



American Academy of Health Behavior
Poster Session
Tuesday, March 21, 2017
6:00 – 7:30 PM

Board 1

Confidence to Prevent and Manage Falls among Community-dwelling Older Adults: Scale Validation and Mediation

Yoshikawa A, Smith ML, Towne SD, Ory MG

Purpose: Reducing fear of falling (FOF) and improving confidence to prevent and manage fall risk (CPMFR) is an essential part of aging-in-place and maintaining an active lifestyle among older adults. Improving CPMFR is theorized to mediate the effect of FOF on functional mobility, yet its psychometric dimensionality is understudied. This two-part study: 1) examined the psychometric properties of the CPMFR scale and validated its construction (six items); and 2) tested the mediation effect of CPMFR between FOF and functional mobility. Methods: Data were analyzed from 446 participants (89 men, 357 women: mean age of 77.6 [SD=8.3] years) enrolled in a fall prevention program, A Matter of Balance Lay Leader Model. Self-reported FOF, CPMFR, and demographic information were collected using questionnaires. Functional mobility was assessed objectively using the Timed Up-and-Go (TUG) test. Confirmatory factor analysis and structural equation modeling were performed to validate the CPMFR scale and examine the mediation effect of CPMFR between FOF and functional mobility. Results: The CPMFR dimension was defined by participants': 1) physical functioning, 2) walking ability, and 3) fall management ($\chi^2(6)=23.82, p<0.05, RMSEA=0.08, CFI=1.00, WRMR=0.36$). In mediation modeling, associations were observed between FOF and CPMFR ($\beta=-0.57, p<0.05$) and between CPMFR and functional mobility ($\beta=-0.46, p<0.05$). Consequently, the direct effect of FOF on functional mobility vanished ($\beta=0.01, p>0.05$). Confidence with maintaining balance while walking and walking outdoors exhibited the strongest association with CPMFR ($\beta=0.92, p<0.05$). Conclusions: This study provides evidence that this previously untested scale can be used by practitioners to evaluate confidence to prevent and manage fall risk among older adults. Further studies about the CPMFR dimension can help program implementers enhance confidence among older adult participants to diminish FOF and promote active lifestyles.

Board 2

Treadmill Versus Outdoor Running Injuries Presenting to United States Emergency Departments

Al-Suqi SM, Rossheim ME

Background: Running is one of the most common physical activities. However, limited research has compared injuries obtained from running in different settings. The current study compared injuries obtained from running outdoors, on a treadmill, and on a track. Methods: National Electronic Injury Surveillance System (NEISS) data from 2015 were used to identify emergency department injuries from running outdoors, on a treadmill, and on a track. Estimates were weighted to be nationally representative. The mean age for treadmill runners was 39, track runners it was 16, and 37 years of age for outdoor runners. The overall mean age was 31. Results: The majority of overall running injuries were sprains and strains (67%). Running injuries most commonly afflicted the lower extremities: ankle/foot (28%) and leg/knee (24%). Outdoor running caused a substantially greater proportion of face, head, and neck injuries (11%), compared to running on a treadmill (2%) or track (0.5%). Also, 12% of outdoor running injuries were to the upper trunk, comparison to 8% from running on a treadmill and only 1% of injuries from running on a track. Discussion: Outdoor running was associated with greater risk in injuring the upper body. Further, a greater number of overall injuries and injuries to the

head, neck, and face occurred while running outdoors. Additional research is needed to compare injury risk from running in different environments.

Board 3

Trends in Spatial Correlates of Fall-related Hospitalizations and Resource Allocation for Older Adults

Towne SD, Ory MG, Li Y, Quinn C, Howell DA, Smith ML

Background: 1-in-3 older adults suffer potentially preventable falls annually. We aimed to identify geospatial correlates of 1) areas with gaps in the delivery of community- and evidence-based programs (EBP) targeting fall prevention in older community-dwelling adults 2) areas with high rates of fall-related hospitalizations—hotspots. Methods: Multiple datasets including the Texas Inpatient Hospital Discharge (2012-2014), Texas EBP Survey (2012-2014), US Census, and the NCHS 2013 Urban-Rural Classification Scheme data were used to assess county-level (n=254) outcomes in Texas. Binary logistic regression was used to model 1) hotspots of fall-related hospitalization—defined as counties with high (>upper-quartile) fall-related hospitalizations among older adults (65+); and 2) access to evidence-based fall prevention programs—defined as having an EBP (A Matter of Balance) delivered at least once during the year in a county. Results: Counties that were hotspots for fall-related hospitalization numbered 64 in 2012, 64 in 2013, and 62 in 2014. Counties with at least one EBP numbered 84 in 2012, 92 in 2013, and 90 in 2014. Factors consistently associated with gaps (absence) in delivery of EBPs included being outside of large metropolitan areas (i.e., small metropolitan, micropolitan, rural-noncore; $p<.001$), areas with fewer older adults ($p<.01$; at/below lower quartile) versus the highest (above the upper quartile), and not being a fall-related hospitalization hotspot area ($p<.05$). Factors consistently associated with the presence of fall-related hospitalization hotspots included being a large metropolitan area ($p<.05$) versus a rural-noncore area, being an area with less older adults ($p<.01$; at/below upper-quartile) versus the highest, and areas with EBP delivery. Conclusions: Identifying area-level correlates of EBP delivery and/or fall-related hospitalization hotspots has practical use that can allow for immediate action (e.g., resource allocation) by policy-makers and other stakeholders. In resource-finite settings, such as the aging services sector, identifying high priority areas can allow for precise allocation of limited resources.

Board 4

Is a Home Exercise Program a Viable Alternative for Older Adults with Symptomatic Rotator Cuff Pathology?

Robbins CB, Miller BS, Carpenter JE, Bedi A, Gagnier JJ

Purpose: The purpose of this study was to examine the effectiveness of a home exercise program for older adults with symptomatic rotator cuff pathology. Methods: Secondary analysis of data obtained from the Michigan Shoulder Pain Registry (N=219). The dependent variables were the change in scores from baseline to six months using the Western Ontario Rotator Cuff (WORC) index, pain VAS scale, and the VR-12 quality of life scale. Participants were categorized three groups, no treatment, home exercise program (HEP) or formal physical therapy (PT) based on record review. Inclusion criteria included patients over 18 with partial or full-thickness tear as determined by clinical exam and imaging. Exclusion criteria were evidence of fracture, severe osteoarthritis, or adhesive capsulitis. Results: Age was 62 (SD±11) years old with 57.5% male. At baseline there were no significant differences between groups. For pain VAS the model was not significant ($F(2,121)=1.45$, $P=0.239$) however the effect size difference between the pain scores for the HEP group and the no treatment group were medium sized ($d=0.306$) whereas between the HEP group and the formal treatment group were small ($d=-0.04$). Change in WORC score resulted in a significant model ($F(2,116)=6.29$, $P=0.003$). Using a post-hoc Dunnett comparison of both HEP and formal PT to no treatment, both the

HEP and PT group was significantly different ($P=0.023$ and $P=0.002$ respectively) from the no treatment group. The HEP and PT groups were not significantly different from each other ($P=0.961$). There were no significant effects for the VR-12. Conclusions: The present study provides some evidence that at least in the short term using a HEP program could yield functional outcomes similar to those in formal physical therapy.

Board 5

Revisiting the 1999 Bunk Bed Ruling: Comparing Young Adult Injuries in Jail and Non-Institutional Settings

Jimenez LM, Rosseim ME

Background: The 1999 bunk bed safety standard was established to reduce the number of child fall and entrapment injuries and deaths. Effective in June of 2000, this federal ruling outlined requirements for guardrails and bed end structures in bunk beds manufactured for residential settings. These requirements excluded institutional settings due to insufficient data to indicate risk. The current study was the first to compare bunk bed-related injuries among adults in residential settings, where federal regulations apply, to jails, an institutional setting where they do not apply. Methods: National Electronic Injury Surveillance System (NEISS) data from 2010 to 2015 were used. The study sample was comprised of young adults age 21 to 35 years who were injured by bunk beds in either jail or a residential setting. Statistical weights were used to generate national injury estimates. Results: There was a comparable number of contusion/abrasion and sprain/strain injuries in home (1,522 & 1,644) and jail (1,681 & 1,663) settings. However, fractures were nearly three times as common in jails (869) compared to homes (319). Lacerations were more than twice as common in jails (946) than in homes (398). Injuries to the head were twice as common in jails (1,160) compared to homes (555). Though falling and rolling were the leading cause of injury in both settings, there were substantially more in jails (5,477) than in homes (3,338). Discussion: This study is the first to compare bunk bed injuries across institutional and non-institutional settings. Findings suggest that bunk bed injuries in jails are more severe than those obtained in residential settings. These observations may be a result of different risk-levels between environments and/or differences in the bed's safety features. As a result, more research is needed to examine the relationship between bunk bed safety features and adult injury risk.

