limited follow-up services and lack of coordinated care for families with newborns also presented long-term challenges. Findings can be used to implement holistic treatment programs for women that address the mental and physical aspects of addiction before, during, and after pregnancy.

**Board 211****Utilizing a Case Management Approach to Decrease Substance Use in an Adult Re-entry Population**

Jo Ann Ford, Kevin M. Kissell, Ray Gaddis, Tracy Atkinson, Karen Brown, and Nicole R. Kinzeler

Background: Those involved in the criminal justice system have rates of substance use that are more than four times higher than the general population. Since data from Montgomery County, Ohio mirrors national statistics regarding substance use as a barrier to successful re-entry, the Montgomery County Offender Re-entry Program (MCORP) was developed to assist offenders in reducing or eliminating their substance use. MCORP is a case management based program which provides services ancillary to formal treatment. Methods: Participants, recruited from the MonDay Community Correctional Institution, were offered a variety of services both while incarcerated and post-release. Available services included substance use disorders (SUD) screenings, HIV/hepatitis C testing, prevention education, referral to SUD treatment, and case management. The number and breadth of services utilized was defined by each participant with most being referred to formal SUD treatment. Outcome measures, including substance use, were obtained from self-reported data at baseline and six-month follow-up. Results: At the time of incarceration, 55% of participants indicated having used heroin, with 44% reporting daily use. Additionally, 49% had used marijuana, 42% had used cocaine and 39% had used benzodiazepines. Of those participants with baseline and follow-up data, paired samples t-tests showed significant reductions in substance use ( $p < 0.01$ ). In particular, daily use of heroin was no longer reported and overall heroin use was indicated by only 13% of participants at follow-up.

Marijuana use showed similar reductions, and not a single participant reported having used either cocaine or benzodiazepines at the six-month follow-up. Conclusions: Despite alarmingly high rates of substance use at the time of incarceration, the MCORP program is having a positive impact on its participants. By helping them reduce or eliminate their substance use, particularly in regards to heroin, the program has taken a significant step in facilitating a successful re-entry for offenders experiencing substance use disorders.

### **Board 212**

#### **The protective influence of youth assets on juvenile arrests**

Taylor Lensch, Kristen Clements-Nolle, Roy F. Oman, and Minggen Lu

Background: Research suggests that juvenile arrests put youth at risk for educational disadvantage, substance use, and exposure to violence, which can collectively influence health into adulthood. While risk factors for juvenile arrests are established, factors that can protect against juvenile arrests are less studied. The purpose of this study was to determine the association between youth assets within individual, family, and community domains, and juvenile arrests. Methods: 1,111 youth-parent pairs from 20 randomly sampled census tracts (stratified by income and race/ethnicity) completed 5 waves of data collection over a 4-year period. Trained researchers used computer-assisted, in-person interviewing methods to measure seventeen assets within individual (7 assets), family (4 assets), and community (6 assets) domains. Cox proportional hazards regression was used to measure the relationship between time-varying assets and time to first arrest during the 4 year follow-up period.

Results: The mean age at baseline was 14.3 years old. Arrest rates were 6.4%, 8.7%, 12.3%, and 18.7%, during each of the four follow-up years, respectively. The sample was racially and ethnically diverse [white (41%), Hispanic (29%), and black (24%)]. In the individual domain, 4 of 7 assets were significantly associated with a reduced risk of arrest [HR Range: (0.52; 95% CI: 0.37-0.74) to (0.81; 95% CI: 0.58-1.15)]. In the family domain, 3 of 4 assets were significantly associated with a reduced risk of arrest [HR Range: (0.54; 95% CI: 0.39-0.77) to (0.78; 95% CI: 0.59-1.02)]. Finally, 4 of six assets in the community domain were significantly associated with a reduced risk of arrest [HR Range: (0.61; 95% CI: 0.40-0.94) to (1.00; 95% CI: 0.75-1.35)].

Conclusions: This longitudinal analysis showed a protective relationship between 11 of 17 assets and arrest in a diverse sample of youth. Interventions that promote individual, family, and community asset-building among youth may reduce arrests in this population.

### **Board 213**

#### **Reducing Recidivism by Addressing Common Barriers to Reentry**

Kevin M. Kissell, Ray Gaddis, Tracy Atkinson, Karen Brown, Nicole R. Kinzeler, and Jo Ann Ford

Background: Montgomery County has the highest recidivism rate among Ohio's six largest urban counties, with most offenders returning to the county with the same barriers that they had prior to incarceration. Common barriers to offenders reentering the community include unemployment, housing stability, lack of education, and substance use disorders (SUD). By expanding and enhancing offender reentry program services through comprehensive case management and SUD treatment, the Montgomery County Offender Reentry Program (MCORP) seeks to address the needs of citizens reentering their communities. Methods: Upon release from the Monday Community Correctional Institution, participants were offered a variety of services, including referral to SUD treatment, case management, employment and housing assistance, and transportation. The number and breadth of services utilized was defined by each participant. Outcome measures, including substance use, employment, and housing status were obtained from self-reported data at baseline and six-month follow-up.





Results: At six-month follow-up, 28.2% of MCORP participants had been re-incarcerated in either jail or prison; significantly lower than the 44.0% county average. Additionally, 84.6% had found stable housing, 43.6% had found either full-time or part-time employment, and nearly 63% reported zero days of illegal drug use. Furthermore, Chi-Square independence testing indicated significantly lower recidivism rates for those participants who were employed, housed, or abstinent from illegal drug use ( $p$ 's<0.01). Conclusions: The MCORP program is having a positive impact on its participants. By specifically addressing the common barriers to successful reentry, including housing, employment, and substance use disorders, the program has taken a significant step in facilitating a successful reentry for offenders as well as reducing the recidivism rate in Montgomery County, Ohio.

### **Board 214**

#### **A pilot assessment of the outcomes of an HIV and substance use prevention program tailored for African-American young adults ages 18 to 24: 'Color it Real'**

Jon Agle, Wasantha Jayawardene, Rosie King, Albert Gay, Kelly Horne, and Roland Walker

Purpose: The purpose of this initial evaluation was to determine whether a tailored HIV and substance use prevention program for African-American young adults produced short-term changes in participants' knowledge, attitudes, and beliefs. Methods: Thirty two African-American young adults (ages 18 to 24) from a community in northwestern Indiana attended at least one session of the 'Color it Real' program (of 6+ sessions over 3 weeks). Of those, 14 participants completed pre-test and post-test evaluation surveys, attended at least 5 sessions, and met data validation standards. The survey data were collected using the National Minority SA/HIV Prevention Initiative Adult Questionnaire. Changes in knowledge, attitudes, and beliefs across the duration of the program were assessed using Wilcoxon Signed Ranks tests or paired Student's T-tests, depending on the data type. Due to limited statistical power, post-hoc significance correction was not applied, and interpretation was limited accordingly. Results: Likely areas of participant improvement included perceived risk of smoking marijuana once/twice a week ( $z=-2.0$ ,  $p=0.046$ ), disapproval of friends' unprotected sex ( $z=-1.88$ ,  $p=0.061$ ), perceived risk of having sex without a condom ( $z=-2.27$ ,  $p=0.023$ ), and perceived risk of having sex under the influence of alcohol ( $z=-2.07$ ,  $p=0.038$ ). Some additional tests also yielded lower z-scores that would be significant if observed in a study with greater power. One potential iatrogenic effect was observed, a non-significant increased likelihood of asserting there is a cure for AIDS ( $z=-1.34$ ,  $p=0.180$ ). Conclusions: 'Color it Real' was developed and validated using a quasi-experimental design by the Wholistic Stress Control Group in Atlanta, GA, and is sufficiently innovative to merit further evaluation. Our preliminary findings generally concur with the original validation study and support continued use of 'Color it Real' in northwestern Indiana, though a larger purposive sample and experimental design are required to better assess the program's benefits for African-American young adults.

### **Board 215**

#### **A 'Structured' Phenomenological Approach to Informing Young Adult and Adolescent**

**Male Health Behavioral Intervention Design** Michael J. Rovito, Kenyatta O. Rivers, and Kathy E. Rovito

Background: The lack of qualitative information to better understand the health-related attitudes, perceptions, and lived experiences of young adult and adolescent males is an obstacle to achieve health equity. Existing attempts to measure/analyze behavioral predictors tend to be bounded in scope or limited in their application regarding social indicator measurement, failing to comprehensively assess normative beliefs, communication skills, among others. Methods: A total of 35 males between the ages of 13-26 were recruited via convenience sampling

techniques to participate in a series of semi-structured focus groups. Participants were asked to share their thoughts and opinions through a combination of private journaling and open forum discussions on six salient health topics. This novel methodology, labeled ‘structured phenomenology’, identified said domains in the extant literature and published health reports on young adult and adolescent male health. A triangulation and essence development process was then used to identify salient themes from the focus group data. Results: Eight themes were identified from the six topical focus group discussions: masculinity, health and wellness, competition and risk-taking, violence, romantic relationships and sex, friendship/social circles, success and values, and interpersonal communication. Through bracketing, peer evaluation, and conferencing techniques, these eight themes were then used to produce the domains of the Young Adult and Adolescent Males Health Behaviors Indicators Scale (YAAMHBIS), a tool that measures current health behaviors and attitudes surrounding wellness, as well as possible indicators of future health outcomes in this population. Preliminary post hoc psychometric analyses of YAAMHBIS indicate appropriate reliability and validity properties. Conclusion/Future Implications: During this presentation, YAAMHBIS, including its potential as a clinical tool for identifying (1) typical and atypical behaviors in and (2) appropriate intervention practices services for young adults and adolescents, will be discussed. Validation procedures that were used for establishing the psychometric properties of YAAMHBIS will also be discussed.

### **Board 217**

#### **Do you see what I see? Batswana parents’ and adolescents’ perceptions of their relationship and their association with adolescent sexual risk**

Christina J. Sun, Janet St. Lawrence, Esther Seloilwe, Mabel Magowe, and Kefalotse Dithole  
Purpose: This study assessed the level of congruence between parents’ and adolescents’ perceptions of their relationship and examined the association between their perspectives of the relationship and adolescent sexual risk. Methods: Five adapted and psychometrically sound instruments were administered via audio computer-assisted self-interview to both parents and their adolescents separately to assess their perceptions of their relationship. Adolescents also reported their sexual activity and whether they intended to engage in sexual intercourse in the coming year. Results: 73 parent-adolescent dyads completed their respective surveys (adolescent age M = 15.4, SD = 1.7, Range = 12-18; parent age M = 40.2, SD = 8.3, Range = 22-60). Parents generally reported significantly higher and more positive ratings about their relationship than did their adolescents. There were also significant gender differences in their perceptions. Daughters held more similar views of their relationship with their parents compared to sons. After controlling for adolescent age and gender, greater discrepancies in their perceptions of their relationship was significantly associated with higher adolescent sexual risk. The greater the disparity in perceptions of the parent-adolescent relationship quality, the more likely the adolescent was to have reported early sexual debut (AOR = 1.20; 95% CI = 1.02, 1.41). There was also a positive association between the difference in parent and adolescent perceptions of parental use of positive reinforcement and intercourse intentions (AOR = 1.35 95% CI = 1.04, 1.75). Conclusion: When parents and adolescents have divergent perceptions of their relationship, these differences have significant impacts on adolescents’ sexual risk. These findings suggest that multilevel parallel interventions for both parents and adolescents are needed to bring families into greater congruence and lower adolescents’ risk behavior.

**Board 218****Factors associated with disclosure of same-sex sexual behaviors to healthcare providers among men who have sex with men in Baltimore City**

Julia E. Painter and Carl Latkin

Background: Disclosure of same-sex sexual behaviors to healthcare providers is critical to ensure that men who have sex with men (MSM) receive appropriate services for sexual health (e.g., PrEP) and mental health. This study explored factors associated with disclosure of same-sex sexual behaviors to healthcare providers among low-income MSM in Baltimore City, MD. Methods: Low-income MSM were recruited via multiple methods, including local papers, health clinics, street venues, social services, and the internet. Surveys were conducted in-person. The main outcome measure was disclosure of same-sex sexual behaviors to healthcare provider. Predictor variables included demographics, health history, sexual risk behaviors, and psychosocial factors. Stepwise logistic regression using backwards elimination was conducted among 1) the entire sample, and 2) HIV-negative participants. Results: Forty-one percent of all participants (n=180/428), and 19% of HIV-negative participants (n=52/272) reported disclosing same-sex sexual behaviors to healthcare providers. Among both the full and HIV-negative samples, participants with higher peer norms for disclosing sex with men to providers were more likely to report disclosure (aOR=1.57, 95% CI=1.24–1.98; aOR=1.65, 95% CI=1.20–2.25, respectively); participants with general worry about disclosing sex with men were less likely to report disclosure (aOR=0.84, 95% CI=0.78–0.91; aOR=0.85, 95% CI=0.78–0.94, respectively). Among the full sample, ever being diagnosed with an STI (aOR=4.41, 95% CI=1.56–12.45), lacking health insurance (aOR=.05, 95% CI=0.01–0.67), having sex with a female partner in the past 90 days (aOR=0.39, 95% CI=0.16–0.98), and negative outcome expectancies for disclosing sex with men to healthcare providers (aOR=0.83, 95% CI=0.71–0.98), were also determinants of disclosure. Conclusions: Disclosure of same-sex sexual behaviors to healthcare providers among HIV-negative participants was low. Findings support the importance of psychosocial factors in determining disclosure. Future research should assess barriers to disclosure and examine how to train providers to facilitate disclosure and increase trust.

**Board 219****Demand, acceptability, integration, efficacy, and sustainability: The cervical cancer prevention and detection promotora project**

Helen C. Tarp, Margaret E. Fore, and Paula Phelps

Purpose: This project's purpose was to assess the feasibility of a promotora intervention designed to increase Idaho Latina health literacy about cervical cancer, overcome barriers of language and culture, and connect participants with services and resources necessary to promote self-efficacy. Idaho Latinas' cervical cancer mortality rate is 35% higher than that of non-Latinas. Research indicates that this disparity is due to low health literacy and barriers of language, culture, and poverty. Investigators designed the pilot project feasibility based upon the following criteria: Acceptability, Demand, Implementation, Practicality, Integration, and Efficacy; Latina participants assessed program materials. Methods: Investigators trained two bilingual Latina university students as promotoras. The promotoras wrote scripts and created bilingual videos providing information about cervical cancer prevention, detection, treatment, and available community health resources including the Women's Health Check Program. They identified Latina participants (n=6) from their communities, delivered educational materials in participant homes, administered pre and post video surveys to assess changes in knowledge, attitudes and perceptions of cervical cancer, the HPV vaccine, the Pap test, and local health resources, and facilitated participants' contact with cooperating clinics. Results: Intervention completers (n=6) all showed increases in knowledge, rated program acceptability highly, and

100% of those with children (n=5) demonstrated a more positive attitude towards their children receiving the HPV vaccine. Conclusions: Pilot data indicates that this program is feasible. It responds to identified barriers of language, literacy, and culture contributing to a disproportionate burden of cervical cancer mortality among Latinas in Idaho. Increases in knowledge and changes in attitudes demonstrate project efficacy. Utilization of existing resources facilitated integration into existing system; partnering with a university academic program is a means of sustainability.

