

FIU

Robert Stempel College
of Public Health
& Social Work

SECOND ANNUAL

RESEARCH DAY 20 20

Join us for a showcase of Stempel College students' efforts and engagement in research

9 AM - 11 AM **Oral Presentations**

Complimentary breakfast served

11 AM - 1 PM **Poster Presentations**

Complimentary lunch served

EVENT DETAILS:

Friday, February 14, 2020

9:00 a.m. to 1 p.m.

CBC Room #232

RSVP @ GO.FIU.EDU/STEMPELRESEARCHDAY2020

Stempel College Research Day Agenda

Date: Friday, February 14, 2020

Time: 8:30 a.m. to 1:00 p.m.

Location: MMC Campus, College of Business Complex (CBC), room 232

8:30 a.m.	Check-in/Registration and Breakfast, CBC 232
9:00 a.m.	Welcome Remarks
9:15 a.m.	Oral Presentation Session I
10:30 a.m.	Oral Presentation Session II
11:45 a.m.	Poster Presentations Begin
Noon	Announcement of Winners & Lunch
1:00 p.m.	End of Program

Oral Presentations Session I

Presenter: Cristina M. Andrade-Feraud, Ph.D. student in Public Health –Environmental Toxicology

Title: *Individualized Treatments for Children with Relapsed/Refractory Cancers by Ex Vivo Drug Screening and Mutation Profiling*

Additional Authors: Arlet Acanda De La Rocha, Vanessa Berrios, Daria Salyakina, Cima Saghira, Maggie Fader, Ileana Soto, Michelin Janvier, Ziad Khatib, Haneen Abdela, Tomas R. Guilarte and Diana J. Azzam

Poster Description: Pediatric cancers are rare and fundamentally different from adults which, as a result, limit the development and availability of therapeutic formulations leading pharmaceutical companies to have little interest in developing new drugs for pediatric use. We proposed to address these problems by developing a personalized approach for individual patients, selecting drugs from a library of clinically approved compounds to offer children the safest possible chance of achieving remission and ultimately cure of their disease.

Research Abstract: Objectives: The goal of the study was to evaluate feasibility of personalized treatment options based on ex vivo drug screening and genetic testing for pediatric patients with recurrent and/or refractory cancers. Background: Pediatric cancers are fundamentally different from adults with lower frequency of genetic mutations and fewer options for targeted therapies. Pediatric cancers are rare and, as a result, limit the development and availability of therapeutic formulations leading pharmaceutical companies to have little interest in developing new drugs for pediatric use. In addition, relatively few known driver mutations present at diagnosis are addressed by currently available targeted therapies. Despite increased efforts in whole genome screening of pediatric cancers, much work remains to be done in characterizing germline and somatic mutations with matching drugs and appropriate targeted treatment. We proposed to address these problems by developing a personalized approach for individual patients, selecting drugs from a library of clinically approved compounds to offer children the safest possible chance of achieving remission and ultimately cure of their disease. Methods: A functional drug screening test (DST) panel included 40 formulary drugs frequently used at Nicklaus Children's hospital, 47 non-formulary drugs approved by FDA for cancer treatment, and drugs from phase III and IV clinical trials. Drug sensitivity score (DSS) was calculated for each drug based on cancer cells' response. DST results were then combined with genetic results to identify novel drugs for treatment. Results: In this pilot study, to date, eight patients with recurrent cancers have been enrolled. Fresh tumor samples from seven patients with ex vivo DST returned between 10 - 30 treatments options for each patient. With these results, three patients were treated on DST-guided protocols and two have showed complete objective response, so far. Conclusion: DST provided valuable information to the oncologists on drug dosing and treatments that may not be effective and should be avoided. Thus, ex vivo DST, is a promising strategy to provide novel treatment options for patients with refractory/recurrent cancers with no alternative options.

Presenter: Priscilla Clayton, Ph.D. student in Dietetics and Nutrition

Title: *Identifying Predictors of Parents and Children's Participation and Barriers in Randomized Clinical Trials.*

Additional Authors: Dr. Cristina Palacios

Poster Description: The presentation will discuss factors that influence children and parent's participation in randomized clinical trials.