Board 6

State Helmet Policies and Helmet Use Among Fatally Injured Moped Riders

Boone EM, Rossheim ME

Introduction: Since 2001, annual fatalities from moped crashes have more than quadrupled in the United States. Research supports that helmet use reduces the risk of fatal injury among riders of powered two-wheeled vehicles, including mopeds. The current study examined the association between state helmet policy and helmet use among fatally injured moped riders. Since previously conducted research suggests that alcohol use is a risk factor for helmet non-use among motorcyclists, the association between alcohol and helmet use was also examined. Methods: The Fatality Analysis Reporting System (FARS) is a census of all fatal motor vehicle crashes in the United States. FARS data from 2014 and 2015 were examined. Chi-squared and multivariable logistic regression analyses were used to examine risk factors for helmet non-use among the 300 fatally injured moped riders during these years. Results: Adjusting for confounders, State helmet policy was significantly associated with moped helmet use among fatally injured riders ($p < 0.001$). The unadjusted odds of wearing a helmet was nearly 50 times greater for riders who were legally required to wear a helmet; adjusting for confounders increased the estimated odds ratio to over 70. There was no statistically significant relationship observed between alcohol use and helmet use. However, nearly half of all fatal moped crashes involved alcohol ($BAC \geq 0.01$ g/dL). Discussion: State helmet policies are strongly associated

with helmet use by moped riders. States without helmet laws for all moped riders should consider their implementation. Particularly, South Carolina, Indiana, Florida, and Hawaii, which collectively contained 50% of all moped fatalities during the study period. None of these States require moped riders over 21 years old to wear a helmet.

Board 7

Plain Water Consumption in Relation to Energy Intake and Diet Quality among U.S. Adults, 2005-2012

An R, McCaffrey J

Objective: This study examined plain water consumption in relation to energy intake and diet quality among U.S. adults. Methods: Nationally representative sample of 18,311 adults 18 years and older from the National Health and Nutrition Examination Survey 2005-2012 waves were analyzed. First-difference estimator addressed confounding bias from time-invariant unobservables (e.g., eating habits, taste preferences) by using within-individual variations in diet and plain water consumption between 2 nonconsecutive 24-hour dietary recalls. Results: One percentage point increase in the proportion of daily plain water in total dietary water consumption was associated with a reduction in daily total energy intake by 8.58 (95% confidence interval = 7.87, 9.29) kcal, energy intake from sugar-sweetened beverages 1.43 (1.27, 1.59) kcal, energy intake from discretionary foods 0.88 (0.44, 1.32) kcal, total fat intake 0.21 (0.17, 0.25) g, saturated fat intake 0.07 (0.06, 0.09) g, sugar intake 0.74 (0.67, 0.82) g, sodium intake by 9.80 (8.20, 11.39) mg, and cholesterol intake by 0.88 (0.64, 1.13) g. The effects of plain water intake on diet were similar across race/ethnicity, education attainment, income level, and body weight status, but larger among males and young/middle-aged adults than among females and older adults, respectively. Daily overall diet quality measured by the Healthy Eating Index-2010 was not found to be associated with the proportion of daily plain water in total dietary water consumption. Conclusions: Promoting plain water intake could be a useful public health strategy to reduce energy and targeted nutrient consumption in U.S. adults, which warrants confirmation by future controlled interventions.

Board 8

Self-Care Difficulties and Sources of Support Reliance among Middle-Aged and Older Adults with Chronic Conditions

Smith ML, Riggle SD, Bergeron CD, Towne SD, Ahn S, Ory MG

Objective. Almost 90% of older adults have at least one chronic condition. This study identifies: (1) factors associated with participants reporting difficulties self-managing their chronic condition(s); and (2) factors associated with participants' reliance on external sources for ongoing help/support to improve their health and manage their health conditions. Methods. Data were analyzed from 731 middle-aged and older adults with 1+ chronic conditions who completed the NCOA Chronic Care Survey. Binary logistic regression was used to identify factors associated with difficulties self-managing their chronic conditions. A series of ordinal regression models were fitted to identify factors associated with reliance for ongoing help/support. Results. Over 31% of participants reported their health condition(s) made it difficult for them to better care for themselves. Participants who were Hispanic (OR=3.08,P=0.009), had 3+ chronic conditions (OR=3.05,P<0.001), and took more medications daily (OR=1.07,P=0.046) were more likely to report difficulties self-managing their chronic condition(s). Further, participants who reported leaving the hospital or a doctor's office confused about what they should do to manage their health (OR=1.48,P=0.023) and feeling that their doctor does not realize what it is really like for them at home trying to take care of their health (OR=2.19,P<0.001) were more likely to report difficulties self-managing their chronic conditions. The most commonly reported source participants relied on for ongoing help/support was healthcare providers, followed by friend/relative, the

internet, people who have similar health problems, and community groups/clubs. In the ordinal regression models, common and unique factors were identified to influence levels of reliance on external sources for ongoing help/support. Conclusion. In a time of personalized medicine, simultaneously considering patients' disease profiles, difficulties self-managing chronic conditions at home, and interactions with the healthcare system (physician visits, frustrations, communication, joint decision-making) can inform tailored approaches and strategies for enhanced patient education/engagement, resource identification, and support service linkage.

Board 9

Consumption of Sugar-Sweetened Beverages and Discretionary Foods among U.S Adults by Purchase Location

An R, Maurer G

Background. Excess calorie intake from sugar-sweetened beverages (SSBs) and energy-dense, nutrient-poor foods occupies a significant proportion of Western diet. **Objective.** Examine consumption of SSBs and discretionary foods in U.S. adults by purchase location. **Methods.** Nationally representative 24-hour dietary recall data came from the 2011-2012 National Health and Nutrition Examination Survey. The discretionary food category identifies energy-dense, nutrient-poor foods that do not necessarily contain essential nutrients but may add variety and enjoyment. Linear regressions were performed to estimate daily calorie intake from SSBs and discretionary foods by purchase location (supermarket/grocery store, convenience store, vending machine, fast-food restaurant, full-service restaurant, and other source), adjusting for individual characteristics and sampling design. **Results.** During 2011-2012, 46.3% and 88.8% of U.S. adults consumed SSBs and discretionary foods on any given day, respectively. SSB consumers on average consumed 213.0 kcal from SSBs daily, 111.6 kcal (52.4%) of which were purchased from supermarkets/grocery stores, 33.0 kcal (15.5%) from fast-food restaurants, 23.9 kcal (11.2%) from convenience stores, 17.1 kcal (8.0%) from full-service restaurants, 8.5 kcal (4.0%) from vending machines, and 19.0 kcal (8.9%) from other sources. Discretionary food consumers on average consumed 439.0 kcal from discretionary foods daily, 280.1 kcal (63.8%) of which were purchased from supermarkets/grocery stores, 45.8 kcal (10.4%) from fast-food restaurants, 30.0 kcal (6.8%) from full-service restaurants, 21.1 kcal (4.8%) from convenience stores, 4.1 kcal (0.9%) from vending machines, and 58.0 kcal (13.2%) from other sources. **Conclusions.** Supermarkets/grocery stores were by far the single largest source for SSB and discretionary food purchases in U.S. adults.

Board 10

10 Year Risk Prediction of Atherosclerotic Cardiovascular Disease in Colorado Firefighters

Li K, Ochoa E, Lipsey T, Nelson T

Purpose: To estimate the prevalence of 10-year predicted atherosclerotic cardiovascular disease (ASCVD) risk (10-year risk) in Colorado male and female firefighters aged > 40 using newly developed pooled cohort risk equations issued by American College of Cardiology and the American Heart Association in 2013. **Methods:** The data were from 275 Caucasian male and 24 Caucasian female Colorado firefighters aged 40 years and older. Participants were categorized into groups with 5%, 7.5% and 10% as cut points according to their 10-year risk of ASCVD. Metabolic syndrome (MetS) was classified as having ≥ 3 metabolic abnormalities. Chi square statistics were used to examine the association between ASCVD risk, MetS and age. **Results:** Of the total 299 firefighters, 18.1% of them had a 10-year risk of $\geq 5\%$ (8.3% female [N = 2] and 18.9% male [N = 52]). Eight percent of these Colorado firefighters (N = 24) had a 10-year risk of $\geq 10\%$. The results of the chi square tests showed that MetS and age were significantly associated with 10-year risk. Specifically, older firefighters and firefighters with MetS were more likely to have greater 10-year risk (Chi square = 39.09, df = 9, p<.001).

In firefighters who had MetS, 43.4% had a 10-year risk of $\geq 5\%$ while among those without MetS, only 12.6% had 10-year risk of $\geq 5\%$ (Chi square = 39.58, df = 3, $p < .001$). Conclusion: About one in five of these Colorado firefighters have predicted ASCVD risk of $\geq 5\%$ and 8% have risk of $\geq 10\%$. The high percentage of predicted ASCVD risk suggests that primary and secondary prevention should be emphasized among firefighters given their high risk of on-duty mortality. A longitudinal study will be conducted to follow these firefighters for incident of CVD.