### **Board 220**

#### **Long-term impact of a teen pregnancy prevention intervention on sexual risk behaviors of system-involved youth who have left a group care home setting**

Roy F. Oman, Kristen K. Clements-Nolle, Minggen Lu, and Taylor Lensch

Purpose: Recent research found that the Power Through Choices (PTC) teen pregnancy prevention program significantly increased the use of birth control and reduced the odds of pregnancy at 6- and 12-months post intervention, respectively, among youth living in group care homes. This study's purpose was to further assess the PTC intervention by focusing exclusively on youth no longer living in the homes at 6- and 12-months post intervention and who therefore had greater opportunity to engage in sexual behaviors. Methods: The study design was a two-arm (PTC intervention or usual care) cluster randomized controlled trial involving group care homes (N= 80 homes, N= 1036 youth participants) located in 3 states. Data were collected via self-administered questionnaires at pre, post, and 6-and 12-months follow-up. Generalized linear mixed regression modeling, controlling for demographic variables, was conducted using outcome data from the subsample of youth (N=476, 252 intervention group, 224 control group) not living in the homes at 6- and 12-months post intervention. Results: Study subsample participants were young (mean age=16.4 years), predominantly male (82%), and racially/ethnically-diverse (39% Hispanic, 21% white, 20% black, 16% multiracial). At 6-months participants in the intervention group had significantly lower odds of having sexual intercourse in the past 3 months without using birth control (OR= 0.66; 95% CI, 0.50-0.87), not using birth control at last sexual intercourse (OR=0.68; 95% CI, 0.50-0.95), and not using a condom at last sexual intercourse (OR= 0.64; 95% CI, 0.44-0.93). At 12-months participants in the intervention group had significantly lower odds of having sexual intercourse in the past 3 months without using birth control (OR= 0.61; 95% CI, 0.41-0.89). Conclusions: The results generally indicate that the PTC intervention provided youth with the knowledge and skills to practice safer sexual behaviors when living outside of the possible constraints of the group care homes.

### **Board 221**

#### **Having A Usual Health Provider and Associated Patient Clinical Outcomes among People Living with HIV/AIDS**

Zhi Wang and Hsien-Chang Lin

Purpose: Seeking consistent HIV healthcare is the key to achieve expected clinical outcomes because antiretroviral therapy prevents HIV virus from reproduction and thereby decreases opportunistic infections among people living with HIV/AIDS (PLWHA). Previous studies mainly focused on how providers' behaviors, attitudes, and decisions may improve HIV-related clinical outcomes, but limited research has investigated whether having a usual HIV healthcare provider is associated with patient clinical outcomes. The study examined the associations of having a usual HIV health provider and two HIV-related clinical outcomes (including the counts of HIV viral load and CD4 cells) among PLWHA. Methods: This study used data from the 2009-2014 Illinois Medical Monitoring Project (MMP). A total of 1,584 PLWHA who received HIV healthcare were included in MMP and comprised the study sample. This study applied the Andersen's



model of healthcare utilization to guide selection of control variables including patients' sociodemographic characteristics and medical abstractions. Two logistic regressions were conducted to examine the associations of having a usual HIV health provider and the two clinical outcomes. This study further used the inverse probability weighting method to address the missing data of whether a patient had a usual HIV health provider. Results: Patients with a usual HIV health provider had higher odds of achieving HIV viral suppression to undetectable level (i.e., viral load < 200 cells/mm<sup>3</sup>) and maintaining high counts of CD4 cells to maintain strong immune system (i.e., CD4 >200 cells/mm<sup>3</sup>) compared to those without a usual HIV health provider (OR=0.23 and 4.17, respectively; both p's < 0.05). Conclusions: Having an HIV usual health provider was associated with higher likelihood of having expected HIV clinical outcomes of people living with HIV/AIDS. To optimize HIV-related clinical outcomes, policy and educational interventions are needed for PLWHA to have a usual HIV health provider and establish a long-term physician-patient relationship.

### **Board 222**

#### **A Resilience Intervention for Adults with Type 2 Diabetes in Underserved Communities**

Mary A. Steinhardt, Susan K. Dubois, and H Matthew Lehrer

Purpose: Current type 2 diabetes mellitus (T2DM) programs are limited in their ability to produce and sustain behavior change in underserved communities. Racial health disparities in T2DM may be partially explained by stress. The impact of stress on T2DM management may be attenuated by resilience resources. Resilience is the ability to successfully adapt in the face of adversities such as stress. Our Resilience-Based Diabetes Self-Management Education (RB-DSME) program provides diabetes self-management skills integrated with resilience resources, thereby enhancing mental health and reducing physiological burdens associated with T2DM. The purpose of this study was to examine the preliminary effectiveness of the RB-DSME program to enhance resilience resources, T2DM self-management behaviors, and health outcomes at two Federally Qualified Health Centers in Austin, Texas. Methods: Four RB-DSME groups (N=35) attended 8 bi-weekly RB-DSME class sessions followed by 2 bi-weekly support group sessions. Data collection occurred at baseline and 6 months post-intervention, including resilience resources, T2DM self-management behaviors, and health outcomes. Results: Class attendance for the RB-DSME program was remarkably high (80–95%), as was program satisfaction (6.8–6.9 on a scale from 1, very dissatisfied to 7, very satisfied). Paired-t tests showed the RB-DSME intervention significantly improved key resilience resources (adaptation to stress, finding positive meaning, adaptive coping), T2DM self-management behaviors (average # steps/day, self-care inventory), and mental (depressive symptoms, diabetes distress) and physical (A1C) health outcomes with effect sizes ranging from .17 for adaptive coping to .64 for diabetes distress. Importantly, the 9 patients who were able to decrease their diabetes medication also had a significant decrease in A1C from 8.7 to 7.2. Conclusions: The RB-DSME intervention demonstrates strong promise to reduce T2DM consequences, a major health disparity for underserved communities. Increasing resilience resources enables enhanced adherence to healthy lifestyle choices, thereby decreasing T2DM disease progression.

### **Board 223**

#### **Impact of Weekend Admission on In-hospital Mortality among U.S. Adults, 2003-2013**

Ruopeng An

Purpose: Over the past decade, the media, politicians, practitioners, and researchers paid increasing attention to the risks involved in hospital admission at weekends. This study examined the impact of weekend admission on in-hospital mortality among U.S. adults and by

sex, age, race/ethnicity, and disease category, and tracked changes from 2003 to 2013. Methods: Over 50 million hospital discharge data came from 2003-2013 National Inpatient Sample (NIS). Cox regressions were performed to estimate the hazard ratios of in-hospital mortality associated with weekend admission, adjusting for individual and hospital characteristics and NIS sampling design. Results: Compared to weekday admissions, weekend admissions were associated with increased in-hospital mortality risk by 5% among all inpatients. Young adults (2.7%) had lower incremental mortality risk than middle-aged (5.3%) and older adults (5.2%). Among the 10 leading causes of death, patients hospitalized at weekends due to malignant neoplasms (12.1%), diabetes mellitus (11.7%) and heart diseases (8.2%) had the highest incremental mortality risk. The estimated weekend effects tended to be more prominent among inpatients with higher assessed mortality risk. Incremental mortality attributable to weekend hospitalization decreased from 6.9% in 2003 to 2.5% in 2013. Conclusions: Weekend admissions were associated higher in-hospital mortality but the impact declined during 2003-2013.

#### **Board 224**

#### **Influence of Ambient Air Pollution on Daily Television Use among Residents in Shanghai, China: A Time Series Analysis**

Ruopeng An and Sheng Zhang

Purpose: Although the adverse effects of ambient air pollution on health outcomes have been extensively documented, much less is known regarding its impact on people's health behavior. This study examined the impact of daily ambient air pollution on television use among residents in Shanghai, China. Methods: Device-measured daily average duration of television use from January 2014 to December 2016 was obtained from a random sample of 300 households, and were matched to ambient air pollution and weather data. Autoregressive moving-average model was performed to estimate the association between air quality index (AQI) and television use. Results: A negative non-linear relationship was identified between air pollution level and television use. Compared to the days when air quality was good ( $0 \leq \text{AQI} \leq 50$ ), days with fair air quality (50-150) were associated with a reduction in daily average television use by 2.9 (p-value=0.002), 4.6 (p-value<0.001), and 1.9 (p-value=0.369) minutes, respectively. Television use was found to decrease with daytime temperature while increase on weekend days, holidays, and rainy days. Conclusions: Modest but not more severe air pollution was found to be associated with reduced television use. People might mitigate the detrimental impact of air pollution by engaging in other indoor activities and/or sleeping. Future individual-level longitudinal studies adopting a comprehensive set of validated measures on sedentary behavior, physical activity, health indicators, and both objectively-monitored and self-perceived ambient air quality are warranted to advance research regarding the influence of air pollution on residents' health behavior.

#### **Board 225**

#### **Ambient Fine Particulate Matter Air Pollution and Physical Activity: A Longitudinal Study of University Retirees in Beijing, China**

Ruopeng An, Hongjun Yu, and Flavia Andrade

Objectives: This study examined the longitudinal relationship between ambient fine particulate matter (PM<sub>2.5</sub>) air pollution and physical activity-related health behaviors among university retirees in Beijing, China. Methods: Annual health surveys of retirees were conducted at Tsinghua University during 2011-2016. Linear individual fixed-effect regressions were performed to estimate the impacts of ambient PM<sub>2.5</sub> concentration on physical activity-related health behaviors among survey participants, adjusting for various time-variant individual



characteristics and environmental measures. Results: An increase in ambient PM<sub>2.5</sub> concentration by one standard deviation (56.6 µg/m<sup>3</sup>) was associated with a reduction in weekly total hours of walking by 4.69 (95% confidence interval=1.30–8.08), a reduction in leisure-time Physical Activity Scale for the Elderly (PASE) score by 71.16 (28.91–113.41), and a reduction in total PASE score by 110.67 (59.25–162.08). An increase in ambient PM<sub>2.5</sub> concentration by one standard deviation was associated with an increase in daily average hours of nighttime/daytime sleeping by 1.75 (1.24–2.26). The impact of ambient PM<sub>2.5</sub> concentration on weekly hours of walking tended to be larger among men than among women. Conclusions: Air pollution significantly discouraged Chinese older adults from engaging in daily physical activities. Policy interventions are urgently called to reduce air pollution in China's urban areas.

### **Board 226**

#### **The Impacts of a tailored lifestyle enhancement program on older adults: Moderating effects of self-efficacy on health behavior engagement**

Shinduk Lee, Samuel D. Towne Jr., Matthew L. Smith, Cindy Quinn, and Marcia G. Ory

Background: Promoting healthy lifestyles is a critical public health priority, given the growing burden of chronic conditions among older adults. The extant empirical and theoretical literature suggest that self-efficacy is a predictor of individual engagement in healthy behaviors. Therefore, we hypothesize older adult participation in a tailored lifestyle enhancement program will have differential impacts on health behavior engagement based on the participants' baseline levels of self-efficacy. Methods: Using a longitudinal design, self-reported data were collected using surveys among the participants at the baseline, at immediate post of the workshop (~3 months from the baseline), and 6 months after the baseline. The measures included engagement in physical activity (PA) and healthy diet (HD) and self-efficacy for PA and HD engagement. Participants were included in analysis if they were 60 years or older, attended the first or second session of the workshop, and completed the baseline survey. Multiple mixed regression models were performed after controlling for the participants' sociodemographic characteristics. Results: There were 163 study-eligible participants. The average age was 75 years. Participants showed significant improvements in self-rated health, fatigue, PA, and HD (e.g., reported less fast food consumption and more fruit and vegetable consumptions) ( $p < 0.05$ ). An increase in the baseline PA self-efficacy leveraged the immediate and sustained program impacts on the participants' self-reported light and moderate-to-vigorous PA ( $p < 0.05$ ). No significant moderating effects of the baseline HD self-efficacy was observed ( $p > 0.05$ ). Discussion: The study implies participants' self-efficacy in PA predicts greater immediate and sustained program impacts on their PA. Furthermore, findings indicate programmatic activities effective to improve self-efficacy and subsequently health behavior may differ for PA and HD.

### **Board 227**

#### **Meta-Analysis of Fall-related Efficacy Improvements among Community-dwelling Older Adults Attending a Falls Prevention Program**

Aya Yoshikawa, Gilbert Ramirez, Matthew L. Smith, and Marcia G. Ory

Purpose: A Matter of Balance Volunteer Lay Leader Model (AMOB/VLL) is an evidence-based program to reduce fear of falling and promote daily activities among community-dwelling older adults. It has been implemented across the US since 1998, yet the synthesis of individual studies had never been reported. This study aimed to statistically synthesize the magnitude of the program's effect on improving fall-related efficacy. Methods: A systematic literature search from 1998 to 2016 was conducted using electronic databases (CINAHL, PubMed, Medline, PubMed Central, PsycINFO, and ProQuest Dissertations & Theses Global). Intervention effects (Hedge's  $g$ ) were calculated for each study and pooled using a random effects model. Subgroup

analysis explored differences in intervention effects by study design, outcome measure(s), covariate adjustment, and publication type. Publication bias and temporal trend were also examined. Results: Nine studies, involving 2,247 participants, met the inclusion criteria and were eligible for meta-analysis. The pooled intervention effect across the studies was 0.45 (95% CI 0.34, 0.56, I<sup>2</sup> =59.9%). Relative to studies using the Activities-specific Balance Confidence scale, AMOB/VLL studies using the scale of perceived ability to manage risk of falls or actual falls reported significantly larger improvements on fall-related efficacy. Peer-reviewed journal articles reported positive program effects, while doctoral dissertations reported mixed results. No substantial publication bias or temporal trend were identified. Conclusions: Results indicate AMOB/VLL has a small to moderate effect on improving fall-related efficacy. Findings may provide guidance to program implementers in communities charged with selecting appropriate fall prevention programs to meet the needs of older adults. Greater consistency is needed regarding outcome measures that optimally capture changes in fall-related efficacy among community-dwelling older adults. Such consistency will provide more definitive fall prevention programming recommendations for different settings and populations.

### **Board 228**

#### **Influence of healthcare referrals on the effectiveness of three evidence-based fall prevention programs among older adults**

Matthew Lee Smith, Ye Shen, Yujia Cheng, Samuel D. Towne Jr., and Marcia G. Ory

**Background.** One-in-four older adults falls each year. Given their frequent interaction with older adults, healthcare providers are uniquely positioned to screen for fall-related risk factors and refer patients to community-based fall prevention programs. This study presents findings from a national dissemination of three evidence-based fall prevention programs: A Matter of Balance (n=19,409); Stepping On (n=5,257); and Tai Ji Quan (n=3,039). The purposes of this study were to examine the influence of healthcare referrals on program effectiveness in terms of fear-of-falling, falls efficacy, concern about fall-related activity interference, and self-reported falls. **Methods.** Data were collected from grantees in 21 states from 2010-2016, which were then compiled in a national data repository. A series of binary logistic regression models were fit to identify participant characteristics associated with program referral by a healthcare professional. A series of generalized estimating equation (GEE) models were fit to examine the influence of referrals and participant characteristics on program effectiveness. **Results.** Across programs, participants who were African American (OR=1.53, P<0.001), Asian/Pacific Islander (OR=2.24, P<0.001), and those self-reporting more chronic conditions (OR=1.11, P<0.001) were more likely to be referred to a program by a healthcare provider. Participants who reported falling in the past 3 months (OR=1.08, P<0.001) and expressed more concern about fall-related activity interference (OR=1.28, P<0.001) at baseline were more likely to be referred. Over time, all three interventions significantly reduced fear-of-falling (P<0.05), falls efficacy (P<0.001), and self-reported falls (P<0.001). Program referral by a healthcare provider was associated with improvement in concern about fall-related activity interference (P<0.001) and self-reported falls (P<0.001). **Discussion.** Findings support that participants benefit from evidence-based fall prevention programs when referred by healthcare providers. To increase referrals, efforts are needed to enhance fall risk screening in healthcare settings, highlight the value of community-based fall prevention programs, and make patient referrals easy for clinicians.