Research Abstract: Background: Randomized controlled trials are considered the gold standard to assess the efficacy and effectiveness of health care and dietary interventions; however, challenges with recruitment and retention of participants can be detrimental to the validity and generalizability of the study. Children and

adolescents play a role in the decision to participate, although parents are the primary decision makers. Exploring children and parent's knowledge, attitudes, and perceptions towards research can help to understand factors that influence participation and retention. Objective: To identify predictors of recruitment and retention in RCTs involving both parents and children to assist in the implementation of recruitment and retention strategies. Methods: A systematic review of RCTs was conducted to explore the available evidence to compose a qualitative meta-summary. Studies were identified from 3 databases and restricted only to English language publications. Data reporting participants' predictors and barriers of recruitment and retention in RCTs involving children and adolescents aged 0 to 21 were identified. Year of publication ranged from 2006 to 2019. Studies not including children and studies not involving participant feedback were excluded. Results: 53 records were identified; 32 were excluded do to exclusion of child and/or parent feedback, therefore 21 studies were included. Several themes were identified between parents and children that mentioned predictors: personal health benefit, altruism, trust in the research, contact with staff, benefit for parents themselves, benefit for the community, minimal risk to the child, monetary benefits, felt as only option, influence by family and friends, recommendation from physician, and increase in knowledge. Barriers mentioned were: felt as the 'guinea pig', burden for child, decision too stressful, fear of randomization, no direct benefit, and time and financial constraints. The most common themes identified in several of the studies were personal health benefit, risk to the child, altruism, time constraint, and no direct benefit. Conclusions: Important predictors of recruitment and retention in RCTs are children personal health benefits and risks, altruism, time constraint, and no direct benefit. Funding Sources: NIH.

Presenter: Semiu Gbadamosi, Ph.D. student in Public Health- Epidemiology

Title: *Distribution and temporal trend in time from HIV infection to diagnosis among MSM: evidence from a systematic review*

Additional Authors: Diana M. Sheehan, Rahel Dawit, Rime Jebai, Mary Jo Trepka

Research Abstract: The HIV epidemic disproportionately affects men who have sex with men (MSM). As such, characterizing the time from infection to HIV diagnosis in this population is crucial to assess transmission risk potential and the effect of HIV testing practices in recent decades. Thus, the objective of the study was to examine the distribution and temporal trend in time from HIV infection to diagnosis for MSM using a systematic review of the literature. Following PRISMA guidelines, two authors independently searched MEDLINE and Embase without geographic or date restrictions, and bibliographies of included citations. Authors utilized a combination of keywords and Medical Subject Heading terms for the search. Eligibility criteria for inclusion were met if the study investigated MSM with HIV, reported any measure on time from HIV infection to diagnosis, and was published in English in a peer-reviewed journal. Data on study setting, modeling techniques, and measures of time from HIV infection to diagnosis were extracted. Subsequently, a narrative synthesis and pooled mean analysis with equal weighting of eligible studies were done. The search identified 1651 unduplicated citations. After screening titles and abstracts, 146 of 1651 were included for full-text review; nine articles were eligible for inclusion in the study. All eligible studies were conducted in high-income countries: United Kingdom (n=3), United States (n=2), France (n=2), Australia (n=1) and the Netherlands (n=1). While earlier studies utilized the CD4-staged back-calculation modeling technique (n=6), recent studies used the CD4-depletion model (n=3). Overall, the mean time from HIV infection to diagnosis for MSM was 4.2 years. Before the advent of antiretroviral therapy in 1996, mean time from HIV infection to diagnosis was 7.8 years (range: 5.6-11.6 years). The mean times in subsequent cohorts were: 2000-2006 (mean: 4.2 years, range: 2.3-6.2 years); 2007-2011 (mean: 3.3 years, range: 0.9-5.0 years); and 2012-2015 (mean: 3.2 years, range: 2.7-3.7 years). In high-income countries, MSM live with undiagnosed HIV for approximately 3 years. Decreases in mean time from HIV infection to diagnosis for MSM over time were observed. Findings highlight need for targeted initiatives to increase routine HIV testing in this population.