Board 11

Relationship Between Agricultural Experiences and Students' Fruit and Vegetable Perceptions and Consumption: Formative Research to Develop a Robust Urban Agriculture Program in Public Schools

Greer AE, Davis S, Sandolo C, Gaudet N, Castrogivanni B

There is limited evidence examining how urban agricultural experiences might benefit youth. Purpose: This study examined the relationship between high school students' agricultural experiences and their 1) attitudes about consuming local fruits and vegetables (f/v), 2) willingness to try new f/v, and f/v consumption. Methods: Students attending three high schools in a racially diverse, lower income, urban community were purposively sampled. Students (n=327) completed a questionnaire which asked about their agricultural experiences (i.e., prior work in a garden/farm, garden at home), f/v consumption (validated 2-item measure), attitudes about consuming local produce (Cronbach's $\alpha = .73$) and willingness to try new fruits (Cronbach's $\alpha = .86$) and vegetables (Cronbach's $\alpha = .91$). Independent t-tests and chi square tests were used to analyze the data. Results: Half of students (52.9%) reported prior farm/garden work experience, and 29.7% reported having a garden at home. Few students reported consuming at least 3 cups of vegetables/day (9.8%) or 2 cups of fruit/day (37.0%). Students with prior farm/garden experience had more favorable scores for local produce attitudes ($p = .002$) and willingness to try new fruits ($p = .000$) and vegetables ($p = .000$) than students without prior experience. There were no significant associations between farm/garden experience and consuming adequate fruit ($p = .853$) or vegetables ($p = .959$). Students with a home garden had more favorable scores for local produce attitudes ($p = .018$) and willingness to try new fruits ($p = .001$) and vegetables ($p = .000$) than students without a garden. There was a significant association between having a home garden and consuming adequate vegetables ($p = .007$) but not fruit ($p = .675$). Conclusions: It might be that home gardens were uniquely related to adequate vegetable consumption because home gardens can influence both f/v attitudes and access. High schools might consider agricultural learning opportunities, such as school gardens and farm-to-school programs, which promote positive attitudes about f/v and could potentially increase f/v access.

Board 12

Gender Differences in the Cumulative Risk Factors Associated with Food Insecurity among Homeless Adults

Hernandez DC, Arlinghaus K, Reitzel LR, Vidrine J, Vidrine D, Kendzor DE, Businelle MS

Purpose: Current knowledge on the determinants of food insecurity is based on low-income mothers with children, with a dearth of information among homeless adults. Aside from poverty, correlates of food insecurity include poor mental health, risky health behaviors, household disruption, and victimization, which are also common among homeless adults but do vary by gender. According to cumulative risk theory, it is not one particular risk factor but the accumulation of risk factors that places individuals at risk for negative health consequences. The purpose of the study was to examine gender differences in the relationship between cumulative risk factors as predictors of food insecurity among homeless adults. Methods: Adult participants were recruited from six-area shelters in Oklahoma City (N = 581). Participants who affirmatively responded to 5-6 items of the 6-item USDA Food Security Scale-

Short form were considered having experienced the most severe form of food insecurity, very low food security. Three indices of cumulative risk were created. Each index was based on aggregate experiences of particular behaviors: poor health & risky health behaviors index (poor health, depression, post-traumatic stress disorder, alcohol abuse, smoker), household disruption & victimization index (homeless as a child, jail, foster care, forced to have sex, witnessed violence), and financial barriers index (unemployment/disability limits employment, no sources of income, no high school diploma). Results: In covariate-adjusted models, the poor health composite predicted very low food security among women [Odds Ratio (OR) = 1.31, 95% Confidence Interval (CI) = 1.05 – 1.64, $p < .05$], while the poor health composite [OR = 1.38, 95% CI = 1.05 – 1.82, $p < .05$] and the disruption composite [OR = 1.65, CI = 1.24 – 2.20, $p < .01$] predicted very low food security among men. Conclusion: Reducing severe hunger may require gender-targeted resources/interventions, in addition to food and housing assistance.

Board 13

Opportunities for Integrating Local Food Systems into Urban High Schools

Greer AE, Davis S, Sandolo C, Gaudet N, Castrogivanni B

Local food systems can support environmental justice, sustainability, and health. Purpose: We examined perceptions of local food and ideas for promoting local food consumption among high school students in a lower-income, ethnically diverse, Northeastern community. Methods: Six focus groups (n=53) were conducted with students using a semi-structured discussion guide. Atlati, qualitative software, was used to manage and analyze the data. Data were coded and reviewed to identify code categories which could be taken to represent themes. Results: Students (56.8% female, 86.5% non-White) commonly described local food as being grown “nearby” or “here.” Overwhelmingly, students perceived local food to be of higher quality (e.g., “tastes better,” “fresher,”) than non-local food. Students requested “fresh” produce and said that the foods they are currently served are “unnatural” and “made in a factory.” Students reported that consuming local food “benefits the environment.” Students also discussed how consuming local food builds community and trust. For example, one student explained his interest in consuming local food by saying, “This [town] is a bad place. You want to have a better community.” With regards to promoting local produce, students recommended large colorful posters highlighting the benefits of local food in school locations with captive audiences (e.g., lunch line, security line, and classrooms). They recommended taste tests as a “no risk” way of trying local produce. Conclusions: These findings support the integration of local food systems (e.g., farm-school partnerships) into high schools and provide ideas for how to best introduce and promote local foods among high schools students.

Board 14

Nutrition and Distress Intolerance as Potential Links between Food Insecurity and Poor Physical and Mental Health among Homeless Adults

Solari Williams KD, Hernandez DC, Arlinghaus K, Reitzel LR, Vidrine JI, Vidrine DJ, Kendzoe DE, Businelle MS

Purpose: Food insecurity is associated with negative health outcomes which could be influenced by various pathways. The neomaterial theoretical perspective suggests that nutritional deficiencies as a consequence of insufficient food access is related to poor health. The psychosocial theoretical perspective suggests that self-awareness of being disadvantaged relative to others can lead to negative emotions provoking physiological changes and, consequently, poor health. Building on the two theoretical perspectives, the purpose of this study was to examine fruit/vegetable consumption and distress intolerance as potential links between food insecurity and poor physical health, depression, and post-traumatic stress disorder (PTSD) among homeless adults. Methods: Adults were recruited

from six-area shelters in Oklahoma City (N=566). Participants who affirmatively responded to ≥ 2 items of the 6-item USDA Food Security Scale-Short Form were categorized as food insecure. Self-rated health was dichotomized to indicate poor/fair health vs. good/very good/excellent. Depression was based on the 8-item Patient Health Questionnaire and PTSD was based on the Primary Care PTSD 4-item screener. Nutrition was based on average fruit/vegetable intake per day in the past week. Distress intolerance was based on the 15-item self-reported Distress Tolerance Scale. Covariate-adjusted logistic regression models were conducted and indirect effects were assessed using bootstrapping methods outlined by Preacher and Hayes. Results: On average participants were 44 years of age, 36% female, 57% white, 77% food insecure, and one-third experienced poor health, depression, and PTSD. In covariate-adjusted models, fruit/vegetable consumption was a non-significant mediator. Indirect effects indicated that distress intolerance partially mediated the association between food insecurity and poor health ($\beta=0.28$, [0.14, 0.46]), depression ($\beta=0.55$, [0.32, 0.79]), and PTSD ($\beta=0.38$, [0.22, 0.57]). Conclusion: The lack of access to food may lower the ability to withstand emotional distress and thereby contribute to negative health outcomes. Shelter-based interventions that reduce distress intolerance could improve physical and mental health.

Board 15

Using the Integrative Model of Behavioral Prediction to Predict Vegetable Subgroup Consumption among College Students

Senkowsji VM, Branscum PW

Purpose: Along with daily recommendations for vegetable consumption, the USDA has published weekly recommendations for five vegetable subgroups (beans and peas, starchy, red and orange, green, and other). While many studies have examined theory-based determinants of daily vegetable consumption, no study has investigated theory-based determinants for meeting these weekly recommendations. Therefore the purpose of this study was to operationalize the Integrative Model (IM) to predict each behavior among college students (n=386) attending a Southwestern University. Methods: A valid and reliable instrument evaluating vegetable subgroup consumption and IM constructs (attitudes, perceived norms, perceived behavioral control (PBC), and intentions) was distributed by a mass email, inviting students to participate in an online survey. Stepwise multiple regression models were used to predict behavioral intentions of each behavior, and logistic regression models were used to predict those who were meeting (or not meeting) vegetable subgroup recommendations. Results: Only 2.3% (n=9) of participants met all five subgroup recommendations, while 93.3% (n=360) met three or fewer subgroup recommendations. In the first model, attitudes, perceived norms, and PBC predicted 40.5 to 54.6% (Adjusted²) of the variance of intentions for each vegetable subgroup. In the second model, intentions and PBC predicted 14.2% to 44.3% of the variance for meeting vegetable subgroup recommendations. Of note, intentions were a significant predictor for all five models ($p \leq 0.002$), while PBC was only significant for the beans and peas ($p=0.002$) and starchy vegetable ($p=0.011$) models. Conclusions: Overall, the IM was found to be a useful framework for predicting the intentions of vegetable subgroup consumption and each behavior. While vegetable consumption is typically studied as a single behavior, understanding behavioral determinants for consuming defined vegetable subgroups may be more beneficial, as it provides targeted information about these foods, from which theory based interventions can be developed.