**Board 229****Quality Evaluation of HPV Vaccine Online Educational Interventions for Clinicians: Expanded Results**

Brittany Rosen, James M. Bishop, Skye McDonald, and Gary L. Kreps

**Purpose.** HPV vaccination rates fall far short of Healthy People 2020 objective. Missed clinical opportunities for clinicians to recommend and administer the HPV vaccine is a leading factor for low HPV vaccination rates. Many online HPV vaccine educational interventions for clinicians have been created to promote vaccination recommendations. Yet, evaluation of leading online HPV vaccine educational interventions is critically important for guiding efforts to promote clinician recommendations for HPV vaccination. The study's aims were to expand previous research by: systematically identifying HPV vaccine online educational interventions developed for clinicians, and evaluating the quality of these online educational interventions based on access, content, design, user evaluation, interactivity, and use of theory/models to create the interventions. **Methods.** Current HPV vaccine online educational interventions were systematically identified from search engines (Google), continuing medical education search engines, health department websites, and professional organization websites. The interventions' content and usability were analyzed on six key indicators: access, content, design, evaluation, interactivity, and theory/models. **Results.** A total of 21 interventions were identified. Based on the evaluation indicators, 33.3% (n = 7) were webinars, 33.3% (n = 7) were videos/lectures, and 33.3% (n=7) were other (e.g., toolkit, PowerPoint, website modules). Seventeen interventions identified the purpose of the intervention. Twelve interventions provided the date that the information had been updated, and only six were updated within the last six months. Of the 21 interventions, 14 (66.7%) provided the users/participants with the opportunity to provide feedback on the intervention. Five interventions provided an interactive component. None of the educational interventions explicitly stated a theory or model used to develop the intervention. **Conclusion.** This analysis provides evidence needed to develop online HPV vaccine educational interventions based on health education and design principles and to guide refining existing interventions, designed to increase strong and consistent HPV vaccination recommendations by clinicians.

**Board 230****HPV Risk Perceptions and Relationship Status among Young Adult Women: A Barrier to HPV Vaccination?**

Erika L. Thompson, Cheryl A. Vamos, Stacey B. Griner, Rachel Logan, Mika Kadono, Rumour Piepenbrink, and Ellen M. Daley

**Background:** Human papillomavirus (HPV) vaccine rates continue to be suboptimal in the United States. Women ages 18-26 years are eligible for catch-up vaccination, yet previous qualitative research indicates women's relationship status and HPV risk perceptions may be barriers to HPV vaccination. Quantitative studies are needed to expand the generalizability of these findings. The purpose of this study was to assess the association between relationship status and perceived risk for HPV among vaccinated and unvaccinated young adult women. **Methods:** Women aged 18-26 years at a Florida university completed an online survey in November 2016-April 2017 (n=305). The survey assessed HPV vaccination status, perceived risk for HPV, and current relationship status. Logistic regression models estimated the odds of perceived high-risk for HPV stratified by vaccination status in SAS 9.4. **Results:** Participants reported the following relationship statuses: committed relationship (43%), dating (21%), and single (36%). Most participants received the HPV vaccine (75%) and reported being at low-risk for HPV (78%). Among unvaccinated women, relationship status and HPV risk perception were significantly associated (p=0.01). Specifically, women who were dating were more likely (OR=5.33, 95%CI

1.16-24.5) to perceive a high-risk for HPV compared to women in a committed relationship. No effect was found for relationship status and HPV risk perception among vaccinated women. Conclusion: Findings corroborate the association between relationship status and HPV risk perceptions among unvaccinated women. Specifically, women in relationships were less likely to perceive themselves at high-risk for HPV, which may not be an accurate assessment given the high prevalence of HPV among young adults. This association is not present for vaccinated women, which may indicate relationship status and risk perceptions are barriers to HPV vaccine uptake. Future research should develop and test health communication messages to address HPV risk misperceptions among young adult women in relationships to promote HPV vaccination.

### **Board 231**

#### **Reducing sugar-sweetened beverage consumption among mostly Hispanic, immigrant mothers of infants and toddlers**

Kerry D. Morgan, Anna E. Greer, Canada Parrish, Joseph G. Grzywacz, Amy L. Tate, and Antonio J. Marin

Purpose: We investigated the effect of a Healthy Living intervention on sugar-sweetened beverage (SSB) consumption among mostly Hispanic, immigrant mothers of infants and toddlers. Methods: The Transtheoretical Model guided development and implementation of the Healthy Living intervention, which included one-on-one nutrition and physical activity lessons delivered over 6 to 9 months (median number of visits = 10). Intervention effectiveness was evaluated using a quasi-experimental, pretest/posttest, attention-placebo comparison design. The comparison group received early childhood education curriculum. Lay advisors delivered the intervention and comparison conditions. The BEVQ-15, a valid and reliable questionnaire, was used to examine SSB at pre-test and post-test. Fifty-five mothers completed the study, including both pre-test and post-test assessments. We used a split-plot ANOVA to analyze results. Results: Most participants were Hispanic (76.4%), born outside the US (72.7%), did not complete high school (50.9%), and reported participation in one of the federal nutrition assistance programs (i.e., WIC or CSFP) (78.2%). Participant ages ranged from 19-45 years (median = 28 years). Findings revealed no significant interaction effect ( $p = .97$ ) or main effect ( $p = .80$ ). However, we observed a reduction in mean daily calories from sugar-sweetened beverages from pretest to posttest ( $F(1, 53) = 6.62, p = .01$ ). Specifically, the mean daily caloric intake from SSBs decreased by nearly half (i.e., reduction of 62.1 calories per day for the treatment group and 59.9 calories per day for the comparison group). Conclusions: Regardless of the condition received, mostly immigrant, Hispanic mothers reported drinking significantly fewer daily calories from SSBs after participation in a community program. Because the treatment was provided to a specific segment of a close-knit community, it is probable that treatment diffusion occurred between treatment and comparison conditions. Future studies might draw their intervention and comparison groups from mothers with similar demographic characteristics living in different communities.

### **Board 232**

#### **Food Insecurity and Academic Success: Evaluation of a Campus-based Food Pantry**

Jamie Paola and Rita DeBate

Aims: Food insecurity and diet quality are critical issues impacting college student wellbeing and success. Although becoming implemented at many universities across the country, evaluation data on the impact of campus food pantries is lacking. The current study reports findings from a process and impact evaluation of a campus-based food pantry. Methods: secondary data analysis of intake and follow-up data was employed for the current study. De-identified data



from students who utilized Feed-A-Bull, the campus food pantry, within the 2016-2017 academic year was used to determine food insecurity and diet quality. The USDA Household Food Security Survey: 6-item short form was used to score food insecurity while the 8-item Starting the Conversation itemized diet quality. Quantitative data, such as descriptive statistics, t-tests and chi-square tests and ANOVA, were analyzed to understand food insecurity, diet quality, actual GPA and socio-demographics amongst the characteristics of food pantry users. Results: Amongst 221 unique Feed-A-Bull visitors, 11.2% of student users were observed as food insecure without hunger while 88.8% were food insecure with hunger. Overall diet quality was poor and all users were identified as food insecure. When comparing single to recurring users, no statistically significant differences were observed in diet quality ( $p=0.206$ ) and food insecurity ( $p=0.466$ ). Among recurring users, an inverse correlation was observed between food insecurity and cumulative GPA. Majority of campus pantry visitors (81%) rated their experience “very good” with room for improvement. Conclusion: Establishing a campus-based food pantry can address the food insecurity of students. Nonetheless, current findings suggest that additional resources and programming are necessary to improve student food insecurity (e.g., training staff completing applications for SNAP benefits) and possible associated concerns (e.g., homelessness). Continuous evaluation of campus resources that address this silent endemic of food insecurity is critical for improve quality of life and student success.

### **Board 234**

#### **Designing an mHealth Intervention to Promote Weight Loss in Urban and Rural Military**

Alexander R. Hurley and Courtney M. Queen

Purpose: The purpose of this intervention was to improve the bodyweight and nutrition status of US Marine Corps (USMC) Reservists at risk of military discharge due to overweight. As the Unit Reservists involved in this study live in dispersed urban and rural environments across Texas, investigators deemed a mobile health (mHealth) intervention most reliable to reach all participants. Methods: Overweight Reservists ( $n=20$ ) participated in a guided focus group to identify perceived barriers and facilitators to weight loss, where participants also identified low social support and connection to other military peers, as well as low self-efficacy for various health behaviors. These results informed semi-structured interviews with eligible ( $n=7$ ) members to determine individual self-efficacy for diet and exercise habits using Dr. Sallis’s Self-Efficacy for Diet Behaviors instrument. Following instrument analysis, eligible cohort members ( $n=7$ ) entered a group chat to increase connectivity and raise peer social support while investigators originated 2-3 weekly messages targeting health behaviors with lowest participant self-efficacy scores as well as health and nutrition information. Results: By intervention completion at 5 months, 3 participants achieved sufficient weight loss to eliminate risk of military discharge, 2 participants had nonsignificant weight loss and remained at risk, and 2 participants were discharged by the USMC during the intervention. This is a 42% success rate. Post-intervention surveys revealed that participants strongly preferred messages relating to nutrition information and exercise routines, rather than those regarding self-efficacy. Conclusions: Contrary to much mHealth literature, this population preferred health information messages rather than those targeting health behaviors. Further, participants who achieved the most weight loss also possessed the highest starting self-efficacies of all participants. From this, investigators conclude that mHealth interventions may have limited ability to increase self-efficacy from baseline. Military Reservists are an extremely understudied population, so future investigative interventions with larger participant pools are necessary.

**Board 235**

**Maternal Perceptions of Child Physical Activity Facilitators and Barriers Through a Paternal Employment Lens**

Megan McClendon; M Renée Umstattd Meyer, and Joseph R. Sharkey

Purpose: Mexican-heritage families have a lower prevalence of physical activity (PA), and experience higher rates of obesity compared to White and non-Hispanic Black families. Research has shown that Mexican-heritage mothers impact child PA through perceptions of PA and by acting as family “gate keepers” regarding the time fathers spend with their children. Limited research has examined the role of fathers’ involvement, availability, and employment type with regards to child PA and maternal perceptions of child PA, within Mexican-heritage families. This study examines how maternal perceptions of child PA facilitators and barriers vary based on paternal employment within Mexican-heritage families (e.g., time out of town, number of jobs, hours worked/week, and type of job). Methods: Mexican-heritage mothers completed elicitation surveys consisting of open-ended questions regarding maternal perceptions of child PA barriers and facilitators, and paternal demographic information including employment (n=345). Open-ended responses were coded allowing for multiple responses from each mother. SPSS v24 was used to calculate frequencies of maternal perceptions of PA facilitators and barriers by paternal employment characteristic. Results: Mothers (n=345) who reported their husbands worked out of town reported facilitators that allowed their children to be social (e.g., social opportunities, sports) compared to facilitators reported by mothers whose husbands worked in town (e.g., health). Mothers who reported their husbands worked two or more jobs reported barriers that reflected time management challenges (e.g., restriction, school) compared to barriers reported by mothers with husbands working only one job (e.g., environment). Mothers with husbands working  $\geq 40$  hours/week reported facilitators that allowed them to remain protective over their children (e.g., location and monitoring) compared to mothers with husbands working  $< 40$  hours/week (e.g., sport, social opportunities, health). Conclusions: Researchers should consider how paternal employment characteristics impact mothers’ perceptions when creating interventions to increase child PA within Mexican-heritage families.

**Board 236**

**Investigating the influence of physical education class characteristics on elementary students’ leisure-time physical activity**

Junghyae Lee, Sheryl Chatfield, and Jeff Hallam

Purpose: Classroom-based physical education (PE) is designed in part to provide children a physical activity (PA)-enhancing experience that encourages lifelong PA participation. Additionally, improvement of PA knowledge and skills can positively impact current health and well-being. However, little is known about the extent to which PE class characteristics are linked to leisure-time PA. The purpose of this study was to explore relationships between PE class characteristics and elementary students’ leisure-time PA. Methods: Data were gathered during AY 2016-2017 in a low-income urban Midwest U.S. public school district and consisted of responses from student self-administrated questionnaires (n = 744) and 48 PE-class observations completed by two trained evaluators. Random-effects regression models were employed to explore variation of leisure-time PA at student and class levels. Results: Intraclass correlation was 73%, suggesting strong support for a multi-level approach. Mean reported leisure-time PA was 151.47 minutes/week (SD = 16). In the final model, student-level predictors sex and goal-setting accounted for 3.4% of within-student variance while classroom characteristics including teacher engagement accounted for more than 65% of the classroom-level variance. Use of specialized sports equipment during PE classes was not a statistically significant predictor. The effect of the class characteristics varied, respectively, extrinsic-



motivation ( $\gamma_1=13.83$ ,  $p=0.001$ ), intrinsic-motivation ( $\gamma_2=11.06$ ,  $p=0.011$ ), leisure-time-PA-motivation ( $\gamma_3 = 36.63$ ,  $p = 0.017$ ), and use-of-equipment ( $\gamma_4=3.32$ ,  $p=0.282$ ). Conclusions: Results of this study suggest that individual classroom characteristics, in particular, the climate created by individual PE teachers, are strongly associated with leisure-time PA among elementary school students in a low-resource urban school district. This is one of few studies investigating the effects of classroom characteristics on leisure-time PA and the first to focus on low resource urban districts. These results suggest there is value in further investigation of characteristics of successful PE teachers that might be translated into PE teacher preparation and continuing education programs.

### **Board 237**

#### **Eat Less, Move More: A Content Analysis of Diet and Exercise Boards on Pinterest**

Rachel Fiegenbaum and Katie Dolphin

Purpose: Pinterest, an image-based content sharing platform, is the third most popular social media site after Facebook and Instagram. Pinterest users are primarily individuals reporting low health literacy, as the majority are females living in medically underserved and hard-to-reach or underprivileged communities. Pinterest, then, may provide a unique platform for providing information about health behaviors to a population where these resources are often lacking. Thus, the purpose of this content analysis was to determine the ability of Pinterest to effectively communicate information about dietary and exercise health behaviors. Methods: The top ten most popular diet and exercise boards were analyzed. Each pin ( $n=3695$ ) was categorized for type of embedded visual, sex of person depicted, type of general information, type of self-management information, validity of information, and level of user engagement. Frequencies and one-way between group ANOVAs were conducted using SPSS to determine whether or not differences existed in engagement by type of embedded visual or information presented. Results: Trends emerged for both diet ( $n=2603$ ) and exercise ( $n=1092$ ) pins with regard to embedded visual, information presented, and user engagement. Diet pins often depicted photos of objects (43%) or people (42%), while the majority of exercise pins (56%) depicted people. Of those pins that portrayed people, 74% ( $n=697$ ) of exercise pins and 94% ( $n=1239$ ) of diet pins had only women. Recipes (35%) and strength training workouts (40%) were the most common information presented on diet- and exercise-related boards, respectively. Concerning user engagement, there were significant differences in engagement based on the type of embedded visual for both diet ( $p<.05$ ) and exercise ( $p<.05$ ). Exercise pins with photos of people and diet pins with infographics were the most engaging. Conclusions: Pinterest may be a useful social networking site for health educators to disseminate information about dietary and exercise health behaviors to a high-risk population.