Presenter: Juan Morales, Ph.D. student in Public Health – Environmental Toxicology

Title: *Assessment of remediation of arsenic from water through measuring environmental stressor transcriptomic gene signatures.*

Additional Authors: Leonel Lagos Ph. D., Alok Deoraj Ph. D., Quentin Felty Ph. D., Deodutta Roy Ph. D.

Poster Description: Nrf1 molecular signatures are sets of genes that can be used as markers for a particular exposure phenotype. Here, we propose to use a predictive identification of sensitive responses in zebrafish which is a valuable insight into the cell and the mechanisms of human disease. Arsenic is a contaminant that is known to be toxic in low concentrations and is distributed among many sources of fresh water in the US. Failing to be detected, low levels of arsenic are detrimental to the environment and human health. This technology applies transcriptomic technology to test arsenic remediation because of its sensitivity and allows for comprehensive examination of epigenomic molecular changes that hyperaccumulate in low levels of arsenic. In conclusion, this analysis proposes to augment current environmental risk assessment application with plans to reveal a better future maintained by regulatory agencies.

Research Abstract: Nuclear respiratory factor 1 (nrf1) is an environmental stressor gene, when exposed acutely by numerous environmental agents, such as temperature, physical activity, diet and accumulated metals it activates and regulates cellular functions. Molecular indices to measure Arsenic (As) in surface waters are currently unavailable. Here, we use the zebrafish which is a known sentinel for biomonitoring of aquatic environments. The objective in this study was to investigate nrf1 transcription factor and its signature genes to identify orthologue signature gene networks which may be involved in the initiation and progression of cellular processes. To identify the common nrf1 targets, we analyzed the ChIP-seq dataset from ENCODE. We then used bioinformatics and functional genomics to determine (As- nrf1) significant target genes comparing the treatment effects of low concentrations 15 (ppm) [As (V)] in liver hepatocytes while characterizing the cellular processes across 4 periods (8, 24, 48 and 96 h) of treatment time. The transcriptomic dataset of GSE3048 of 12 As treated and 12 control zebrafish samples was processed for normalization. A parametric test, (p-value <0.05) between treated and control samples was used to determine differential expressed genes (DEGs) using the Benjamin-Hochberg False Discovery Rate (FDR). Dysregulated nrf1 targets were determined based on a criterion of 2-fold change. During 8-96 h, we discovered 236 upregulated and 336 downregulated nrf1 targets in As treated zebrafish. Furthermore, 8 h revealed 30 up and 72 down-regulated genes. A reduced number of downregulated genes were identified at 24 h, 60 up and 6 downregulated genes. Relatively equal number up and down regulated genes occurred at 48 h with 57 up and 62 downregulated. Broadly, we found genes at 96 h most dysregulated compared to previous times including 89 up and 196 genes downregulated. Using the functional gene ontology (GO) and (KEGG) pathways using DAVID pipeline, revealed that 72.6 % of the upregulated and 69.7% of the downregulated nrf1 target genes matched DAVID enrichment process. The most significant upregulated GO terms across 8-96 h included metabolic processing p value (2.3E-4), cellular processing p value (9.5E-3) and developmental processing p value (9.5E-2). Using KEGG, nrf1 targets play a key role in cell cycle, RNA transport, p53 signaling and glycerophospholipid biosynthesis. Our results show that the altered transcriptome responds to arsenic treatment in a sensitive manner. This provides a molecular approach to supplement traditional analytical measurements detailing a comprehensive pathway framework to monitor As in surface waters.