Board 16

Produce Prescriptions for Food Insecure Patients with Hypertension in Safety Net Clinics: A Clinical-Community Linkage

Joshi K, Smith S, Osborne A, Thornton A, McIntosh B, Hoch C, Hood E, Embry M, Benko M, Trapl E

Introduction: Little is known regarding the impact of produce prescriptions for hypertension (PRxHTN) within the context of hypertension visits at safety net clinics. We sought to evaluate intervention effectiveness on patient's utilization of farmers' markets (FM) and dietary change related to fruit and vegetable (FV) consumption over 2-3 months. Methods: Health Improvement Partnership – Cuyahoga worked with 3 clinics to integrate, implement, and evaluate PRxHTN, which involves blood pressure measurement, nutrition counseling, and four \$10 FM produce vouchers at each of three monthly provider visits. A validated FV survey was administered at visit 1 and 3. PRxHTN voucher use was tracked via FM redemption logs. Results: Of the 224 participants, most were female (72%), African American (97%), with a mean age of 62 years. Over half (62%) had a high school level education or below. 189 participants (84%) visited a FM at least once during the program, with 37% reporting visiting for the first time ever. Average number of FM visits was 2 (range 0-6) and average number of vouchers redeemed was 6 (range 0-12). Among the sub-sample with pre and post survey data (N=140), significant improvement in FV consumption was observed (baseline=15.5, follow-up=19.1; $p<0.001$). The majority of participants also reported that they tried new FV (79%) because of PRxHTN. Discussion: PRxHTN is a powerful and feasible model for linking safety net clinics with local FM to promote community resources and improve FV consumption among food insecure adult patients with hypertension.

Board 17

Fresh Produce for All: Results of a Community-Wide Initiative to Increase Access to Fresh Produce in Cleveland

Borawski E, Bottoms L, Taggart M, Debose N, Pike S, Joshi K, Freedman D, Trapl E

Purpose: We examined the impact of a 7-year, intentional and targeted initiative aimed at increasing access to healthy food across a large, low-income, urban community (Cleveland). Methods: Using population-level, locally collected data (e.g., Cleveland BRFSS), from prior to the initiative (2008/2009) and again in 2015, we examined changes in the numbers of farmers' markets (FM), frequency of FM visits, perceptions of quality and price of food, and consumption of fruits and vegetables (F&V), stratifying results by income to examine effectiveness of the intentional approach (i.e., targeting lowest income neighborhoods). Results: At baseline, Cleveland had 2.5 FMs per 100,000 residents, and 18.2% accepted SNAP benefits. 49% of households reported incomes of <\$25K, with over a third reporting food insecurity (cutting/skipping meals, not enough money for F&Vs); nearly a quarter were dissatisfied with quality and 66% were dissatisfied with price of food in their neighborhood. In 2015, there were 4.8 FMs per 100,000 (compared to 2.5 nationally) and 100% of the markets accepted SNAP (compared to 21% nationally). Residents reported significant increases in frequency of FM visits (i.e., 1+ times a week increased from 13.5% (CI: 11.5-15.3] to 18.4% (CI: 16.2-20.7]). These gains were more pronounced at lowest incomes levels (i.e., increase in frequent use from 6.3% to 15% for <\$15k; from 11.8 to 17.9% for those \$15-25k). Satisfaction with quality and price also significantly improved (increased from 27.1% [24.8-29.4] to 42.8% [39.9-45.6] and 9.3% [7.7-11.0] to 17.8% [15.5-20.1], respectively. Overall, there was a small but insignificant increase in fruit consumption; and nearly all change was found among those with incomes <\$25k. No significant change was found in vegetable consumption. Conclusion: Intentional, targeted approaches to increasing community-level access to F&V can be effective - you can build them, and they will come; and those most in need can benefit the most.

Board 18

Exploring Determinants of Disordered Eating Behavior and Eating Disorder Diagnosis Through a Developmental Assets Framework

Bleck J, DeBate R, Stern M

Purpose: The Developmental Assets Framework proposes a combination of internal and external assets, which serve as the building blocks to healthy development. Methods: Secondary analysis of the National Longitudinal Study of Adolescent Health was employed to assess associations between developmental assets in adolescents and subsequent disordered eating behaviors and diagnosed eating disorders in adulthood. A self-reported positive developmental assets scale was created to assess five external assets including support, encouragement, and bonding with family and neighborhood and five internal assets including self-esteem, sense of purpose, and interpersonal competence. Results: Among females, more self-reported internal assets were associated with lower levels of engagement in disordered eating behaviors (OR: 0.86, 95% CI: 0.82-0.90) and prevalence of diagnosed eating disorders (OR: 0.74, 95% CI: 0.67-0.81). While greater external assets were not associated with disordered eating behaviors, it was associated with increased prevalence of diagnosis (OR: 1.18, 95% CI: 1.06-1.32) among females. No significant associations were observed among males. Conclusion: Results provide additional evidence supporting both internal and external developmental asset based primary prevention and external focused secondary prevention with families.

Board 19

Increasing Health Equity for Latino Immigrants through a Community-Based Participatory Research Intervention

Suarez-Cano GS, Jacquez F, Vaughn L

Background: The United States Latino population, the largest minority group in the nation, experiences a higher prevalence of mental health disparities in comparison to non-Hispanic Whites. White individuals have been found to be twice as likely to receive mental health treatment compared to Latinos. Disparities in health status are in part due to differences in healthcare access, lack of health insurance, and quality of care. The almost nine million U.S. Latino immigrants face many unique challenges in accessing affordable, high quality healthcare, especially since they are not eligible for many types of health insurance coverage. Purpose: To eliminate health inequities experienced by Latino immigrants, research that engages community members in intervention development, implementation, and evaluation is necessary to ensure that health promotion efforts are culturally and contextually appropriate for the populations they are designed to serve. Method: Using a Community-Based Participatory Research (CBPR) model focused on shared-decision making between academic, Latino immigrant co-researchers, and community partners, we developed a three-session stress intervention program focused on active listening and goal setting. Latino immigrant co-researchers implemented the intervention with 113 other Latino immigrants in which 81% were undocumented, 76% had less than a high school diploma, and 81% percent was living in poverty. Pre- and post-intervention surveys were completed to evaluate the degree to which the program improved social support and ability to manage stress. Results: Results revealed that the amount of stress experienced by participants did not change; however, perceived social support and stress management skills significantly improved following the intervention.

Board 20

Institutionalization of a National Health Promotion Initiative within the American Heart Association and Local Affiliates

Muraleetharan D, Garney WR, McLeroy KR, Garcia KE

Introduction: In 2014, the Centers for Disease Control and Prevention (CDC) funded five national organizations to conduct community-based chronic disease prevention interventions. By leveraging the national organizations' members or affiliates to implement initiatives, the CDC was able to expand programming into underserved communities and capitalize on existing national and community

relationships. This presentation describes how this new program was embedded within one of the funded national organizations—the American Heart Association (AHA). Methods: To evaluate the program, the AHA subcontracted with Texas A&M University. The evaluation used scales adapted from the Levels of Institutionalization (LoIN) scale for health promotion programs. Semi-structured interviews (n=35) were conducted with organizational and program staff. Three domains (passages, routines, and niche saturation) and five different organizational subsystems (production, maintenance, supportive, adaptive, and managerial subsystems) were assessed through the interviews. Results: Previous studies show that the level of institutionalization is characterized by the extent a program is embedded within its host organization's subsystems. Interviews revealed that AHA's program went through several important passages associated with institutionalization, which indicate the extent of institutionalization. Passages included developing and putting in place program plans, setting goals, creating mechanisms of accountability, hiring program staff, and creating a new grants management system within the organization. In addition, two important cycles occurred as two cohorts of interventions were initiated (2015 and 2016). However, the program did struggle to engage key players across the organization and alternative funding streams have not been identified, which indicates niche saturation has not occurred. Findings: Ultimately, the mission of the AHA aligns closely with the goals of the new program. Therefore, elements of the initiative are likely to be sustained after grant funding ends. However, without additional funding and engagement of certain organizational leaders the program may not remain intact long-term.