### **Board 238**

#### **An egocentric network analysis assessing group exercise membership and holistic health benefits among a sample of university employees: A pilot study**

Leah Gagnon and Megan S. Patterson

Introduction: Many working adults do not engage in sufficient activity to achieve physical, mental, and social wellbeing. Group exercise programs improve physical activity (PA) levels, and consequently improve overall wellbeing. Additionally, employees are more likely to practice healthy behaviors when working in a supportive social environment. This study aimed to determine the relationship between employees participating in a group exercise program and holistic health benefits, specifically by examining personal networks, mental health, and weekly PA. Methods: An egocentric network analysis was conducted on a sample of university faculty and staff enrolled in an on-campus group exercise program ( $n=46$ ). Egocentric network data

were collected by asking participants to list up to five people they felt close to at their institution and provide information about each person they nominated. PA, depression, anxiety, stress, and overall happiness were individual variables measured for each participant. Relational variables were computed using ENet software, and regression analyses were conducted in SPSS. Results: Regression analyses ( $R^2 = .529$ ,  $F = 5.931$ ,  $p < .0001$ ) suggest that depression ( $\beta = -.445$ ,  $p = .012$ ), similar exercise patterns between egos and nominees ( $\beta = .410$ ,  $p = .003$ ), personal networks that are composed of others enrolled in the group exercise program ( $\beta = .416$ ,  $p = .003$ ), and average exercise scores across egonetworks ( $\beta = .271$ ,  $p = .043$ ) were related to higher PA scores in this sample of employees. Discussion: Enrollment in a group exercise program was related to supportive egonetworks in our sample, translating to improved overall wellbeing. Results suggest homophily as an important indicator of exercise behavior (if nominees reported regular PA, the ego reported regular PA). We also found that lower ego depression scores and shared experiences in wellness programs were related to exercise outcomes, that having peers enrolled in the same program supported PA behavior. Finally, the more someone's entire network exercised on average, the more the ego exercised, suggesting the importance of social networks.

### **Board 239**

#### **Implementation of the BearStand Behavioral Intervention: A Process Evaluation**

Christina N. Bridges, M Renée Umstattd Meyer, Cindy Wu, Megan E. McClendon, Meg Patterson, and Shana Walsh

Purpose: Current workplace norms often require employees to be at a desk for at least 6 hours a day. Long periods of sedentary behavior increase the risk of obesity, heart disease, cancer, and all-cause mortality regardless of physical fitness and activity levels. Combining environmental and behavioral intervention approaches have demonstrated the most promise. The purpose of this study was to conduct a process evaluation of a behavioral intervention aimed to increase workplace standing using a sit-stand workstation. Methods: Participants were provided with sit-stand desks and a behavioral intervention, premised on social cognitive theory, to include ergonomic tips, proper set-up, self-monitoring/reminder techniques, incremental goals, and strategies for overcoming common barriers. Upon sit-stand desk receipt, intervention components were delivered via an online orientation packet including videos, weekly emails for weeks 1-8, and E-newsletters at the beginning of months 3 and 4. A process evaluation survey was completed by participants between months 5 and 6 to examine dose received exposure and satisfaction. Results: Thirty-six of 37 participants completed the process evaluation survey. The majority (70%) of participants tried at least one suggested tip provided in any of the intervention materials. Of participants that reviewed educational materials ( $n = 31$ ), 7% reported experiencing barriers to standing. The most common barriers reported were outside the scope of the intervention (e.g., workplace dress codes, office set-up restricting desk placement). Over half (53%) of participants were satisfied with the intervention. Participants found weekly emails and E-newsletter tips most helpful because they offered feasible suggestions for overcoming barriers to standing. Responses suggest the intervention facilitated engagement with the desk. Conclusions: The process evaluation identified which behavioral intervention components were most beneficial and participants' perceptions of the intervention process. Future interventions aimed at reducing sedentary behavior could benefit from short educational components delivered weekly-to-monthly, especially focused on overcoming barriers to standing.

**Board 240****Do Sit-Stand Workstations Improve Health Markers among Office Employees? A Randomized-Controlled Trial**

Shana Walsh, Renee Umstatted, Cindy Wu, Thomas L. Andre, Megan E. McClendon, Christina Bridges, Arianna Miller, Gabe Benavidez, and Rodney G. Bowden

Purpose: High levels of sedentary behavior are pervasive across the U.S. adult population and contribute to chronic disease. Work has become a primary source of sedentary behavior across a growing number of job sectors. Methods to reduce sedentary time at work include the use of sit-stand workstations (i.e., desks that can be used in either seated or standing positions). The purpose of this study was to determine if employees provided with sit-stand workstations experienced greater improvements in health markers than employees using traditional seated desks. Methods: Sedentary employees ( $n=108$ , mean age=41.21 [SD=12.05], 78% female, 84% White) were randomly assigned to an intervention or control group; the intervention group received a sit-stand workstation and the control group continued to use their traditional seated desks. Anthropometric measures and a blood sample were collected from participants at baseline and after the 7-month intervention. Pre- and post-test measures were available for 77 participants and were therefore included in final analyses. A 2x2 mixed-design analysis of variance with repeated measures was used to determine differences between groups from pre-test to post-test. Results: There were no significant interactions between groups from pre-test to post-test across any of the health-related measures including: systolic blood pressure ( $F[1,73]=1.71$ ,  $p=.28$ ) diastolic blood pressure ( $F[1,73]=2.12$ ,  $p=.65$ ), BMI ( $F[1,73]=.576$ ,  $p=.45$ ), total cholesterol ( $F[1,73]=.177$ ,  $p=.66$ ), or insulin levels ( $F[1,73]=.010$ ,  $p=.92$ ). Significant main effects from pre-test to post-test were also not found in this sample. Conclusions: The use of sit-stand workstations did not result in significant health improvements for the intervention group. More investigation into the impact of sit-stand workstations is needed. The present recommendation is for sit-stand workstations to be used in conjunction with established methods to improve health markers, such as participation in moderate-vigorous physical activity, as the use of sit-stand workstations alone may not produce marked improvements in objective health measures.

**Board 301**

**Differences in Regulatory Compliance Across and By Ethnic Location Based on Display of Minimum Age Tobacco Sales Signs**

Steve Sussman, Tess Boley Cruz, Sabrina L. Smiley, Chih Ping Chou, Jennifer Unger, Natalie Kintz, Yaneth L. Rodriguez, Rosa Barahona, Brianna Lienemann, Mary Ann Pentz, Jonathan Samet, and Lourdes A. Baezconde-Garbanati

Minimum age-of-sale signs increase the likelihood that tobacco retailers will check the identification of potentially underage shoppers, resulting in a 2% incremental wide-reaching gain in tobacco prevention among youth. California's required signage under the Stop Tobacco Access to Kids Enforcement (STAKE) Act is the "1-800-5 ASK-4-ID" warning sign which indicates sale of tobacco products to under-age persons is prohibited by law and subject to penalties. Signage is to be placed at the point of sale. (The law inadvertently changed from a minimum age of 18 to 21 years during data collection, as of June 9, 2016). The present study investigated display of age-of-sale signs in 675 retail stores varying in ethnic location in California: 193 African American (AA), 100 Korean (K), 186 Hispanic (HL), and 196 White non-Hispanic (NHW). Data collection involved a 20-minute product and signage observation. Overall, 45.5% of the stores were compliant with the required warning age-of-sale sign posted (which varied in minimum age by date of collection). Approximately 13.5% of stores did not have any store interior age-of-sale signs, and 41% of stores had some type of age-of-sale sign but not compliant with the STAKE Act (e.g., tobacco industry We Card signs were at 36% of the stores with non-compliant signage). Stores observed after the change in the Stake Act law had significantly lower compliance rates (38.6%) compared to stores observed before the change in the Stake Act law (70.9%) [ $z=6.8623$ ,  $p<0.001$ ], where compliance was defined by the law when the store was observed. Compliance rates for stores observed within the first three months after the change in law were especially low (26.7%). The association between Stake Act Sign Compliance and AA compared to NHW stores observed within the first three months after the change in law was statistically significant ( $X^2(1)=20.098$ ;  $p<0.001$ ), where compliance rates for AA communities were 16.9% compared to 41.5% for stores in NHW communities. Findings suggest the need for better education of retailers on minimum age-of-sign compliance, wider distribution, and compliance checks for new signage.

**Board 302**

**Development and Initial Validation of a Risk Behavior Diagnosis Scale for E-Cigarette Use**

Kelli E. Will, Ann L. Edwards, Paul T. Harrell, Bilge O. Yilmaz, Ellen P. Libby, Kaitlyn A. Mondejar, Amy C. Paulson, Andrew D. Plunk, and Matthew C. Herman

Background: Adolescent use of electronic nicotine delivery systems (ENDS; also known as e-cigarettes or vapes) rose 900% between 2011 and 2015, prompting concerns about the long term health effects and addiction potential for nonsmoking adolescents. Due to the rapid rise in ENDS use, there is a need for brief measures designed to assess adolescents' perceived threat related to ENDS use and perceived efficacy related to ENDS abstinence and cessation. Method: A 12-item Likert-type scale was developed for ENDS use that was modeled after the Risk Behavior Diagnosis Scale (RBDS) originally created by Witte, Cameron, Berkowitz, and McKeon (1996) to assess risk and efficacy related to health behaviors. The new measure was designed to assess the constructs of threat (i.e., severity and susceptibility of threat) and efficacy (i.e., self-efficacy and response efficacy). The scale was administered online to an initial development sample of 674 adolescents to examine internal consistency and factor structure. Participants (52.1% female) ranged in age from 11-19 years old ( $M = 14.6$  years;  $SD = 2.07$ ),



and were representative of the surrounding community (60% non-Hispanic white; 27% non-Hispanic black; 8% Hispanic). Twenty-one percent had tried ENDS. Results: An exploratory factor analysis revealed two factors (as expected), which explained 68% of the variance. Analyses demonstrated strong internal consistency, with Cronbach's alpha of 0.93 overall and alphas of .92 and .87 for threat and efficacy factors, respectively. The scale can be completed in less than five minutes, with total scores ranging from 5-30 on each of the two subscales. Higher scores are reflective of greater levels of perceived threat of ENDS use and perceived efficacy related to ENDS abstinence and cessation. Conclusions: The measure demonstrates strong preliminary reliability among a development sample of adolescents. Additional research is needed to examine the validity and reliability in additional populations.

### **Board 303**

#### **Measuring Intoxication: Comparing the Detection of Alcohol from Skin, Breath, and Self-Report**

Julie M. Croff, Vincent E. Baier, Ashleigh L. Chiaf, Micah Hartwell, and Denna L. Wheeler

Background: Alcohol use, particularly heavy episodic or binge drinking, is a public health concern. According to the National Survey on Drug Use and Health, more than a quarter of the US population engaged in heavy episodic or binge drinking in the past year. Ability to study the effects of heavy alcohol use are limited by our measurements. This study seeks to address and compare the detection of alcohol by self-reported intoxication, through breath, and through skin. Methods: Eleven subjects (6 male) participated in a study to test the effectiveness of transdermal alcohol sensors. Subjects were dosed with alcohol, to reach intoxication, at approximately 0.08 mg/mL blood alcohol concentration (BAC). Subjects wore WrisTAS 7 units throughout the dosing procedure. Breath tests were taken using a CMI Intoxlyzer 400PA unit. Participants were asked to report their level of intoxication. Transdermal alcohol concentrations (TAC) were recoded to representative BAC in order to more easily compare to breath alcohol concentration (BrAC), estimated BAC (eBAC) from alcohol consumed over time, and self-reported intoxication. Results: eBAC calculations were more sensitive to detecting a blood alcohol value of 0.08 mg/mL or above (100%) and had a higher positive predictive value (90.9%) than transdermal alcohol (90% and 90%, respectively) or self-reported intoxication (80% and 88.9%, respectively). Notably, a larger portion of the sample was within 0.01 mg/mL using eBAC calculations (63.6%), than TAC (54.5%). Conclusion: Self-reported intoxication is susceptible to tolerance. While eBAC was stronger than TAC in the context of this study, eBAC calculations are often problematic when relying on participants to accurately report weight, number of drinks, and time period spent drinking. Therefore, transdermal alcohol sensors have a strong sensitivity and positive predictive value and are strong objective measures of intoxication.

### **Board 304**

#### **Examining the physiological and behavioral predictors of birth outcomes: Feasibility of measuring variation of folate status by alcohol use in a sample of adolescent girls**

Julie M. Croff, Micah Hartwell, Vincent E. Baier, Ashleigh L. Chiaf, and Denna Wheeler

Background: Heavy alcohol consumption among adolescents is a fundamental public health threat [1-4]. Among adolescent girls there may be additional risks from heavy alcohol consumption. Physiologically, there is evidence that heavy alcohol use and binge drinking may impair intestinal absorption of folate (vitamin B9) and promotes renal and hepatic folate excretion [5, 6], thereby increasing risk for adverse pregnancy outcomes [7]. Behaviorally, young women who use alcohol heavily exhibit reduced multivitamin supplementation [8] thereby contributing to even greater risk of inadequate folate status. Moreover, national studies suggest

that red blood cell (RBC) folate levels are lowest among 12 – 19-year-old adolescents [26].

Method: Alcohol using adolescent girls (age 14 – 19) were recruited into a one-month longitudinal study examining alcohol use, and folate status. Subjects wore transdermal alcohol sensors for the duration of the study, reported weekly dietary habits associated with folate consumption, and gave blood samples at least weekly. Preliminary Results: To date, 40 participants have completed the month-long study. Preliminary data are on the first 26 to complete the study. The mean age of participants was 17.97 (mode 17). Majority of participants (59%, n=21) identified as white. Mean folate consumption for the first 26 subjects was 272.4 ug per day, far below the recommended 400ug per day. Of a sub-sample of 23 participants: 82.6% had at least one drinking event across 4 weeks. Initial blood samples, of six participants, indicate that drinking events in the previous 48 hours have a substantial impact on circulating serum folate. Conclusion: Multi-behavior studies help delineate how behaviors can have synergistic effects on health outcomes. In the current trial, poor diet and alcohol use result in consistently poor serum folate and red blood cell folate values which are made worse by the co-occurrence of these behaviors.