Presenter: Justina S. Owusu, Ph.D. student in Dietetics and Nutrition

Title: *Effect of 4000 IU vitamin D3 supplements on Advanced Glycation End Products (AGEs) among adults with Type 2 Diabetes and hypovitaminosis D*

Additional Authors: Huffman, Fatma, Liuzzi, Juan, Li, Tan, and Narayanan, Vijaya

Poster Description: People with type 2 diabetes (T2D) are prone to many complications. We assessed the effect of 4000 IU of daily vitamin D supplements on Advanced Glycation End Products, a marker of T2D complications. Our study found that vitamin D supplements decreased the levels of Advanced Glycation End Products at 6 months but not 3 months. Regular monitoring of vitamin D status among this population may be ideal in reducing complications related to T2D.

Research Abstract: Diabetes related complications include kidney, eye, heart diseases and amputations. Advanced Glycation End Products, (AGEs) are biomarkers of T2D. AGEs are covalent adducts formed from reactions between sugars and proteins or lipids. Vitamin D deficiency, prevalent with T2D, increases oxidative stress and inflammation that promotes the formation of AGEs. We assessed changes in serum AGEs of 41 African Americans and Hispanics with T2D and hypovitaminosis D who were supplemented with 4000 IU of vitamin D3 for 6 months. Total AGEs were assessed using commercially available kits (Biotang Inc. /TSZ Elisa, Waltham, MA, USA). The mean age of study participants was $54 \hat{\pm} 8$ years. AGEs significantly increased at 3 months compared to baseline (Mean Difference = -13.70 ng/ml, $p = 0.007$). The mean level of AGEs decreased significantly at 6 months of supplementation (Mean Difference = 9.79 ng/ml, $p = 0.020$). Additionally, the mean serum levels of AGEs were significantly higher at 3 months compared to 6 months among study participants (Mean Difference = 24.52 ng/ml, $p < 0.0001$). Daily supplementation of 4000 IU vitamin D3 reduced AGEs at 6 months but not at 3 months. Supplementation of this minority population with vitamin D may delay the accumulation of AGEs and complications related to T2D.

Oral Presentations Session II

Presenter: Rumi Agarwal, Ph.D. student in Public Health – Health Promotion & Disease Prevention (HPDP)

Title: *Evaluating a postsecondary education program for students with intellectual disabilities: Leveraging the parent perspective*

Additional Authors: Laura Heron & Dr. Shanna L. Burke

Poster Description: Postsecondary education (PSE) programs for students with intellectual disability (ID) should conduct ongoing evaluations of program activities and their impact to ensure continuous improvement. It is essential that parents of students with ID are included in these evaluation efforts, as parents are important in guiding the future direction of their adult child with ID. This study involved a qualitative analysis of 58 parent interviews. While areas for program improvement were identified, parents also identified several aspects of the PSE program which contributed towards observed growth in students related to employment, academic achievement, independent living, and communication, socialization, and overall development.

Research Abstract: Research Objective: To evaluate a postsecondary education (PSE) program serving students with intellectual disabilities (ID) from the perspective of parents. Specifically, this study aimed to explore changes parents noticed in their student while enrolled in a PSE program, and identified the most useful program components and those in need of improvement. Background: PSE programs serving students with ID aim to improve life outcomes by increasing skills in three key areas: academics, independent living, and employment. To ensure that PSE programs are successful, ongoing evaluations are necessary. It is particularly important to gather parental perspectives given the integral role they play with regard to decision-making for (and with) adult students with ID. Method: Structured interviews were conducted over two academic years with parents whose child was enrolled in FIU Embrace. Data from 58 interviews were analyzed deductively guided by the COM-B framework. The qualitative analysis was undertaken by three reviewers to ensure triangulation and to limit bias. Results: Themes related to the main constructs of capability, opportunity, motivation, and behavior (COM-B) emerged. Parents indicated that students demonstrated improved capability as a result of specific programmatic components, such as support from mentors and program staff, independent living workshops, and internship opportunities. Themes related to opportunity, defined as factors outside of the PSE program which may have contributed to student changes, included parent attitudes and expectations, immersion within a large university campus, and community outreach activities. Findings also indicated that student motivation was influenced by interaction with neurotypical peers and peers with disabilities, and programmatic efforts to identify individualized goals, which encouraged students to stay on track. Ultimately, parents expressed that these factors contributed to student improvements and growth in the areas of employment, academic achievement, independent living, and communication, socialization, and overall development. Recommendations for program improvements included the need for money management workshops. Conclusion: Evaluation of PSE programs is essential to ensure continuous improvement of existing programs and the development of new ones. Parents must be given a voice in the ongoing improvement of these programs, as they are influential caregivers whose decisions influence life outcomes for the student with ID.