Board 21

Parent Perceptions of School Breakfast

Spruance LA, Harrison C, Woolford M, Coombs C, LeBlanc H

Purpose: Participation in school breakfast has many academic and health benefits. Yet, participation remains low, particularly for low-income children and adolescents. The purpose of this study was to examine parent perceptions of school breakfast. Methods: One hundred Utah public schools were randomly selected for participation in the study. Principals were contacted and asked to forward an online survey link to parents. Parents completed the anonymous survey based on their oldest child enrolled in k-12 public school. Univariate and bivariate relationships were examined. Generalized estimating equation regression methods were used to develop a multi-level model including both district- (e.g. rural/suburban/urban, and percent quartile of Free/Reduced lunch) and individual- (e.g. typical breakfast consumption, fruit and vegetable intake, race/ethnicity, etc.) level effects. Results: Parents (n=488), representing 14 districts from the state of Utah, participated in the survey. The majority of parents reported that their child's school served breakfast (65%), but 25% did not know if their child's school served breakfast. Compared to students in elementary school, middle school students (OR=0.32) and high school students (OR=0.37) were less likely to participate in school breakfast. Parents who perceived there were benefits to school breakfast were almost ten times as likely to report their student participated in school breakfast (OR=9.99) and those who participate in the free and/or reduce lunch program were five times more likely to participate in school breakfast (OR=5.00). Conclusions: Understanding parent perceptions of school breakfast is important formative research that will help in developing programs that may increase breakfast participation. Future interventions may include a parent social marketing campaign to educate about the importance of school breakfast and the benefits of breakfast.

Board 22

Effect of Community Therapeutic Program on Empowerment for Veterans of Homelessness

Ding K, Slater M

Veterans who are homeless often rely on local transitional housing program for temporary room and board. Even though their end needs may be met during their various length of stay whether or not providing intervention could lead to more improvement in psycho social well being is yet rigorously tested. The purpose of this study is to evaluate the effectiveness of a therapeutic program modeling on mental and psychological recovery of residential homeless veterans. The core of the program is a 12-week therapy session that integrates Expressive Art Therapy method. The study utilizes a two-group experimental design with three repeated measures to investigate changes in selected clinic symptoms, mental and physical health, overall wellbeing and empowerment overtime. It involves five housing program sites in northeast Ohio and one additional site in south Ohio as control. This presentation will discuss findings from early stage of this study, from its empowerment measure before and after the therapy session in two transitional houses in northeast Ohio. The study itself is still ongoing. The Consumer Empowerment scale developed by Rogers, Chamberlin, Ellison, and Crean in 1997 is an instrument recommended by Ohio Mental Health and Addiction Service (OMHA) as a tool to assess counseling and treatment progress in mental health service in the State of Ohio. The survey has 28 items on a 4-point categorical scale. Between 2015 and early 2016, a total 103 veterans entered the two housing programs that fell into the early stage of the study, but only 39 completed both pre- and post empowerment assessment. Overall scale mean scores had a significant ($p < 0.05$) increase from 2.88 to 3.02 when Paired t-test was used. Test significance also was found in subscales of self-esteem, power-powerlessness, and community activism, but optimism and righteous anger. After consulting with literature it was found that this samples generally had a higher than average score at pre-test when compared to Ohio average. These findings suggest the therapeutic program did improve the empowerment while the effectiveness of data collection and empowerment measure presented a challenge.

Board 23

Capacity Building Assistance Evaluation with Innovative Pregnancy Prevention Programs (iTP3)

Nelon J, Garney W, Garcia K, Wilson K, Farmer J, McLeroy K

Introduction: Innovative teen pregnancy prevention (TPP) programs are needed to address disproportionately high rates of teen pregnancies among underserved youth. Disparities and program gaps in teen pregnancy are evident related to age, race, ethnicity, geography, and vulnerable populations including youth in foster care, parenting teens, and LGBTQ youth. In 2015, the Office of Adolescent Health funded the Innovative Teen Pregnancy Prevention Programs (iTP3) project to support the development of new programs addressing underserved populations. Methods: The iTP3 program uses a capacity building assistance model to assist program developers create and test new TPP programs. To measure the effectiveness of this model, researchers developed a method to track program developers' capacity and technical needs through a mixed methods approach. Data collection methods include a Capacity Building Assistance (CBA) Needs Survey and an intake interview with a corresponding observation assessment. Results: The CBA Needs Survey found that majority of program developers ($n=15$) had the highest need using program dissemination/packaging (80%), design thinking principles (73.3%), finding external resources (66.7%-78.6%), sustainability (66.7%), considering ecological changes (60%), using trauma informed care (53.3%), incorporating health equity into programs (53.3%), and sexual health related topics and rights (53.3%). Most grantees asked for capacity building assistance (CBA) to be delivered through emails or webinars and the frequency to be as requested or every other month. Interviews revealed high levels (100%) of organizational and program development capacity. However, needs were identified among program developers attempting to conduct feasibility testing on new programs. Discussion: iTP3 will utilize the findings in the survey, coupled with the CBA interviews, to develop individualized CBA work plans for each of the fifteen innovators. Ultimately, the iTP3 project team hopes that these programs will expand evidence-based programs through CBA.

Board 24

Internet Overuse as a Predictor of Traditional Bullying Victimization in the United States

Choe S, Lin HC, Seo DC

INTRODUCTION: Despite American Academy of Pediatrics' recommendation of limiting daily screen time to two hours, youth spend seven hours per day on the Internet on the average. Previous studies have suggested that time spent online displaces time spent interacting with friends offline and that social ties at school are weakened for youth who overuse the Internet. Many of these youth with weak social ties experience bullying victimization. However, the association between Internet overuse and bullying victimization remains unclear. Previous studies have also suggested obesity as a potential moderator between Internet overuse and bullying victimization, but the relationship has not been rigorously examined. **METHODS:** This study utilized the National Youth Risk Behavior Surveys 2011-2015 to evaluate the relationship between Internet overuse and traditional bullying victimization using propensity score matching to reduce selection bias, while testing obesity status as a moderator of the relationship. Propensity score estimates were used to match samples based on their probability of Internet overuse. Nearest-neighbor matching was used to generate samples with lowest total propensity score distance and balanced covariates. Logistic regression was used to test significance of variables. **RESULTS:** A total of 41,656 youth were included in the study to generate a matched sample of 16,924 individuals. Among matched individuals, 54% reported Internet overuse, 19% reported bullying victimization, and 14% were obese based on self-reported weight and height. Internet overuse (AOR=1.19, $p<0.001$) significantly predicted bullying victimization but differently by individual's obesity status (AOR=0.79, $p=0.46$). Internet overuse affected bullying victimization more seriously for youth without obesity. For obese youth, physical appearance appeared to attenuate the relation between Internet overuse and bullying victimization. **CONCLUSION:** Youth with excessive use of the Internet are more likely to be bullied at school than those with no or moderate use. Intervention designs that target bullying should consider preventing Internet overuse as a strategy to reduce bullying victimization and stratify target populations by obesity status.

Board 25

Assessing Internal Medicine Residents' and Graduate Nurse Practitioner Students' Perceived Barriers to using SBIRT in Clinical Practice

Agley J, Carlson J, Gassman RA

Purpose: The purpose of this study was to provide a preliminary assessment of internal medicine residents' and graduate nurse practitioner students' anticipated barriers to using SBIRT in their clinical practice by type and frequency. **Methods:** One hundred twenty-three students (n=79 physician, n=44 nursing) completed an SBIRT training series then completed an evaluation questionnaire designed to support curricular improvement. This study utilized data from an open-ended item eliciting anticipated barriers to utilizing SBIRT in clinical practice. Responses were coded by two researchers, and complex responses were assigned to multiple categories; inter-rater reliability (Cohen's kappa) was good to excellent for 11 profession/category pairs (>0.738) and adequate for 1 pair (0.581). Differences between groups and strength thereof were assessed using Chi Square tests and Cramer's V. **Results:** Elicited barriers for the combined sample conceptually corresponded to categories established in prior literature on this subject. Time was the most frequently-reported barrier (76.4%), followed by perceived patient characteristics (e.g., resistance to SBIRT) and provider characteristics (e.g., discomfort with the topic), each at 12.2%. Systemic barriers (e.g., belief that screening would not be supported) were less-often reported (7.3%), and some students affirmatively indicated a lack of anticipated barriers to SBIRT (7.3%). Nurse practitioner students reported that time was a barrier to SBIRT less often than did medical residents ($\chi^2=6.22$, $p=0.013$, $V=0.225$), but no other differences were observed between the groups of students. **Conclusions:** Nurse practitioner students appear more likely to believe that time

can be 'located' within a clinical encounter to address substance misuse using the SBIRT model than internal medicine residents. It is unclear whether this reflects an actual differential in patient volume during clinical practice, different levels of belief as to the importance of SBIRT, or a different construct altogether. Care should be used in interpreting these results pending experimental replication.