### **Board 305**

#### **Are Driving While Impaired (DWI) and Riding With an Impaired driver (RWI) associated with legality of marijuana?**

Kaigang Li, Haley E. Moss, Federico E. Vaca, and Bruce Simons-Morton

Objectives: To examine the association of the legality of marijuana with driving while impaired (DWI) and riding with an impaired driver (RWI) among youth. Methods: Wave 5 (W5) data of the NEXT Generational Health Study (NEXT), a nationally representative, longitudinal study (N=2785), were used for this analysis (W5 N=2198). We examined the association of state-level legality of marijuana (medical+recreational use, medical use only, vs. neither-medical-nor-recreational use) with DWI ( $\geq 1$  vs. no days in the last month) and RWI ( $\geq 1$  time vs. never in the last year with either older adult or young impaired drivers) using binary or multinomial logistic regression analysis. Results: When W5 data (M=20.27 years, 59.14% females) were collected, 4 of the 49 states included in NEXT sample allowed both recreational and medical marijuana use (8.2%) and 21 allowed medical use only (42.9%). Overall 15.86% W5 DWI prevalence consisted of 10.80% drinking-specific, 9.82% marijuana-specific, and 2.90% illicit-drug-specific DWI. Overall 33% W5 RWI prevalence included alcohol (16.99%), marijuana (21.15%), and illicit-drug (5.41%) with an impaired peer driver and alcohol (3.84%), marijuana (2.73%), and illicit-drug (0.74%) with an impaired older adult driver. The results of logistic regressions show that state-level legality of marijuana was not significantly associated with any type of specific DWI/RWI. Conclusion: Possible reasons explaining the failure to identify the difference include: (1) impaired driving policies may be retaining efficacy in preventing young people from DWI/RWI regardless of legality; (2) broader softening of negative marijuana use sentiment in the U.S. may be contributing to the normalizing of DWI/RWI, especially in marijuana-legalized states and states that are immediate state-line neighbors of a marijuana-legalized state; and (3) NEXT sample does not necessarily represent all US states, which may lead to selection bias. More representative and longitudinal studies are needed to warrant the relationship between legality of marijuana and adolescent DWI/RWI.

**Board 306****Methodological considerations in substance use research in the U.S.-Mexico border region**

Nicole Pepper, María L. Zúñiga, and Mark B. Reed

Purpose: Latinos living with HIV in the U.S.-Mexico border are underserved and socially disadvantaged and at high risk for poor health outcomes. Research is crucial to improving outcomes, reducing HIV transmission, and designing interventions, yet there remain important research gaps to address social determinants of health (e.g., care access and substance use). We describe study findings and methodological challenges encountered in conducting research with this at-risk, dynamic population. Methods: This cross-sectional study recruited a convenience sample of HIV-positive Latinos from health agencies (San Diego and Tijuana). Quantitative surveys assessed health care utilization and substance use. We compared substance use and HIV care outcomes by recruitment site and describe methodological problems we encountered. Results: Participants (N=200) were male (82%), mean age 41 years, Mexican-born (83%), and gay or bisexual (57%). About 31% with prior incarceration and ~20% with deportation history. Nearly 70% reported lifetime substance use. Significant differences in substance use emerged by recruitment site (Tijuana or San Diego) and analyses revealed challenges in interpreting group behavior by site. For example, attempts to dichotomize based on recruitment site posed broader questions about environment in which substance use occurred. This complicated understanding of location of underlying social determinants, including availability of drugs and drug-using environment. Conclusions: Research with border populations poses challenges for tracking, measuring, and documenting health inequities. Longitudinal cohort studies may address some measurement issues, however, we must also assess health delivery and risk environments on both sides. Immigrant populations are underrepresented in health research and experience significant health disparities. We present significance and implications of conducting health behavior research with mobile populations in an international border context. We recommend multi-stakeholder approaches to eliminate health inequities through research and promoting access to health resources and healthcare. Culturally and environmentally-relevant research is crucial to design effective health promotion and intervention strategies.

**Board 307****Impact of School-based Drug Education on Drug Selling Behaviors among Adolescents**

Zhi Wang and Hsien-Chang Lin

Purpose: Adolescent illicit drug use has become a major public health issue along with the epidemic of drug overdose in the United States. Adolescents obtain illicit drugs from peers and friends. In order to reduce illicit drug supply of adolescents, reducing drug dealing behaviors among adolescents may be a feasible strategy. School-based drug education programs, for example, online substance use prevention program as well as narcotic overdose prevention program, have been implemented. Thus far, few studies have assessed how current school-based education may have an impact on drug selling behaviors. This study examined the association of school-based drug education and drug selling behaviors among adolescents aged 12-17 years old. Methods: Respondents aged 12-17 (N=54,731) in the 2015 National Survey on Drug Use and Health were included in this study. The Problem Behavior Theory was adopted as a conceptual framework to guide variable selection. Propensity score matching (matched N=4,300) was used to reduce systematic bias between participants who received school-based drug education and those who did not. Logistic regressions were conducted on the matched sample to examine the association between school-based drug education and drug selling behaviors. Results: We found that participants who received school-based drug

education had a lower odds of engaging in illegal drug selling behaviors (OR=0.67,  $p$ 's<0.05). We also found that parental opinions on marijuana use and adolescent religious beliefs also had a significant impact on drug selling behaviors (both  $p$ 's<0.05). Conclusions: Findings of this study suggest that current school-based drug education had effects on drug selling behaviors among adolescents. Meanwhile, this study also identifies factors that are associated with drug dealing behaviors among adolescents. In order to reduce drug dealing behaviors among adolescents, the design of school-based drug education program should consider factors such as parental opinions and should be more widely adopted and promoted.

### **Board 308**

#### **Social network analysis for assessing college-aged adults' health: A systematic review**

Meg Patterson and Patricia Goodson

Background: Social network analysis (SNA) is a useful and emerging method for studying social health and satisfies a need for analysis beyond the intrapersonal level of behavior. This study aimed to conduct a systematic review in order to identify important findings across studies using SNA to investigate college student health, determine how SNA has been used in this body of research, and provide suggestions for future use of SNA in health behavior research. Methods: Using PRISMA guidelines, we systematically surveyed the peer-reviewed literature that used SNA to investigate college-aged adults' health. To be included, studies had to employ egocentric or whole network analysis to study the health of college student populations. We used Garrard's Matrix Method to extract and disseminate data from reviewed articles ( $n=15$ ). Results: Collegiate drinking was the most common behavior investigated with SNA among college student populations. Romantic relationships, substance abuse, homesickness, and stress were other health variables studied using SNA in this population. Important network measures related to the health of college-aged adults included homophily, network composition, centrality, density, and tie strength. Of the network studies reviewed, almost 75% were egocentric network analyses. Methodological inconsistencies concerning boundary specification, data collection, nomination limits, and statistical analyses were revealed across studies. Discussion: The results of this review affirm the use of SNA in college-aged networks, but also reveal the need to explore other important health issues in this population, such as prescription drug use. Many studies employed data collection and sampling methods, as well as statistical analyses, that failed to meet assumptions of SNA. Future studies using SNA in behavioral science should consider sampling the entire network and using nonparametric statistics when conducting whole network analyses. To maximize results from egocentric analyses, researchers should consider including interrelater questions and eliminate nomination limits in data collection.

### **Board 309**

#### **The Health and Exposure Histories of One Community Battling Environmental Discrimination**

Lindsay K. Tompkins, Chisom N. Odoh, and Kristina M. Zierold

Background: Environmental pollution is not distributed equally across members of society. Low-income individuals are more likely to live near waste sites and other sources of pollution, and, therefore, face greater exposure to environmental health hazards. One such community in Kentucky consists of approximately 300 homes that are surrounded on three sides by sources of pollution, including a "cleaned-up" EPA Superfund site, coal ash storage site, and multiple chemical companies. Community residents report elevated rates of cancer and other chronic diseases and have requested a formal health assessment. The first step of this assessment

involved collecting demographic, environmental, and health information through resident interviews. Methods: Adult long-term (>5 years) community members were recruited to participate during a community meeting. Individual interviews were later conducted with 15 residents concerning their exposures, personal health, and perceptions of their community's health. Interviews were transcribed verbatim and analyzed using inductive thematic analysis.

Results: Participants ranged in age from 24 to 69 years and 73.3% were male. Most participants (73.3%) had lived in the neighborhood for over 20 years. All participants shared stories concerning ways in which living in their neighborhood has affected their lives. The majority (86.7%) felt that environmental exposures impacted the community's health. A variety of health conditions experienced by community members were reported. Cancer was reported by 73.3%, while respiratory problems and joint and disc diseases were among the frequently highlighted health conditions. Themes of powerlessness and hopelessness for the health and well-being of the community were prominent. Conclusion: In conjunction with community members and the state health department, interview findings will guide in the development of a comprehensive exposure and health assessment tool that will be distributed to all current residents. This assessment will seek to answer questions that the community has entertained for years regarding the health of its residents.

### **Board 310**

#### **Attention Deficit Hyperactivity Disorders and Aluminum Exposure among Underserved Children in Kentucky**

Chisom N. Odoh, Lonnie Sears, Carol Hanchette, Barbara Polivka, Guy N. Brock, and Kristina M. Zierold

Background: Behaviors such as impaired attention, hyperactivity, and impulsivity characterize ADHD which is prevalent in 5% of children in the U.S. Environmental exposures are thought to be associated with the development of ADHD. Aluminum is a known neurotoxin and one pollutant found in coal ash, a waste product generated from burning coal. Few studies have linked aluminum with neurobehavioral disorders. The purpose of this study is to evaluate the association between ADHD and aluminum among children residing close to coal-burning power plants. Methods: Research is being conducted among children ages 6-14 living within a 10-mile radius of two coal ash storage sites in Kentucky. Aluminum exposure was estimated using filters from air samplers placed inside the homes of children. Concentrations of aluminum were determined by Proton Induced X-Ray Emission (PIXE) analysis. Scores from the Child Behavior Checklist were analyzed to measure ADHD. Logistic regression and the Wilcoxon test were used to assess the relationship between ADHD and aluminum exposure. Results: Among our child population, 28% had ADHD. Aluminum was found in 51% of participants' homes. After adjusting for sex, age, ethnicity, and smoking, an odds ratio (OR) of 2.05 (95% CI = 0.82-5.12) was determined. In addition, median ADHD t-scores for children exposed to aluminum were higher compared to children not exposed to aluminum. Conclusion: This is the first study to assess ADHD and aluminum exposure in children residing near coal ash storage sites. While not significant, the OR was elevated and the Wilcoxon results were higher in exposed children, indicating a possible relationship between aluminum exposure and ADHD. Children in this study, who are underserved and live in areas where environmental justice is a concern, are exposed to neurotoxic pollutants, like aluminum. It is important to understand exposures linked to behaviors that can be targeted for intervention.

**Board 312**

**Educational Challenges and Supportive Resources Associated with the Academic Success of Latino Children in Migrant Farmworker Families**

Yumary Ruiz, Zoe E. Taylor, Rebecca Cavin, Erika L. Arkans, and Oscar Fernando Gomez Hastamorir

Purpose: Children of Latino Migrant Farmworkers (LMFWs) are one of the most educationally disenfranchised and marginalized U.S. student populations. This mixed-methods cross-sectional study investigated children's, mothers', and teachers' perceptions about children's educational challenges and the resources available to promote success. Methods: Participants were children (N=80, boys=55%, Mage=11.66) recruited from a Summer Migrant Education Program (SMEP) in Indiana. The MEP provides resources to children of migratory families who travel seeking seasonal agricultural work. Children ages 6-18 (N=80, boys=55%, Mage=11.66) completed questionnaires, and a subset of 24 children (Mage=13.83) completed semi-structured interviews. Mothers (N=9) and SMEP teachers (N=18) participated in focus groups. Qualitative and quantitative data was analyzed using a mixed-methods approach. Results: Four themes emerged from the qualitative data: (1) Factors related to migrant life in regards to academic success including educational interruptions, family support, competing family-school responsibilities, and inconsistent messages about pursuing higher education or securing employment, (2) Experiences of social isolation especially due to language barriers and lack of school belonging, (3) Notions of parental academic support differed between parents and teachers, and (4) The benefits of teachers and programs that understand migrant youth's lived experiences. Quantitative data using regression supported these themes. Youth of all ages aspired and expected to finish high school. Aspirations to go to college and beyond, increased in elementary- (70%), middle- (77.4%), and high-schoolers (78%), however expectations of going to college decreased across grade levels. School attachment was associated with academic mastery orientation ( $\beta=.71$ ,  $p<.001$ ). Teacher attachment ( $\beta=.21$ ,  $p<.001$ ) and Perceived Family Support ( $\beta=.198$ ,  $p<.05$ ) were positively linked to school attachment, while Perceived Teacher Rejection was negatively associated with school attachment ( $\beta=-.32$ ,  $p<.001$ ). Conclusions: Addressing challenges and social isolation experienced in migrant life and enhancing parent and teacher skills to support LMFW youth's unique needs may improve their academic success.

**Board 313**

**Evaluating the Impact of Urban Tree Connection on Youth Outcomes in an Underserved Community of Philadelphia**

Mary Louise Mitsdarffer

Background: Social and physical environment is indicative of community health status. Philadelphia has over 40,000 vacant lots, most of which are concentrated in the most socioeconomically disadvantaged areas of the city. In particular, the Haddington neighborhood is exposed to poor neighborhood conditions. The 2012 Philadelphia Health Management Corporation Household Health Survey in southeastern Pennsylvania showed that an individual who lives in the Haddington community was more likely to report fair/poor health status, a diagnosis of high blood pressure, a diagnosis of diabetes, and a classification of obesity. Purpose: The purpose of this study was to assess the impact of Urban Tree Connection (UTC), a Haddington based non-profit, program on child and youth outcomes through community greening initiatives. Methods: In total, 38 adolescents (ages 14-18) and 41 children (ages 6-13) participated in UTC programming between May and October 2012. The UTC Garden Survey was created to measure participants attitudes/ beliefs, behavior, knowledge, physical health, perceived individual/neighborhood change, entrepreneurship, community engagement/

participation, social capital, and food access/ nutrition. Pre and post t-tests were conducted to assess participants' changes on the main measures. Results: Overall, participation in UTC programming positively affected participant outcomes. All participant groups reported: stronger bonding relationships, higher levels of community participation, but only child participants reported having stronger bridging relationships and feelings of trust and security. All participant groups reported increased consumption of produce and sufficient access to fruits and vegetables. Feelings of being unsafe and mistrust were reported in the adolescent groups. Conclusion: Community-based gardening programs may have positive impacts on children and children's health. However, further research should be done to understand long term impacts and how to tailor more effective interventions for children and youth.

### **Board 314**

#### **Housing equity and health outcomes in Riley County, Kansas**

Brittany S. Hollerbach, Brandon C. Irwin, and Katie Heinrich

Safe, affordable housing is a health predictor and critical nationwide issue, with lower-income individuals particularly susceptible. PURPOSE: To combine data in a novel examination of housing conditions and health outcomes in Riley County (RC), one of the fastest growing communities in Kansas. METHODS: Document analysis was conducted using the 2015 Community Needs Assessment (secondary data, community surveys, key-informant interviews, selected focus groups), 2015 Community Health Improvement Plan (200+ community stakeholders reviewed data/identified priorities), 2016 Behavioral Risk Factor Surveillance System (community surveys), and 2017 RWJF County Health Rankings (population-level data). Housing and health data were categorized into broad themes. RESULTS: RC had a population of 75,247 (2015) and ranked 5th in Kansas in "Overall Health," however, housing was a public health problem. Over 21% of RC residents lived below the federal poverty line, and 79% (N=584) of those surveyed reported a lack of affordable housing options. Of 102 ranked Kansas counties, RC ranked 42nd in "Quality of Life" (14% of adults reported poor/fair health and an average of 6.5/30 poor physical/mental health days/month, higher than both state and national averages). RC ranked 90th in "Physical Environment" including severe housing problems (overcrowding, high housing costs, and lack of kitchen/plumbing facilities). Additionally, 84% of residents were cost-burdened, indicating they spent >30% of their annual income on housing. Consequently, many residents were living in trailers without running water or shared housing with more than one family, leading to unsafe living conditions and overcrowding. CONCLUSION: Combined data highlight a lack of quality, affordable housing and poor physical and mental health disproportionately affecting low/moderate-income individuals. High housing costs left little over for basic necessities, including health. Efforts to create affordable housing options and improve living wages could be combined with behavioral interventions to improve physical and mental health of low-income RC residents.