Presenter: Mohammad Ebrahimi Kalan, Ph.D. student in Public Health- Epidemiology

Title: *Natural Course of Nicotine Dependence Among Adolescent Waterpipe And Cigarette Smokers*

Additional Authors: Mohammad Ebrahimi Kalan, M.S., Raed Behaleh, Ph.D., Joseph R. DiFranza, M.D., Zoran Bursac, Ph.D., Ziyad Ben Taleb, Ph.D., Malak Tleis, Ph.D., Taghrid Asfar, M.D., Rima Akashi, Ph.D., Kenneth D Ward, Ph.D., Thomas Eissenberg, Ph.D., Wasim Maziak, M.D., Ph.D.

Poster Description: In this study, for the first time, we are showing that hookah's (aka Waterpipe) configuration, smoking patterns (long intermittent sessions) and setting (e.g. cafes and social environment) can result in a unique trajectory of nicotine dependence symptoms compared to cigarette smoking among adolescents.

Research Abstract: Purpose: Waterpipe (WP) smoking patterns and setting can result in a unique trajectory of nicotine dependence (ND) compared to cigarette smoking. This longitudinal study compared the development of ND symptoms among adolescent WP and cigarette smokers. Methods: A cohort of 647 8th-and-9th-graders in Lebanon were followed over 5 years. This study is based on 283 current-exclusive-WP and 146 current-exclusive-cigarette smokers. Kaplan-Meier survival analyses were conducted to evaluate 50% cumulative probability for the development of initial Hooked-on-Nicotine-Checklist (HONC) symptoms and the International-Classification-of-Diseases, 10th revision (ICD-10) ND. Results: An initial HONC symptom was endorsed by 59% of WP and 50% of cigarette smokers after smoking onset. Among those, 50% of both WP and cigarette smokers did so within 9.7 and 18.5 months, respectively. Approximately 28% of WP smokers and 22% of cigarette smokers developed ICD10 ND. Among those, 50% of both WP and cigarette smokers did so within 15 and 22 months, respectively. The most common 1st-4th-ICD10 criteria reported by WP smokers were a strong desire to use tobacco, difficulties in controlling tobacco-taking behavior, neglect of alternative pleasure, and use despite harm. The most common 1st-4th-ICD10 criteria reported by cigarette smokers were a strong desire to use tobacco, difficulties in controlling tobacco-taking behavior, withdrawal and tolerance. Conclusions: Compared to adolescent cigarette smokers, initial ND symptoms and ICD10 ND can develop sooner after starting to smoke and progress more rapidly among adolescent WP smokers. Developing, implementing, and evaluating intervention programs with adolescent WP smokers should be guided by the WP-specific trajectory of ND.

Presenter: Shaina Johnson, Ph.D. student in Public Health- Health Disparities

Title: *"Women, whores, and witches:" An Archival Research Study on Sex Work, Sexually Transmitted Diseases, and Public Health in the Late 20th Century*

Additional Authors: William W. Darrow

Poster Description: This will be a presentation discussing results from an archival research study which took place during fall 2019. The presentation will begin with a brief overview of archival research and how students can use archival research to further their research objectives. It will also include a historical discussion of sex work within the public health context, how blame can undermine HIV/STD prevention efforts, and lessons learned to inform future public health action and policy. Lastly, participants will have an opportunity to view an exhibit of select archival documents, ask questions, and discuss certain ethical aspects of public health authority.