Board 26

Differences in Acceptability of Telehealth Services among Populations with Disabilities

Wilson JF, Kapp VA, Embree JA

Purpose: Online counseling, telepsychiatry, and other telemedical services are ubiquitous in today's health services market. Research has demonstrated that online services are enthusiastically utilized by consumers who are deaf. We conducted a survey of individuals with disabilities to assess the acceptability of telehealth services to these populations. Methods: A survey that asked about interest in telehealth services and access to computers and internet was completed by 84 vocational rehabilitation (VR) consumers with the assistance of their VR counselors in southwest Ohio. Of the participants, 35% had developmental or intellectual disabilities, 17% had mental illness, 13% had a visual disability, 13% had mobility-related disabilities, 11% were deaf/hard-of-hearing, 7% had learning disabilities, 3% had traumatic brain injury (TBI), and 1% had medically related disabilities. Results: Only 26% of the VR consumers surveyed were interested in receiving online VR services, and 74% were not; 43% had access to computers and internet, and 57% did not. When comparing disability groups, 100% of deaf individuals, 62% of individuals with mobility-related disabilities, and 40% of individuals with learning disabilities wanted online services; the other groups were not interested in receiving telehealth services (Chi-Square = 40.6, $p < .001$). Chief reasons for refusing to use telehealth services included cognitive inability (21%), dislike for computers (20%), preference for face-to-face meetings (19%), and no access to computers/internet (14%). Conclusions: This study demonstrates that telehealth services are not universally acceptable to all populations, especially those with certain disabilities. Individuals who are deaf are accustomed to using videophones, and the leap to online counseling and other telehealth services is a simple move for them. Individuals with mobility and/or transportation issues also welcome the opportunity to receive telehealth services at home. However, most individuals with disabilities are not comfortable with receiving telehealth services.

Board 27

Digital Divide and Health Disparities: A Systematic Review of National Studies on eHealth Behaviors

Hong YA, Forjuah SN, Midturi J, Ross J

Better use of eHealth resources is found to be associated with better mental health, physical health, and financial decision making. As of 2015, more than 87% of American adults have used the Internet and 91% owned a cell phone. It appears that most Americans have accessed to mobile tools and digital divide has diminished; and mobile technologies have been hailed as low-cost tools to bridge health disparities. However, recent literature suggested that the digital divide has gradually shifted from ownership of mobile tools to usage of eHealth resources; and the existing health disparities are further exacerbated by information divide. The Health Information Technology for Economic and Clinic Health (HITECH) Act, passed as part of the American Recovery and Affordable Act of 2009, allocated billions of dollars to promote eHealth. The Affordable Healthcare for America Act, passed in 2010, mandated use of electronic medical records and "meaningful use" of eHealth resources. Within the context of ubiquitous access to the Internet and cell phones and the federal regulations to promote of eHealth resources, it has become more important for individuals to master the skills of seeking health information online for decision-making, in order to have optimal health behaviors and health outcomes. To date, the debate on whether digital health divide has narrowed is still ongoing and the evidence on

the relationship of digital divide and health disparities is inconclusive. Accordingly, we conduct a systematic search on the existing literature on national surveys of eHealth behaviors and their relationship with digital health divide.

Board 28

Effects of Chronic Disease Self-Management Program on Medication Adherence among Older Adults

Lee S, Ory MG

Background: Older adults, who are more vulnerable to chronic diseases than the younger population, account for almost one-third of all medication prescribed in US. Unfortunately, medication non-adherence rates in the population remains high. While patient-physician interaction is an important determinant of medication adherence, impacts of patient education programs, which cover proper use of medication and patient communication skills, on medication adherence remains uncertain. Purpose: The purpose of this study was to examine impacts of improved patient communication skills from the Chronic Disease Self-Management Program (CDSMP) on medication adherence. Methods: Secondary data from the national CDSMP evaluation study was used for the study. The secondary data included the CDSMP participants' sociodemographic characteristics as well as their baseline and 6-months and 12-months follow-up assessments on health and health-related indicators. This study included those who were 65 years or older, having one or more chronic conditions, and attended first or second session. Ordinal logistic regression models were used to analyze the impact of improvement in patient communication skills on intentional and unintentional medication non-adherence after controlling for the baseline depression symptoms. Results: This study included 687 participants. In average, participants were 74.8 years old and had about 3 chronic conditions. Majority of the participants were females (83.4%). Self-reported medication adherence did not improve significantly at 6-months follow-up ($p\text{-val}=0.5127$) but improved significantly at 12-months follow-up assessment ($p\text{-val}=0.0200$). Improvements in a patient communication skill at 6-month follow-up had a marginally significant impact on intentional medication non-adherence at 12-month follow-up after controlling for baseline depression symptoms ($p\text{-val}=0.0550$). Conclusions: Impacts of the CDSMP on patient communication skills provided a limited explanation for the observed improvements in medication adherence. Medication non-adherence is a complex problem that is rooted on multitudes of inter-related factors. Future studies are needed to understand the underlying complexity and guide the future interventions.

Board 29

Who Is Not Using the Internet? Digital Divide among Children and Adolescents in the United States

Lu W

Background: In the past decade, a plethora of public policy and industry initiatives have been undertaken to connect Americans to the Internet. However, previous research has focused largely on adult populations, and little is known about the "digital divide" among children and adolescents. Purpose: To document socioeconomic disparities in Internet use among children and adolescents in the U.S., and investigate factors that may contribute to the digital divide. Methods: Data from the Computer and Internet Use Supplement to the Current Population Survey (CPS), July 2015 were used. For children and adolescents ages 3-18 ($N=26,788$), parents were asked questions related to computer ownership, Internet use both inside and outside the home, and reasons for not using the Internet. ANOVA was used to examine digital divide by race, household income, and geographical location. Sampling weights were adjusted in order for nationally representative data. All statistical analyses were conducted with the R, version 3.2.3. Results: In general, 14.6% of children had never used the Internet at home. Compared with the White (10.4%), more Black (20.1%) and Hispanic (22.0%) children had

never used the Internet at home. Over 30% of children from households with annual income less than 20k had never used the Internet at home, compared with 6.1% of children from households with annual income above 100k. Approximately 57% of children in New Mexico had never used the Internet at home, followed by those in Oklahoma (52.9%), South Carolina (52.7%), and Maryland (51.5%). Affordability was the most commonly reported reason for not using the Internet at home (34.4%), followed by “no need” (27.6%), “no interest” (13.3%) and “no computer” (8.5%). Conclusions: Inequalities exist in Internet use among children and adolescents in the U.S. More research and policy attention is needed to address the extensive digital divide.

Board 30

Patient Access and Navigation of Hospital Diabetes Prevention Services

Smock C

Introduction: A community health needs assessment conducted with a regional hospital system identified that patients find it difficult to navigate and access diabetes management and prevention programs. Therefore, the purpose of this study was to assess the characteristics of diabetes management and prevention programs available within the hospital system to improve access to and navigation of these programs. Methods: Using a mixed-methods approach, a program assessment was conducted to identify the diabetes management and prevention services available to patients across the hospital system. A 20-item electronic questionnaire was administered to 52 hospital directors. Semi-structured interviews were conducted with 25 hospital staff including physicians and directors. Data were collected on best practices, navigation of patients across services, entry points, perceived barriers, knowledge, and use of diabetes management and prevention programs. Results: The participants agreed that access and use of diabetes management and prevention services varied largely by patient location and disease progression. A small percentage of participants scheduled patients for disease management and prevention services compared to verbally describing services or navigating patients to hospital prevention programs. Respondents indicated a need for individualized management and prevention communication resources and increased internal communication to decrease duplication of services and departmental silos. Conclusion: Given that use of hospital diabetes management and prevention services depend largely on recommendations from the patient's first access point, awareness and perceptions of other department diabetes management and prevention services are vital to increase individual patient use and effectiveness of programs. The use of an email-based questionnaire and semi-structured interviews was effective for serving as a catalyst for further hospital collaboration.