### **Board 315**

#### **Evaluating Risk Factors of Sexual Violence on a College Campus**

Alicia Duval, Megan S. Patterson, Beth A. Lanning, Kelly Ylitalo, and Karen Melton

Background: College students are particularly vulnerable to being victims of power-based violence, with 11.2% experiencing some sort of sexual assault while in college. Specifically, one in four women and one in 16 men will be sexually assaulted before they graduate. The literature suggests gender, family history of abuse, and alcohol use are consistent risk factors of power-based violence. This study aimed to assess whether these risk factors, as well as rape myth attitudes and hook-up culture, are related to sexual assault victimization among a sample of college students. Methods: 957 undergraduate students completed an online survey at a large,

private university. Background/demographic information, alcohol use, attitudes concerning rape myths and hookup culture, and dating and sexual experiences were measured for each participant. Descriptive, bivariate, and logistic regression analyses were conducted in SPSS. Results: The logistic regression model significantly predicted sexual assault victimization  $\chi^2(14) = 82.623$   $p < .0001$ ), explaining 20.8% of variance (Nagelkerke R Square = .208). Odds of sexual assault victimization were increased 6.854 times for females (Wald=18.506,  $p < .0001$ ), 2.692 times for athletes (Wald=4.151,  $p = .042$ ), and 6.627 times for people who had witnessed his/her father abuse his spouse (Wald=18.735,  $p < .0001$ ). Higher alcohol consumption (Wald=10.761,  $p = .001$ ) and higher hook up questionnaire scores (Wald=8.265,  $p = .004$ ) were also significantly related to being a victim of sexual assault. Discussion: This study confirmed gender and family history as important risk factors for sexual assault victimization. Additionally, sociocultural factors including alcohol use and higher rates of “hooking up” were significantly related to college students’ risk for being sexually assaulted. These findings are imperative to university administrators working to reduce the incidence of sexual assault among college students, especially as sexual violence continues to be a major public health concern on campuses. Future research should test whether these risk factors are significant at other campuses.

### **Board 316**

#### **The Safe Spaces Project: Community-Partnered Participatory Research to Address Interpersonal Violence in New Orleans**

Ashlee Walker, Catherine Haywood, Courtney Schultheis, Charles Haywood, Katherine Theall, and Ashley Wennerstrom

Purpose: Despite community-and policy-based efforts to address intimate partner violence (IPV), it remains a widespread public health issue with a disparate impact on communities of color. Employing community health workers (CHWs) and using community-partnered participatory research (CPPR) are approaches for developing and implementing culturally tailored interventions to address disparities, but their application to IPV has been limited. We developed a CHW-academic co-led CPPR partnership called Safe Spaces to investigate causes of IPV among African Americans in New Orleans, Louisiana and develop responsive interventions. Methods: In 2016, CHWs recruited men and women from a low-income community to participate in focus groups in which we asked about their attitudes toward IPV, personal and family experiences with violence, and suggestions for IPV prevention. We trained CHWs to moderate the focus groups, which were audio-recorded and transcribed. A CHW and research assistant used applied thematic analysis to code and interpret data. Results: We conducted six focus groups (4 with women, 2 with men). Among the 48 participants, over three quarters were African American. Some themes that emerged from the results were: individual and societal attitudes that support violence against women, failure to recognize violent behavior as abuse, both men and women initiating violence, lack of culturally appropriate resources and services. Ideas for prevention and intervention development included: providing youth with education on healthy relationships, and using technology, social media or other communication strategies to help people recognize abusive relationships and seek support. Conclusions: CHWs were instrumental in participant recruitment, eliciting information on sensitive topics, and interpreting data. Information gathered is being used to develop and test a culturally appropriate CPPR intervention to address IPV.



**Board 317****Structural Stigma and HIV Risk among Rural Men who have Sex with Men (MSM)**

Randolph Hubach, Joseph M. Currin, Andre R. Durham, Katherine K. Kavanaugh, Denna L. Wheeler, and Julie M. Croff

**Background:** The nature of the HIV epidemic in the United States has changed with a shift toward rural areas; where sexual minority populations are dispersed and health care resources are limited. Concurrent socioeconomic factors, geography, and cultural context are coalescing for sexual minorities living in rural communities resulting in individuals at risk for HIV infection. **Methods:** We recruited 40 gay and bisexual men, ages 22 to 66, residing in rural Oklahoma for in-depth qualitative sexual health interviews. Through this inductive approach, we explored experiences with individual-level and community-level stigma, patterns of sexual health-seeking behaviors, and determinants of sexual risk. **Results:** Participants indicated a lack of desire to discuss their sexual behavior or sexual orientation with peers, family, or medical providers due to rejection concerns. Participants discussed how these factors shaped their attitudes towards HIV/AIDS, status disclosure with sexual partners, and their uptake of HIV/STI screening. Participants described a stigmatizing social environment and less access to quality, LGBT-sensitive medical care within rural communities, and perceived these as substantial barriers to enhancing individual-level and community-level sexual health. Finally, structural issues, including lack of comprehensive sexual health education, institutional practices, and state policies within Oklahoma were noted. **Conclusions:** Results indicate the need to develop greater awareness of stigma as an etiologic factor that contributes to the health of rural gay and bisexual populations, specifically when it relates to the provision of appropriate care. Addressing stigma situated across ecological levels in an effort to improve sexual health remains necessary. The combination of both individual-level and environmental/policy –level interventions provide the greatest opportunity to achieve substantial changes in health behaviors and health outcomes. Without this, social determinants may continue to negatively influence health outcomes among this population which remains underserved and under resourced.

**Board 318****Assessing Changes In Relationships Between iTP3 Grantees Through An Interorganizational Network Analysis**

Jordan Nelon, Whitney R. Garney, Kelly L. Wilson, Kristen E. Garcia, Jennifer Farmer, Christi N. Hays, Daenuka Muraleetharan, and Kenneth R. McLeroy

**Background:** Organizational relationships can provide insight into how public health programs are developed and implemented. Strength of tie is one type of analysis where strong and weak ties play crucial roles in understanding a network. Those that are linked through weak ties receive diverse support and opinions, while strong ties foster commitment. This presentation highlights findings from a study using interorganizational network analysis (ION) to assess organizational relationships among 15 grantees that are developing innovative teen pregnancy prevention programs. **Methods:** We assessed these partnerships (n=15) through an ION survey and measured the strength of relationship and ties among organizations at two-time points. The composite score was used to measure the strength of tie. Organizations were given one point if they shared information, two points for an informational partnership, three points for a formal partnership, and four points for a signed MOU. Scores were then summated and ranged from 0 to 10 per relationship. **Results:** The Average strength of tie decreased from 4.053 to 2.278 over time with half the number of ties reported. The majority of innovators had an in-degree centrality of one or greater with the average tie in December being 1.46 and in June being 1.33. The organizations with the most ties were national organizations. We constructed network diagrams

depicting each of these relationships and computed centrality measures with the whole network data for all 15 partnerships. Two grantees did not respond to the survey in June. Conclusion: Results illustrate the types of relationships that help facilitate the development of innovative teen pregnancy prevention programs and the roles between the grantees. These results show that collaboration in the first year of funding did not occur as intended and indicates the need to adapt program structure. Conclusions across networks illustrate characteristics of these grantees and offer insight into network literature.

### **Board 319**

#### **Geographic disparities associated with travel to medical care and attendance in programs to prevent/manage chronic illness**

Matthew Lee Smith, Samuel D. Towne, Caroline D. Bergeron, Donglan Zhang, Carly McCord, Heather H. Goltz, Nelda Mier, and Marcia G. Ory

Background: The number of older Americans with multiple chronic conditions is rising. Transportation is challenging for adults living with chronic conditions that require frequent healthcare visits. This is especially in rural areas because of greater travel distances, scarcer resources, and geospatially dispersed services. Evidence-based disease self-management programs in community settings may be a more accessible solution to eliminate rural-based inequities. Methods: This study used a cross-sectional design to investigate the relationship between those traveling greater distances for formal medical care and their utilization of programs to prevent/manage their health problems. The sample was comprised of 2,112 middle-aged and older adults residing in eight central Texas counties. From a random selection of households, participants were administered a mail-based survey created by a community collaborative effort. An ordinal regression model was fitted to assess factors associated with traveling farther distances to medical services in the past 12 months. A binary logistic regression was fitted to examine factors associated with attending a program to prevent/manage chronic illness. Results: Sixty-nine percent of participants resided in rural counties. Participants residing in rural areas (Beta=1.02, P<0.001), those with more self-reported chronic conditions (Beta=0.14, P<0.001), and those who attended a program to prevent/manage chronic illness (Beta=0.04, P=0.005) reported traveling farther distances to medical services. Participants with limited activity (OR=2.92, P<0.001), those residing in urban counties (OR=1.32, P=0.011), and those who traveled more total miles for medical care were more likely to attend a program to prevent/manage chronic illness (OR=1.35, P=0.004). Conclusion: Rural inequities related to healthcare access and travel to medical care highlight the need to identify and introduce community services/resources proximal to residents' homes. Disease self-management programs can complement formal medical care received. Reducing commute time to community-based services by expanding resource infrastructure can reduce inequities and improve service uptake.

### **Board 320**

#### **The Newest Vital Sign: Simple screening tools to identify limited health literacy among patients at a Federally-Qualified Health Center**

Kelly Ylitalo, Renee Umstattd, Beth Lanning, Christina During, Ryan Laschober, and Jackson Griggs

Background/Objectives: Adults with limited health literacy have difficulty managing chronic conditions, higher hospitalization rates, and more healthcare expenditures. Simple screening tools have been developed, but limited work has evaluated instruments among low-income populations. This study assessed health literacy among patients of a Federally-Qualified Health Center, and validated a single screening question about perceived difficulty completing medical

forms. Research Design: A cross-sectional survey was administered to English-speaking patients  $\geq 40$  years. Both the Newest Vital Sign (NVS), a six-item questionnaire, and a single-item screening question about perceived difficulty with completing medical forms, assessed health literacy. Multivariate logistic regression was used to identify predictors of inadequate health literacy and receiver operator curves compared the NVS and single-item question. Results: Participants ( $n=406$ ) were, on average, aged 58.5 years ( $\pm 11.3$ ), 72.2% female, and identified as Hispanic/Latino (19.2%), non-Hispanic white (31.0%), non-Hispanic black (40.9%), or other (8.9%). Of the 406 participants, 335 (82.5%) completed the NVS. Patients who declined NVS were more likely to be older ( $p < 0.001$ ) and male ( $p = 0.01$ ). Only 13.7% had adequate health literacy. Older adults, race/ethnic minority groups, people with missed office visits, and people reporting less confidence completing medical forms were significantly more likely to have inadequate health literacy. Perceived confidence completing medical forms demonstrated low sensitivity but high specificity at multiple thresholds compared to the NVS. Conclusions: This is the first investigation to compare the NVS and confidence completing medical forms question. A high proportion of patients declined health literacy assessments, but health literacy screening may identify patients who need additional health education and resources, particularly at a Federally-Qualified Health Center.

### **Board 321**

#### **Enhancing the Reach of School-based Health Centers through Community Engagement and Language Assistance for Minority Parents**

Sarah Griffin, Laura Rolke, Jacqueline Forrester, Kerry Sease, Holly Bryan, and Lucia Wilkes

School-based Health Centers (SBHCs) are a national initiative to increase access to clinical care to children in a school setting. Children's Hospital of Greenville Health System operates School-based Health Centers in four middle schools in a disadvantaged area of Greenville, SC. Approximately 92.5% of these students qualify for free or reduced school meals. More than a third (36.5%) of students attending schools in this area are Hispanic, compared to 13.5% of middle schoolers in the district. A two-year mixed-methods evaluation of the SBHCs reach and implementation revealed several influential factors impacting use patterns. 567 students were seen in 802 visits during the two-year period (average 40 visits/month). During the 2016/17 school year, approximately 37% of students seen were black/African American, 30.4% were Hispanic, and 23.7% were white, revealing that the number of Hispanic students seen by the SBHCs were disproportionately lower than the Hispanic student population in the schools. Many Hispanic parents did not complete consent forms for their child. Thematic analysis of 2 parent focus groups and 25 parent intercept interviews revealed the following implementation and reach themes: (a) lack of awareness of SBHC services; (b) confusion about services offered; (c) desire for more communication; and (d) registration/consent process concerns. Findings were shared with SBHC staff, allowing for data-driven community outreach at the start of the 2017/18 school year and more intentional efforts to engage Hispanic parents. The SBHC team partnered with a Hispanic community group to assist Spanish-speaking parents with consent form processing on school event nights, enhanced the visibility of a Spanish-speaking staff member, and provided greater assistance in processing paperwork on-site, rather than send it home. These efforts led to a 38.5% increase in signed consents overall and more than 100% increase in visits compared to the same time period in the previous school year.

**Board 322**

**Socioeconomic Disparities in Health Risk Behavior Clusterings Among Korean Adolescents**

Boram Lee and Dong-Chul Seo

Background: Adolescent health risk behaviors need to be understood in terms of clustering. Given that health risk behaviors formed in adolescence may continue into adulthood, the population level disparities in health risk behaviors in adolescence may exacerbate health inequality in the long term. Literature indicates that socioeconomic status (SES) and health risk behaviors tend to be inversely related but sometimes not clear, particularly for adolescents. This study aims to investigate the socioeconomic disparities in health risk behavior clusterings among Korean adolescents and to assess the mediating role of stress on this association. Methods: We analyzed the 2015 Korean Youth Risk Behavior Survey, a nationally representative sample of Korean middle and high school students aged 12-18 years (N = 68,043). The co-occurrence of multiple health risk behaviors (i.e., smoking, drinking, and unprotected sex) was used to operationalize risk behavior clusterings that ranged from 0 to 3. Ordinal and multinomial logistic regressions were conducted to examine socioeconomic disparities in risk behavior clusterings and mediating effect of perceived stress between SES and risk behavior clusterings. Results: The risk of engaging in multiple health risk behaviors was greatest in the lowest-SES adolescents (AOR=2.15), followed by the highest-SES adolescents (AOR=1.29) and the mid-low-SES adolescents (AOR=1.24). Perceived stress level partially mediated the effect of SES on risk behavior clusterings. Conclusions: The results indicate a SES-polarization on Korean adolescents' risk behaviors which is partially mediated by perceived stress. The findings also discourage use of a linear approach in socioeconomic disparities investigation in relation to adolescent health behaviors.