Board 31

Improving Diabetes Self-Management through Messages Tailored to Patient Activation Levels

Dye CJ, Griffin S, Mayo R, Williams JE, Edwards K, Gimbel R

Purpose: The aim of the study, “Enhancing mHealth Technology in the PCMH Environment to Activate Chronic Care Patients” is to use mobile health technologies to improve the activation of patients with diabetes to self-manage their disease. Research supports that patient activation levels are associated with health behavior, outcomes and costs. The study hypothesis is that receipt of messages tailored to activation level and behaviors can improve activation. Methods: At scheduled times throughout the 12-month study, control (n=120) and intervention (n=120) patients complete the Patient Activation Measure (PAM), a 13-item scale designed to assess knowledge, skill, and confidence related to managing health and health care, as well as the Summary of Diabetes Self-Care Activities (SDSCA), which assesses engagement in diabetes self-management behaviors. Algorithms based on scores from the PAM and the SDSCA trigger release of tailored messages to intervention participants. Changes in PAM levels, SDSCA scores, and clinical measures such as HbA1C and BMI, are compared

between the control and intervention groups. Results: The presentation will include the rubrics for creating messages tailored to patient activation level which incorporate theoretical constructs relevant to those levels. For example, Level One messages focused on overcoming emotions of hopelessness and building acknowledgement that the patient role is important; Level Two messages addressed beliefs about valued behavioral outcomes and improved knowledge and confidence regarding behavior change; Level Three messages addressed building self-efficacy for newly initiated behaviors; and Level Four messages focused on maintenance and relapse prevention. This presentation will also describe the method for delivering the tailored messages through mobile health technologies as well as preliminary findings regarding changes in activation levels and behavior. Conclusions: Public health and healthcare systems are seeking to improve health outcomes and reduce costs. Supporting and improving patient activation for health self-management through tailored messages can help reach that goal.

Board 32

Exploring Vaccination Beliefs Among Uninsured, Latin-American Immigrant Mothers of Adolescent Daughters: A Qualitative Study

Painter JE, Viana de O. Mesquita S, Jimenez L, Avila Silva A, Petryszyn MA, Sutter C, Sutter R

Background: Uninsured Latin-American immigrant women are at increased risk for vaccine preventable diseases, such as cervical cancer; yet gaps in vaccine coverage persist. Purpose: To explore vaccine-related beliefs and decision-making among uninsured Latin-American immigrant mothers of adolescent daughters. Methods: A purposive sample of 30 low-income, uninsured, predominantly Latin-American immigrant mothers of adolescent daughters aged 13–17 were recruited from two academic-community managed health clinics in Virginia. From March–September 2016, data were collected through in-person, semi-structured interviews, in English or Spanish. NVivo software was used to code and identify themes within the data. Results: The majority of participants self-identified as Hispanic, had less than a high-school level education, were unemployed, and recently immigrated to the United States. Many participants indicated that their daughters received immunizations upon immigration to the United States, but did not know which diseases the vaccines protected against. In preliminary analyses, common themes included: 1) general acceptance of vaccines if sufficient information was available, 2) importance of provider's opinion about vaccines, 3) dissatisfaction when a large number of vaccines were given at once, and 4) lack of insurance as a barrier to vaccine access. Conclusions: Findings reveal general acceptance of adolescent vaccines, including the HPV vaccine, among this under-resourced, uninsured, Latin-American immigrant population. Notably, despite favorable attitudes toward vaccination, participants' understanding of their daughters' immunization history following immigration to the United States was limited. Findings highlight the need for efforts to help immigrants better understand vaccines administered upon immigration, and provide linkages to additional CDC-recommended vaccines (e.g., the HPV vaccine).

Board 33

Health Literacy Pedagogy: A Systematic Literature Review

Dawkins-Moultin L, McKyer L, McDonald A

Background: In response to recommendations to provide health professionals with health literacy (HL) training, some institutions are implementing HL courses; however, data on the quality of these courses are limited. The purpose of this systematic literature review was to assess the quality of published research that focused on HL pedagogy. Methods: We searched electronic databases and reference lists to identify studies published in English between January 2000 and April 2016 that described HL training for students or practitioners. Quantitative studies were appraised using the Medical Education Research Study Quality Instrument (MERSQI). MERSQI has six domains, each contributing 3 points to

the total score. Qualitative studies were appraised using Critical Appraisal Skills Programme (CASP) Qualitative Research Checklist. Results: Identified studies (n=25) varied widely in design and reporting. The highest possible rating a study could receive on the MERSQI scale was 18. The MERSQI score for the quantitative studies (n=23) ranged from 5 to 16 ($\bar{X} = 9.3$; $s = 2.82$). Three studies were rated excellent, 17 fair to good, and three were poor. Overall, quantitative studies performed best in the data analysis domain ($\bar{X} = 2.65$) and worst in evaluation of instrument validity domain ($\bar{X} = 0.39$). Qualitative studies (n=2) were relevant, but weak in trustworthiness. Conclusion: There is need to develop minimum standards or guidelines for conducting and reporting research on HL pedagogy. Effort should also be focused on developing valid tools for measuring HL competence of health professionals.

Board 34

Qualitative Investigation of Vaccine Decision-Making Among Mother-Daughter Dyads in an Uninsured Immigrant Population

Viana de O. Mesquita S, Painter JE, Jimenez L, Silva AA, Petruszyn MA, Sutter CJ, Sutter R

Background: Uninsured Latin-American immigrant adolescents are at risk for vaccine-preventable diseases, including HPV. However, coverage for adolescent vaccines, particularly the HPV vaccine, remains sub-optimal among this population. The role that mother-daughter decision-making plays in vaccine uptake among this population remains unclear. Understanding factors salient to adolescent females and their female caregivers regarding vaccine decision-making is critical to enhance vaccine uptake. Purpose: To explore vaccine decision-making among uninsured Latin-American immigrant adolescent females and their primary female caregivers. Methods: Eight uninsured adolescent-caregiver dyads were recruited from two academic-community managed health clinics in Virginia. Data were collected through semi-structured in-person interviews, in English or Spanish. Adolescent and caregiver interviews were conducted simultaneously, but separately, to allow for privacy and confidentiality. Efforts were made to ensure that neither the adolescents nor their caregivers could overhear the others' responses. Data collection ceased when no new insight was forthcoming (theoretical saturation was reached). NVivo software was used to code and identify themes within the data. Results: Preliminary results show similar attitudes among adolescent-caregiver dyads regarding vaccines. In general, participants associated the word vaccine with "protection" or "prevention". The majority reported having good past experiences and expressed future interest in vaccines, including the HPV vaccine. Knowledge about specific adolescent vaccines among dyads was variable. In some cases, caregivers knew more about adolescent vaccines and the diseases they protect against; in other cases, knowledge among adolescents and caregivers was similar. There was general concordance among caregivers and adolescents regarding the vaccine decision-making process; caregivers were the main decision-makers. Conclusions: Results demonstrate that adolescent-caregiver dyads had similarly favorable attitudes toward vaccines. Both adolescents and caregivers indicated that caregivers are the primary decision-makers. Increasing vaccine-related knowledge among adolescent-caregiver dyads is critical. Interventions to increase adolescent vaccination among this population should heavily focus on caregivers.

Board 35

Assessing Functional Health Literacy Among Native-Chinese in the US with Limited English Proficiency

Chen X, McKyer L

Purpose: Over 21% populations in the US do not speak English at home. Among these, many have limited English proficiency (LEP). Language barriers compound problems linked to low health literacy for LEP populations, which contributes toward health disparities. Research literature reveal few health literacy instruments target LEP populations. For our study, we aim to disentangle Health Literacy (HL)

construct by distinguishing language barriers (English proficiency) from functional health literacy. Methods: Cross-sectional design was used to assess native-Chinese speakers with LEP (N=405). All completed the English-TOFHLA first, then the Chinese-TOFHLA. Both contain 36 reading comprehension and 4 numeracy items. Descriptive analyses were performed to assess participants' HL levels. We applied Item Response Theory (IRT) to examine psychometric properties of the instruments. Results: Participants (158 male, 247 female) mean age was 51.7 years (SD=19.31). 50.6% had annual income <\$12,000. Both TOFHL versions exhibited good score reliability ($\alpha_{\text{English}}=0.992$, $\alpha_{\text{Chinese}}=0.835$). With the English-TOFHLA, 36.8% of participants scored as inadequate or marginal HL; Chinese-TOFHLA = 4.2% inadequate or marginal HL. However, item discrimination and difficulty parameters under the two-parameter model (2PL IRT) model of English-TOFHLA were much larger than the Chinese-TOFHLA. Unidimensionality assumption was violated for the English-TOFHLA but not for the Chinese-TOFHLA, and 19 poor fit items from the English-TOFHLA, indicating it was not a precise measure of health literacy in our LEP sample. Conclusions: Differences in classification (marginal HL) between English and Chinese versions suggest language barrier contributes to low health literacy scores among LEP populations, despite good functional literacy in their native language (per low item discrimination and difficulty patterns using Chinese-TOFHLA HL). Research on low health literacy factors among LEP populations must differentiate English proficiency from functional health literacy in people's native language. Instrumentation issues must be clarified for research and practice.