**Board 323**

**Determinants of intentions towards maintaining and initiating recommended sleep behaviors in college students**

Katie Qualls Fay and Paul Branscum

Sleep deprivation is major public health problem for young adults and college students in the United States. While for some students getting a sufficient amount of sleep is difficult (7-9 hours), for others who already get sufficient sleep, it can be difficult to maintain the behavior over an extended period of time. Therefore, to promote healthy sleep behaviors among college students, two approaches may be warranted: For college students not meeting sleep recommendations, initiating the behavior is critical, and for those who are currently meeting sleep recommendations, maintaining the behavior is critical. Therefore, the purpose of the study was two-fold: First, this study determined significant theory-based determinants of intentions to meet sleep recommendations for college students not currently meeting recommendations (initiation), and second, this study determined significant determinants of intentions to maintain the recommended amount of sleep for college students currently meeting the recommendations (maintenance). The theoretical framework for this study was the Integrative Model (IM). A valid and reliable survey was distributed online to university students in the Fall of 2016, and 610 responses were used for final data analysis (Initiation=310, Maintenance=300). Results from regression models revealed that together perceived norms and perceived behavioral control (PBC) accounted for 29.3% of the variance of intentions to start sleeping 7-9 hours each night for the initiation group, and attitudes, perceived norms and PBC accounted for 32.6% of the variance of intentions to continue sleeping 7-9 hours each night for the maintenance group. Furthermore, PBC, stemming from self-efficacy, was found to have the strongest influence on intentions for both groups. Future practice should focus on increasing self-efficacy in college

students to decrease sleep deprivation and increase adherence to current sleep recommendations.

### **Board 324**

#### **Developing and validating an instrument measuring theory-based behavioral antecedents of sleep behaviors for college students**

Katie Qualls Fay and Paul Branscum

Sleep deprivation is a serious public health concern in the United States that often goes unnoticed, particularly among college students and young adults. Identifying modifiable behavioral antecedents of sleeping behaviors will help inform future public health interventions. Furthermore, interventions may be more effective if they were tailored to students based on their sleeping status. For example, some students sleep less than 7 hours per night, and need interventions to help them start sleeping 7-9 hours per night; while students who already sleep 7-9 hours each night need interventions to encourage the continuation of the behavior. The purpose of this study was to develop and validate two new instruments to better identify behavioral antecedents for college students not meeting the current sleep recommendation, and for students who are meeting the current sleep recommendation. The Integrative Model (IM) was used as the theoretical basis of both surveys. First, an elicitation phase was implemented with a sample (n=100) to establish a set of salient beliefs. Second, items on the instrument were developed that corresponded to the following IM constructs: attitudes, injunctive norms, descriptive norms, and perceived behavioral control. Once an initial draft of the instrument was complete, it was evaluated for face and content validity by a panel of 6 experts. The instrument was then evaluated by a small sample (n=48) from the target population for readability. After receiving feedback, the survey was completed by 300 undergraduate students whose goal was to maintain healthy sleeping behaviors, and 310 undergraduate students whose goal was to start sleeping 7-9 hours each night. Confirmatory factor analysis and internal consistency reliability statistics showed that the instrument was both valid and reliable. Researchers working in the area of sleep health can use this instrument to help create the basis for future public health sleep interventions.

### **Board 325**

#### **The Variability of Cronbach's Alpha in Health Behavior Research: a Reliability Generalization Trend Analysis**

Daniel Valdez, Andrew C. Pickett, and Adam E. Barry

**OBJECTIVE:** Despite calls to improve reporting of reliability estimates in survey-based research, health behavior researchers exhibit generally poor reporting practices in their published manuscripts. This investigation highlights the importance of reporting psychometric coefficients for survey scales and constructs, and demonstrates how reliability coefficients, such as Cronbach's alpha, can fluctuate with subsequent administrations to new samples. Specifically, we present a data-based heuristic example of the sensitivity and stability of Cronbach's alpha over time with multiple waves of nationally representative data of school-age adolescents. **METHOD:** To demonstrate the variability of alpha we utilized the meta-analytic technique, reliability generalization, to examine changes in alpha levels among established depression-related measures over time using almost 40 years' worth of data from the online, open access Monitoring the Future survey. Further, study characteristics that accurately predicted alpha were also identified. **RESULTS:** For each year and sample, reliability coefficient alpha varied in differing magnitudes. Overall, alpha ranged from .95 to .88 across the 38 year period. Moreover, there were no instances of multi-year stability of alpha; in other words, each year alpha changed, despite the same questions being asked in each administration.

**CONCLUSION:** Overall, reporting a data-specific reliability coefficient, at each survey administration, is important information to provide, as it has the ability to impact statistical inferences. As our findings outline, alpha changes depending on sample and sample characteristics. These findings hold important implications for the reliability of measures among samples of primarily under-represented groups, which often are less prevalent in large-scale investigations. That is, if alpha is not a constant but varies by sample, then how might minority-driven samples affect the reliability of a construct or measure?

### **Board 326**

#### **Twitter use by U.S. schools of public health: A tool for communicating research and advocacy**

Matthew Kearney, Jennifer Manganiello, Alexandra R. Budenz, and Philip Massey

**Purpose:** To analyze tweets from U.S. schools of public health and identify key drivers of engagement with external audiences (i.e., retweets). **Methods:** Using data mining software, we collected 34,289 publicly available tweets from U.S. public health schools with registered Twitter accounts (n=53) between August 2015 and June 2016. We limited our final sample to original tweets (n=25,040). We used descriptive statistics to analyze tweet metadata (i.e., date of tweet, number of followers, number of retweets). In addition, for a month-stratified random sub-sample of tweets (n=679), we developed a codebook to analyze tweet content (school events, research dissemination, school news, or advocacy) and audience (general, school, or targeted). We built regression models to identify factors that predict or confound the outcome of retweet, controlling for school-based clusters of tweets using fixed effects modeling. **Results:** The median number of tweets per school account was 371 (IQR: 184-692), and the median number of followers was 1473 (IQR: 654-4549). Nearly 30% of tweets were created by one of three schools of public health. The majority of tweets were retweeted at least once (55%) and were directed towards a general audience (62%). Compared to tweets targeted towards school-specific or other targeted audiences (e.g., demographic group), tweets directed towards general audiences were more likely to be retweeted. Tweet content focused primarily on school events (37%), research dissemination (26%), and advocacy (21%). Tweets discussing research dissemination had twice the odds ( $p < .05$ ) of being retweeted, when compared to tweets discussing school events. **Conclusion:** Tweets with content that is accessible and inclusive, and disseminating research and other related health information were associated with being retweeted. In addition, schools should look to building larger social networks of followers, particularly within their respective geographic regions, as means of increasing both the number and diversity of users that tweets reach.

### **Board 327**

#### **Elementary Principals and Teachers' Perceptions of School Garden Programming in a Lower-Income, Diverse, Urban School District**

Anna E. Greer, Kristin Rainville, Ann-Uriel Knausenberger, and Cristina Sandolo

**Background:** School garden programs have demonstrated efficacy for improving nutrition knowledge and fruit and vegetable consumption among school youth. Researchers, however, have documented inequities with regards to garden-based learning opportunities for students in lower-income, racially and ethnically diverse school districts. **Purpose:** This study examined principals and teachers' perceptions of garden-based learning for elementary students in a lower-income, diverse, urban community. **Methods:** Interviews were conducted with elementary principals (n=12) and teachers (n=9) using a semi-structured interview guide. All interviews were transcribed verbatim and loaded into Atlas.ti qualitative software for analysis. Data were

coded and reviewed to identify code categories which could be taken to represent themes. Results: Principals and teachers identified challenges to school garden programming including “always being under-resourced” (e.g., time, personnel, money), an administrator focus on “standardized tests,” and summer garden maintenance. Perceived facilitators included: the creation of school garden lessons which “tie to the [district’s] curriculum,” garden supply donations (e.g., “shovels and wheelbarrows,” “seedlings,” “good soil”), and community member involvement. Both principals and teachers perceived school gardens as an opportunity to improve students’ science knowledge, perceptions of consuming local food, and nutrition habits. Participants discussed how many of their students live in poverty, are immigrants, and speak multiple languages. These student characteristics presented both challenges (e.g., transient study body) and opportunities (e.g., immigrant families with a rich gardening heritage) for their school garden programs. Conclusions: While garden-based learning programs in lower-income, diverse, urban communities are likely to face several challenges, the study findings indicate that garden-based learning might be particularly meaningful in diverse communities with cultural ties to gardening.

### **Board 328**

#### **Use of an innovative farmers’ market program providing free produce to lower-income community members**

Anna Greer, Brittany Lawrence, Shaakira Jones, Daphne C. Hernandez, SangNam Ahn, Ann Marie Zimeri, and Matthew L. Smith

Farmers’ markets enhance access to fresh produce but are often under-utilized by lower-income persons. Purpose: We examined use of a farmers’ market that leverages community partnerships to provide free produce to lower-income persons. Methods: Upon registering their household for the market, participants (n=422) were asked about their personal and household characteristics, financial support received, reasons for market use, and how they had learned about the market. Participants were also given an ID number, which was used to track market use from 2014-2015. Chi square tests were used to examine associations between 2014/2015 market use and reasons for market use, financial support received, and how attendees had learned about the market. Ordinal regression was used to identify household characteristics associated with increased market attendance. Results: Although the proportion of lower-income attendees declined over the study period, a substantial proportion of households in 2014 (69.1%) and 2015 (54.6%) were below the poverty threshold. We identified significant differences in attendees’ reasons for market use and ways attendees heard about the market from 2014 to 2015. The most frequently reported reason for 2014 market use was retirement/fixed income ( $\chi^2=46.22$ ,  $P<0.001$ ) and in 2015 was low income ( $\chi^2=173.80$ ,  $P<0.001$ ). Most attendees heard about the market through flyers ( $\chi^2=27.05$ ,  $P<0.001$ ) and word of mouth ( $\chi^2=14.26$ ,  $P<0.001$ ) in 2014 and through local, non-profit services ( $\chi^2=14.77$ ,  $P<0.001$ ) in 2015. In the ordinal regression, households with an older person registering the household for the market used the market more times per year (Beta = 0.05,  $P < 0.001$ ). Impoverished households (Beta=-0.49,  $P=0.020$ ) and households receiving more financial support services (Beta=-0.26,  $P<.001$ ) used the market fewer times per year. Conclusions: While a substantial proportion of lower-income persons used the free-produce market, frequency of use was still lowest among this group indicating a need to address barriers beyond produce cost.

**Board 329**

**Using network analysis to support community collaboration to address health disparities in a low-income multi-ethnic community**

Opal V. Buchthal, Tina Tamai, Denise Nelson, and Katherine Braden

Purpose: Strengthening collaboration among community agencies working to address health disparities in low-income, resource-limited neighborhoods is challenging. Bringing agencies together to share information, resources, and develop shared projects may improve collaboration and communication across the community. This study assesses the impact of the Live Better Together Collaborative (LBT), an initiative sponsored by the Hawai'i Department of Health to support collaboration on nutrition access in a low-income, multi-ethnic urban neighborhood in urban Honolulu. Methods: In 2012 potential partner agencies were identified through a snowball sample of community stakeholders. A survey was conducted to identify agency demographics, missions, and inter-agency communication and collaboration linkages. A network analysis was performed to map existing collaboration patterns among the agencies. The results were presented to the LBT group, which used these results to identify partnership strengths and weaknesses within the community, and to set the direction for partnership development. The survey was repeated in 2016 with all 2012 participants plus 5 new partners, and a second network analysis conducted. Network size, density, diameter, degree centralization, betweenness centralization, and betweenness centrality were calculated for all networks, and differences between the 2012 and 2016 networks assessed. Results: The 2016 network is larger, more dense and centralized, with greater collaboration between agencies, less distance between the least-connected agencies in the network, and less brokerage by individual agencies. Between 2012 and 2016, the collaboration network size increased from 26 to 31 agencies. Network density increased from .089 to .108, and average number of connections per agency increased from 2.23 to 3.23. Network diameter decreased from 8 to 6, and all-degree centralization increased from .207 to .278. Betweenness centralization decreased from .232 to .200. Conclusion: Network analysis can be a useful tool for supporting community development partnerships, helping local agencies identify and address structural issues affecting collaboration within their community.

**Board 330**

**Community Health Workers Move into the Community with Healthy Cooking Classes**

Carolyn C. Johnson, Keelia O'Malley, Catherine Haywood, Irene Williams, Carolina Gallop, and Leann Myers

Background: Healthy diet is a public health priority to combat obesity in U.S. Oldways scientifically and culturally based curricula for healthy eating focuses on whole grains, herbs, spices, legumes, tubers, vegetables and fruit. Purpose: To determine the feasibility of Community Health Workers (CHWs) and community host organizations to co-implement Oldways cooking classes to improve diets for community residents. Methods: Five neighborhood organizations were recruited to host cooking classes and were offered an honorarium if they agreed to: 1) provide kitchen facilities for classes, 2) recruit community residents to participate, and 3) provide volunteers to facilitate classes for sustainability within the organization and neighborhood. CHWs trained to conduct classes with the volunteers. Pre/post surveys were administered that examined changes in foods and food preparation, receptivity to the program, and potential dissemination efforts beyond the classes. Results: Five neighborhood organizations were recruited but one dropped because of inability to comply with research requirements. Four host organizations had a total of 42 pre-surveys and 40 post-surveys. Some participants increased use of targeted foods, but no significant differences were found from baseline to follow-up. Participants appreciated eating in more traditional ways





(n=21). Majority of participants were positive about the classes stating that they either would change nothing (n=22) or would increase classes (n=5). Twenty (57%) stated had tried recipes at home. Participants (n=34) reported Intentions to share cooking methods with family and friends, and to prepare food using Oldways methods. Conclusions: This pilot study demonstrated the feasibility of using CHWs to implement health promotion activities at the community level, to recruit neighborhood organizations to host healthy cooking classes, the acceptability of healthy food preparation techniques, and intentions to disseminate healthy cooking methods to family and friends. Results show that positive changes in food types and preparation by and within neighborhoods is a viable intervention.

### **Board 331**

#### **Evaluating a multi-stakeholder workgroup to improve nutrition access for disparate populations.**

Meghan D. McGurk, Uyen Vu, Lehua Choy, Katherine Inoue, Carolyn Donohoe Mather, Daniela Kittinger, Toby Beckelman, and Opal Vanessa Buchthal

Background: Despite Hawaii's consistent rating as the healthiest state, disparities in rates of obesity and chronic disease persist among certain groups. The Hawaii State Physical Activity and Nutrition Plan outlines 22 policy, systems, and environmental strategies, to increase physical activity and access to nutritious foods, and reduce obesity and chronic disease among all populations in Hawaii by 2020. In 2013, a multi-stakeholder workgroup was formed around three objectives focused on issues that make access to healthy foods difficult for disadvantaged populations. In 2017, a social network analysis study was conducted to assess the structure of the nutrition access workgroup at the plan's midpoint. Methods: The study sample was pulled from the workgroup member list and key informant rankings of partner engagement. Twenty-nine key organizations were surveyed on their level of collaboration and frequency of communication. Pajek social network analysis program was used to analyze the data and map the workgroup's collaboration and communication. Results: The collaboration map showed a diffuse network, with partners commonly sharing information and coordinating their efforts, but not often collaborating or establishing formal partnerships around the objectives. There was low betweenness centralization (0.1201) with no one central broker of collaboration. Instead, connections formed around four organizations with funding and resources to distribute. The communication network map showed slightly higher betweenness centralization (0.1789), with the two main public health organizations as central nodes for communication. Conclusions: At the plan's midpoint, collaboration and communication among workgroup partners is low. Progress on these broad nutrition access objectives requires collaboration and communication between multiple, diverse partners. However, such partnerships are often difficult to sustain. Network mapping is valuable in identifying both weak and strong relationships that can be leveraged to reinforce the network and make progress on achieving the goal of improving nutrition access for all of Hawaii's people.