Board 36

Dental Providers' Perceived Barriers and Facilitators for Addressing HPV and Oropharyngeal Cancer Prevention with Patients

Thompson EL, Vamos CA, Vazquez-Otero C, Griner SB, Merrell LK, Kline NS, Daley EM

Introduction: Dental providers, such as dentists and dental hygienists, play an important role in HPV-related oropharyngeal cancer prevention. Dental professional organizations recommend providers educate their patients about HPV and oropharyngeal cancers. This study assessed dentists and dental hygienists' perceived barriers and facilitators for HPV-related oropharyngeal cancer prevention with patients. Methods: Dentists (n=37) and dental hygienists (n=166) attending a professional conference completed a continuing education pre-/post-test survey. The survey included socio-demographic questions (i.e., age, gender, provider type, practice type), as well as facilitators and barriers to HPV-related oropharyngeal cancer education with patients. Chi-square tests were used to compare each barrier and facilitator by provider type. A p-value of 0.05 was considered statistically significant. Results: Among dentists, 54% were female and the mean age was 47.8 (SD 13.4) years. Among dental hygienists, 99% were female and the mean age was 40.4 (SD 10.7) years. The barrier for HPV communication identified by most dentists was lack of privacy (54%), while fear of offending patients (59%) was more common among dental hygienists. Dentists' perceived facilitators for HPV communication were continuing education in journals (95%) and waiting room pamphlets (89%). Dental hygienists also identified both factors, 84% and 90%, respectively, as primary facilitators. No significant differences between profession type were identified for these primary factors. Conclusion: Given the recommendation for dental providers to discuss HPV prevention with their patients, additional education and training on this emerging topic may benefit these professionals. Barriers identified by dental providers point to the patient-provider relationship, particularly concerns when talking with their patients about sensitive topics, including HPV prevention. Integrating dentists and dental hygienists' preferred tools for HPV prevention communication, such as continuing education and pamphlets, can assist these providers in tailored communication to their patients regarding HPV prevention. Moreover, addressing these system-level barriers in education opportunities should be considered.

Board 37

Content and Usability Evaluation of HPV Vaccine Online Educational Interventions for Clinicians

Rosen BL, Kreps G, Shepard A

Purpose. Despite ample evidence that the three licensed (HPV) vaccines are safe and effective, with the potential to prevent most cancers of the cervix, anus, vagina, vulva, and penis, only 42% and 28% of adolescent females and males, respectively, have completed the three-dose series. Missed clinical opportunities for clinicians to recommend and administer the vaccine is cited as the main cause of low HPV vaccination rates. To counter missed clinical opportunities several organizations have developed HPV vaccine online educational interventions for clinicians. However, there is limited information and evaluations for these interventions. Therefore, this study identifies and evaluates HPV vaccine online educational interventions for clinicians. **Methods.** Current HPV vaccine online educational interventions were identified from search engines (Google), continuing medical education search engines, health department websites, and professional organization websites. Interventions' content and usability were evaluated on six key indicators: access, content, design, evaluation, interactivity, and theory/models. These indicators were developed based on the leading literature in online content evaluation. **Results.** A total of 33 interventions were identified. Based on the evaluation indicators, 60.6% (n = 20) were webinars, 9.1% (n = 3) were videos/lectures, and 30.3% (n=10) were other (e.g., toolkit, PowerPoint, website modules). All educational interventions had identified the purpose of the intervention. Twenty-nine of the interventions provided the date that the information had been updated, and only two had been updated within the last six months. Of the 33 interventions, 14 (42.2%) provided the users/participants the opportunity to evaluate or provide feedback. No educational intervention explicitly stated a theory or model that was used to develop the intervention. **Conclusion.** This analysis provides a clear, evidence-based assessment of the strengths and weaknesses of current HPV vaccine online educational interventions and suggests best practices for designing and implementing online programs to promote HPV vaccination.

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Disclosure to Medical Providers as a Barrier to Maximizing Sexual Health Outcomes for Men Who Have Sex Men Residing in Rural Areas of the United States

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Purpose: Sexual health programming is underdeveloped in rural areas of the United States. Research is required to assess how culture impacts HIV screening and engagement in sexual healthcare, specifically among vulnerable populations (e.g., MSM). This study sought to evaluate this interplay by assessing if there was a difference in disclosure of sexual orientation/behavior patterns to members of social and sexual networks and informing a medical provider about sexual orientation/behaviors. **Method:** A total of 212 cisgender MSM residing in rural areas of a south-central state were recruited from multiple venues to complete a comprehensive online questionnaire. Participants identified their HIV serostatus (positive, negative, or unknown), sexual behaviors, disclosure of sexual orientation and behaviors, and completed various mental health assessments and information about prior mental and physical health diagnoses. **Results:** When controlling for age and pre-existing conditions, individuals who disclosed their sexual orientation less to members of their social and sexual networks (OR = 0.80 [0.65, 0.97], p = .023) were less likely to inform their providers of their sexual orientation and/or behaviors based on the model ($\chi^2(2) = 10.62, p = .005$). Hosmer and Lemeshow test demonstrated the model fit the data ($\chi^2(8) = 7.80, p = .46$). **Conclusion:** Geographic isolation limits access to health and social service providers that support sexual health for rural MSM. Results indicate that MSM residing in a mostly rural area are less likely to disclose their sexual orientation/behaviors, less likely to seek out HIV testing, and have a greater prevalence of mental health concerns. Failure to disclose to medical providers was related to perceptions of rejection due to sexual orientation. There is an evident need for interventions to enhance patient-provider communication, specifically to encourage providers to engage their clients/patients in conversations about sexual health.

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Lessons Learned from the “Done in a Day Research Mob”: Process Evaluation of a Brief and Rapid Community-Based Participatory Research Project

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Purpose: Community-based participatory research (CBPR) projects foster community-academic partnerships and facilitate agenda setting by stakeholders. Given that researchers often control dissemination that is focused on generating publications for peer review, community partners’ opportunities for timely access to relevant findings might be limited. Methods: Public health researchers conceived the “Done in a Day Research Mob” to engage community members in a rapidly conducted and disseminated research project. Nineteen community volunteers, students, and interested others residing in a metropolitan area were recruited through flyers, electronic communications and word of mouth. Two university faculty conducted a process evaluation while participant observers. Given the research topic—assessing latex condom access in diverse neighborhoods—the volunteer researchers designed an observational checklist and conducted fieldwork in ten urban neighborhoods. A report summarizing the participant findings was written and disseminated via social media on the same day. Evaluators gathered pre- and post-event participant data via interviews and written comments, and audio recorded and transcribed group sessions. Data were analyzed with Quirkos software. Results: Most participant responses were coded into the categories: apprehension; learnings; other potential uses for mobs. Participants described their initial insecurities about participating in live research, reported that they gained a great deal of knowledge about research design and the topic of interest, and listed other topics to explore with the approach. Most participants identified interaction with others as a highlight of their experience. Conclusions: Participants generally described their experience as positive and identified value in “Research Mobs.” Although the project was proposed as market research and therefore not submitted to an institutional review board, participants described to evaluators frequent informal attempts to gather data, including condom use knowledge, from retail employees and customers. While “Research Mobs” might have potential for CBPR, the emergent nature of this process has potential ethical repercussions.

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Barriers to Providing Comprehensive Contraceptive Counseling to Previously Pregnant Latina Adolescents: Perspectives from Health Care Providers located in the Midwest

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Background: Despite dramatic declines in teen pregnancy and birth rates, U.S rates remain higher than other comparable countries and disparities both geographic and racial/ethnic persist.¹ Moreover, nearly 1 in 5 teen births are repeat births (RB) and Latina teens, when compared to their white counterparts, are 1.5 times more likely to experience a RB.² Four contraceptive behaviors including nonuse, inaccurate, inconsistent or gaps in contraception coverage underlie the high prevalence of unintended pregnancies and RBs. Providing at-risk teen’s contraceptive counseling that addresses these risky contraceptive behaviors in a comprehensive way is key for preventing RBs. Health Care Providers (HCPs) can play a critical role in reducing RB-risk by offering teens who have experienced a previous pregnancy comprehensive contraceptive counseling during clinic visits. This study sought to identify perceived barriers to providing comprehensive contraceptive counseling to Latina teens with a pregnancy history among HCPs who are geographically located in the Midwest. Methods: Midwestern HCPs (N=10) were interviewed using semi-structured interview techniques. Qualitative data was content analysis and key themes were extracted. NVivo 11 software was used to analyze data. Results: Prevailing themes included: 1) structural-level barriers including time and need for structured HCP trainings; 2) counseling is complicated by relationship influences on teen’s contraceptive use; 3) need for understanding cultural beliefs about and values associated with childbearing; 4) considering how to

encourage parental involvement while maintaining teen confidentiality. Conclusions: Providing comprehensive contraceptive counseling to Latina teens with a pregnancy history has great potential as a strategy to reduce RBs. HCPs can play an important role, but study findings suggests that barriers including structural-level barriers, addressing teen's skills for negotiating condom use with partner, determining how best to ensure cultural awareness at the clinic-level, and understanding how best to involve the teen's parent require attention.