### **Board 332**

#### **Movin' for LIFE: Social marketing to promote a community-based health promotion program in New Orleans**

Naomi King Englar, Keelia O'Malley, Madison Monahan, Catherine Haywood, Revonda Darenbourg, and Carolyn C. Johnson

Purpose: Movin' for LIFE (Lasting Improvements for Fitness and Energy) is a multi-level, community-based program in New Orleans 9th Ward - an underserved, predominantly black neighborhood - that sponsors free health promotion activities for residents related to physical activity and healthy eating. This study's purpose is to evaluate a social marketing campaign

implemented in summer 2017 for two Movin' for LIFE health promotion activities, a Family Health Fair and 5K Run/Walk. Methods: The campaign utilized a range of strategies to reach potential participants including print and online ads with news media, social media ads, outdoor ads, printed flyers, and word of mouth. Data for message reach was collected using Google Analytics, Facebook and Twitter analytics, news media readership and impressions, outdoor advertising company estimates for impressions based on traffic counts, number of flyers distributed via two part-time Community Health Workers to more than 80 neighborhood businesses, churches, and nonprofits. Results: The campaign resulted in 11,000 flyers distributed. Two months of ads on 3 billboards generated 1.09 million impressions, one month of bus shelter ads generated 2.61 million impressions, and 1 month of ads on 8 bus exteriors generated 9.74 million impressions. 2,339 users accessed the program website during the 3-month campaign, compared to the total 3,395 users that visited the website during its 1-year lifespan. Print and digital ads with news media outlets resulted in 918,000 impressions. Facebook ads reached 12,520 people and Twitter ads generated 52,810 impressions. The Family Health Fair had 156 participants. A total of 280 people registered for the 5K Run/Walk, and an estimated 250 participated.

Conclusions: Best practices recommend utilizing a variety of marketing strategies to saturate audiences and reinforce messages through repetition and multiple exposures. Our study shows that using multiple strategies is a viable method for recruiting participants for health promotion activities.

### **Board 333**

#### **Perceived neighborhood accessibility moderates the relationship between active transportation and obesity**

Katie Heinrich, Nattinee Jitnarin, Carla Bernardes, Bradyn Nicholson, Daniel Winslow, Sarah J. Cosgrove, and Walker S. C. Poston III

Background: Active transportation (e.g., walking, cycling) may help decrease obesity, yet findings have been mixed. Perceived built environment features (e.g., safety, resource proximity) can influence the decision to engage in active transportation. This study queried if neighborhood environment perceptions moderated the relationship between active transportation and obesity. Methods: Participants were 514 adults (mean age 42±12 years) who were primarily female (71.0%), Caucasian (65.6%), married (51.2%), employed (63.8%), had some college education (73.7%), had incomes ≤\$60,000 (54.3%), and drove as their primary transportation mode (90.7%). Participants reported living at their present address 8.7±9.2 years and their present neighborhood 10.6±10.5 years. Participants completed a 60-minute household survey including measured height, weight, and body fat percentage (BF%) via bioelectrical impedance; the International Physical Activity Questionnaire (long-form); and environment module items from the International Physical Activity Prevalence Study. Three composite Neighborhood factors were created (i.e., Infrastructure, Safety, and Accessibility). Multi-level logistic regression tested whether perceived neighborhood factors moderated the effects of total weekly active transportation on BMI, and BF%. Results: Average BMI was 28.4±7.8 kg/m<sup>2</sup> and average BF% was 33.0%±11.1%. Gender differences existed for BF%, with females (35.7%±10.5%) having significantly higher percentages than males (26.0%±9.4%;  $p < .001$ ). Half of participants reported 91.4±222.1 total weekly minutes of active transportation. No significant relationships were found between BMI and active transportation. However, neighborhood accessibility significantly moderated the relationship between active transportation and BF% ( $p < .05$ ), with lower active transportation associated with less accessibility, resulting in greater BF%. Gender played a role in this relationship, with males significantly less likely to be obese via BF% than females (OR=0.47, 95% CI=0.30-0.75) at the same level of accessibility. Conclusions: Perceived neighborhood accessibility significantly

moderated the relationship between the use of active transportation and BF%. Future research should longitudinally examine the influence of perceptions on transportation mode choice and body composition.

### **Board 334**

#### **Come Together, Play, Be Active: Physical Activity Engagement of Children at Play Streets in Four Diverse Rural Communities**

M. Renée Umstatted Meyer, Christina Bridges, Tyler Prochnow, Kimberly T. Arnold, Megan E. McClendon, Emily Wilkins, Flor E. Morales, Gabriel A. Benavidez, Tiffany D. Williams, Christiaan Abildso, and Keshia Pollack Porter

**Purpose:** Physical activity (PA) has many health benefits; however, only 21.6% of 6-19 year olds meet PA guidelines, with notable disparities for females and youth from low-income and/or diverse families. While most U.S. families reside in urban America, about 20% live in rural communities, where residents face unique obstacles to regular PA: dispersed land use, fewer walkable destinations, and scarce infrastructure. Play Streets, one approach to addressing disparities in children's PA, provide safe places for play through temporary street closures in areas without access to safe, well-maintained parks/playgrounds. Play Streets have been implemented in cities and rarely rural communities. We evaluated children's PA during Play Streets in rural communities.

**Methods:** Community organizations (church, local health department, county extension office, and health center) in four diverse low-income rural communities implemented four three-hour Play Streets focused on elementary-to-middle school children during summer (2017). Rural communities were selected to understand how Play Streets are implemented in African American, American Indian, Latino, or non-Hispanic White communities. PA was measured using Digi-walker (Yamax SW200) pedometers. **Results:** Sixteen Play Streets were implemented in rural communities in Maryland, North Carolina, Oklahoma, and Texas. A total of 370 elementary-to-middle school aged children wore pedometers at 16 Play Streets ( $\mu=23.13$  children [SD=8.59]/Play Street). The mean age was 8.85 years [SD=2.76] and 54.8% were female. Among the 356 children with complete pedometer data, pedometers were worn for an average of 93.31 minutes (SD=59.96) and children had a mean of 42.06 steps/minute (SD=17.25), with no significant differences between boys ( $\mu=43.64$  [SD=15.74]) and girls ( $\mu=40.76$  [SD=18.34]). **Conclusions:** Children in diverse rural communities are physically active at Play Streets. Mean steps/minute accrued during Play Streets are similar to many studies reporting mean steps/minute of children during recess; although longer in duration and with promise for addressing PA disparities often seen for girls.

### **Board 335**

#### **Physical Activity Space Methodology for Assessment and Prioritization (PASMAL): Combining Systematic Observations with Community Perceptions to Identify Community Physical Activity Resource Priorities**

M Renée Umstatted Meyer, Kelly R. Ylitalo, Luis A. Gómez, Tyler Prochnow, and Joseph R. Sharkey

**Purpose:** Despite documented benefits of physical activity (PA), most Americans are not regularly active, with notable disparities for residents of diverse and/or low-income communities. PA is positively correlated with resource availability and quality, which current PA resource assessments examine. However, community members' perceptions and cultural perspective are often not considered, leaving community members with ambiguous counts and/or scores. We present an approach incorporating community perceptions with systematic environmental observations to identify community PA resource priorities. **Methods:** The PA Space

Methodology for Assessment and Prioritization (PASMMap) includes three phases. Phase 1: systematic observation of PA spaces. Promotora-researchers completed PA Resource Assessments (PARAs) for 57 PA spaces in under-resourced colonias along the Texas-Mexico border assessing quantity and quality of features, amenities, and incivilities using 4-point scales (features/amenities: 0=None to 3=Good; incivilities: 0=None to 3=A lot/Many). Characteristics were ranked using average PARA scores from all PA spaces. Phase 2: community advisory board (CAB) members (n=36) ranked the importance of each feature, amenity, and incivility respectively; rankings were averaged and ordered. Phase 3: we examined differences quantifying discordance between phases 1 and 2. Large, positive differences indicated high discordance between systematic observations and perceived importance. Results:

Phase 1: highest ranked PARA characteristics were sidewalks, non-street lighting, and noise. Phase 2: CAB members ranked trails/paths, sidewalks, fenced-in open fields, play equipment, bathrooms, drinking fountains, trash containers, substance abuse evidence, litter/trash, and alcohol evidence as most important PARA characteristics. Phase 3: multiple characteristics had high discordance: trails/paths, fenced-in open fields (features), drinking fountains (amenity), and litter/trash (incivility); these were low quantity/poor quality yet perceived as highly important. Conclusions: Highly discordant characteristics identified through PASMMap provide evidence-based, community-valued recommendations on community PA resource priorities for planning and advocacy. Future work should (1) incorporate perceptions/rankings from additional community members and (2) apply PASMMap methods to other environmental assessments.

### **Board 336**

#### **Documenting How Play Streets Impact Play, Physical Activity, and Environment: A Systematic Review**

Christina N. Bridges, M Renée Umstattd Meyer, Thomas L. Schmid, Amelie A. Hecht, and Keshia Pollack Porter

Purpose: Play and other physical activity (PA) are important for healthy bone and muscle development, emotional well-being, and chronic disease/obesity prevention among children. Safe, attractive, and convenient play spaces are often limited in under-resourced communities and many communities of color. Play Streets are an understudied intervention strategy that could provide safe play spaces for children. Play Streets involve the temporary closure (recurring or episodic) of streets to support opportunities for play. The purpose of this study is to better understand the community impacts of Play Streets on play, PA, and the environment by systematically reviewing the literature on Play Streets interventions. Methods: A systematic literature review was conducted using Academic Search Complete, CINAHL, PsycINFO, PubMed, Web of Science, and Google Scholar. Peer-reviewed studies published worldwide, in English, through October 2016 that documented Play Streets, Open Streets/Ciclovías, or Pop-up Parks that incorporated a designated play area were included. Results: Of the 143 peer-reviewed abstracts that were reviewed, 47 full-text reviews were conducted, and 19 studies met inclusion criteria for extraction. Most studies used observational (n=8) and/or self-report (n=14) PA measures, one study objectively measured PA, and 13 were conducted in the U.S. Generally, most Play Streets occurred on the weekends or during holidays, in the mornings and/or afternoons, and were attended mostly by people living close by. Play Streets created more open spaces in communities which facilitated feelings of safety, community cohesion, and typically increased overall PA during Play Streets. Conclusions: Findings suggest that Play Streets can create safe environments for children to play, increase PA, and have positive social and environmental impacts for neighborhoods/communities. Additional research is needed to examine implementation of Play Streets and associated impacts. Since most studies were in urban areas, implementation and evaluation research of Play Streets in suburban, small town, and rural areas is needed.

**Board 337****Activity-Friendly Community Design: Neighborhood influences on physical activity and health**

Samuel D. Towne Jr., Xuemei Zhu, Chanam Lee, Minjie Xu, Zhipeng Lu, and Marcia G. Ory

Background: The built environment can play a role in providing access to opportunities to engage in physical activity. Providing walkable destinations including: utilitarian destinations (e.g., grocery shops); green spaces (e.g., parks); while also providing safe and attractive walking/running trails and sidewalks connecting destinations have been suggested as sustainable solutions to promoting physical activity. Methods: We surveyed residents who moved to an activity-friendly community in order to assess changes in health-related outcomes. The target community was designed to be highly walkable, inclusive of green spaces and parks for sports, equipped with utilitarian destinations (e.g., shops), and other activity-friendly design features. Approximately 412 adult residents aged 21 and older completed surveys assessing health, physical activity, and sociodemographic characteristics. Results: Overall, 13% of respondents were Hispanic, 82% were White, and 66% were female. A significant portion of respondents (23%) were enrolled in the community affordable homes program. While 43% of respondents reported similar self-reported health status after the move, approximately 51% reported improvements in self-reported health status. Overall, 73% of respondents reported that they engaged in higher levels of physical activity after moving into the activity-friendly community versus before the move. Conclusions: Activity-friendly community design can provide sustainable solutions in improving physical activity. Policymakers and other key stakeholders can use this information to support urban planning and design that targets safe, walkable, and connected communities.

**Board 338****Impacts of Workplace Environment on Physical Activity: A Qualitative Examination**

Debra Kellstedt, Lingyi Qiu, Xuemei Zhu, John O. Spengler, Chanam Lee, and Marcia G. Ory

PURPOSE: This qualitative study is to evaluate the impact of the workplace environment on employee physical activity (PA). METHODS: After IRB approval, 28 employees from two Austin offices (N=10 and N=11) and one Dallas office (N=7) of a Texas-based insurance company were recruited to participate in focus groups to discuss workplace environment and PA. Interested subjects responded to screening questionnaires for balancing groups by gender, age, work type, and PA levels. During August-September, 2017, focus groups were conducted, audio-recorded, and transcribed verbatim. Data were analyzed using NVivo 11. RESULTS: Participants included more females (N=20) and represented ages 21-70. The majority (N=21) were staff, while seven were managers or supervisors. Twenty-three participants engaged in some PA during a typical week, but five reported no PA. Participants cited company programs/policies (e.g., organized walking groups, yoga classes, incentives), access to PA features (e.g., on-site gym and showers, wide hallways), and social boosts (e.g., having supportive co-workers, seeing others being active) as enablers of PA. Conversely, workstation limitations (e.g., only a sitting desk option), work type (e.g., claims adjuster vs. underwriters), workload (e.g., less flexible and consuming workload), and commute time were cited as barriers to PA. Overall, participants appreciated office culture promoting PA, but some felt constraints due to work overload and inflexible schedules. Long commute times left employees with limited energy for PA. Work including phone interaction meant little time to leave desks and be active. CONCLUSION: One size does not fit all. Even within a single office environment, opportunities for PA can vary depending on employees' work type and position level. PA interventions (both programmatic and environmental) may need to be adapted for different positions and work

types within a company. Also, it is important to consider commute times and modes in understanding the impact of workplace factors on PA.

**Board 339**

**The influence of social capital and leisure-time physical activity on health for older adults by living arrangements**

Chia-Yuan Yu

Purpose: The purpose of this study is to: (1) explore the influence of social capital and leisure-time physical activity on physical and mental health for older adults and (2) test whether these relationships vary by living arrangement. Methods: This cross-sectional study used the national data from 2013 National Health Interview Study in the U.S. Subjects were 7,714 adults aged 65 years or older. Logistic regressions were to predict the probability of being overweight or obese. Ordinary linear regressions (OLS) were to predict mental health outcomes. Results: Older adults living alone were more likely to report feeling sad (alone: 1.5; with others: 1.36), hopeless (alone: 1.25; with others: 1.18), and worthless (alone: 1.22; with others: 1.15). They were also more likely to experience lower levels of social support (alone: 3.24; with others: 3.30), trust (alone: 3.34; with others: 3.44), cohesion (alone: 2.95; with others: 2.98), and enjoy less leisure-time physical activity (alone: 49.85; with others: 64.64 minutes) than those living with others. Hispanic and divorced/separated older adults who lived alone were prioritized for health intervention. Conclusions: Older adults living alone had poorer mental health, less social capital, and engaged in less frequent leisure-time physical activity. Promoting social capital could improve mental health in older adults living alone.