Research Abstract: Background: Drawing on qualitative analysis of selected historical documents, this archival research study sought to chronicle the characterization of sex workers during the 1970s and 1980s within the historical context of public health and sexually transmitted disease (STD) control and treatment. It aimed to raise awareness regarding the value of archival research, specifically, how tangible examples of past public health successes and failures can inform research and practice in contemporary society. The ultimate goal

of the archival project was to answer the following research questions: 1) how has society's overall characterization of sex work and sex workers changed over time?, 2) what roles, if any, have sex workers played in the spread of STDs? And 3) what have been sex workers' responses to the police power of public health? Methods: An open coding method (as part of a grounded theory approach) was used to examine documents pertaining to the subject of sex work and STD/AIDS risks. Over 400 documents, spanning a 55-year period were analyzed. The documents included data tables/graphs, agency memos, newspaper articles, personal letters, journal articles, and manuscripts. Emergent themes were further explored through unstructured interviews with a prominent medical sociologist familiar with the time period and research topic. Results: Four major themes emerged as a result of the study: 1) sex workers as victims of circumstances, 2) typologies of sex workers and risks, 3) sex workers as scapegoats for the transmission of STDs/AIDS, and 4) the political and public health repression of sex work. Within these themes, the investigator came across several sub-themes like resiliency, stigma, violence, and the syndemic of substance use and AIDS/STD risk. More importantly, results demonstrate how morality has historically hijacked public health action related to sexual health. Conclusions: This research project reveals how the sociopolitical view of sex work influenced the implementation of STD control activities throughout the late 20th century. By understanding the evolution of public health practice in this context, future public health interventions and policies can be developed to decrease stigma and create health equity for sex workers. Furthermore, these findings validate archival research as a valuable source of scientific knowledge.

Presenter: Padideh Lovan, Ph.D. student in Dietetics and Nutrition

Title: *Internal bodily signals and eating behaviors in college students*

Additional Authors: Dr. Catherine Coccia

Poster Description: The aim of this study is to determine the correlation between interoceptive ability and eating behaviors among college students.

Research Abstract: The prevalence of obesity has more than doubled in the past 2 decades among young adults in the United States. College students are known to be more susceptible to weight gain than the general population. Self-regulation is an important part of weight maintenance however not much is known about the relationship between an individual's interoceptive ability including body awareness and responsiveness which is paramount to self-regulation and an individual's ability to control their dietary intake through various eating behaviors including intuitive, emotional, uncontrolled, cognitive restraint and external eating behaviors. The aim of this study is to determine the correlation between interoceptive ability and eating behaviors among college students. Sixty eligible undergraduate college students (male and female) from Florida International University, Miami, Florida completed baseline questionnaires including (body responsiveness, body awareness questionnaire, intuitive eating, three factors eating questionnaires, dutch eating behavior questionnaire). Body anthropometrics were taken. Participants mean age was 19.8 years old (SD=1.43). One third of the participants were classified overweight (SD=0.47). The results showed that there is a significant positive correlation between body awareness and 2 domains of intuitive eating including reliance on hunger and satiety ($r= 0.264$, $p=0.032$) and body-food choice congruence ($r= 0.295$, $p=0.016$). On the other hand, body responsiveness had a significant positive correlation with 3 domain of intuitive eating including eating for physical rather than emotional ($r= 0.424$, $p=0.000$), reliance on hunger and satiety ($r= 0.447$, $p= 0.000$), and body-food choice congruence ($r= 0.421$, $p= 0.000$). There was a negative correlation between body responsiveness skills, emotional eating ($r= -0.346$, $p= 0.004$), uncontrolled eating ($r= -0.351$, $p=0.004$), restraint eating ($r= -0.268$, $p=0.029$), and external eating ($r= -0.252$, $p= 0.041$). The results indicated that higher interoceptive abilities raises the ability to detect internal bodily cues and lowers emotional and uncontrolled eating. Thus, individuals with higher understanding of their internal bodily signals, were shown to have a greater ability to control their eating behaviors and the factors that influence them.

Presenter: Maryam Rafieifar, Ph.D. student in Social Welfare

Title: *The Effectiveness of Group Interventions for Trauma among Refugee and Immigrant Children: A Systematic Review*

Additional Authors: Mark Macgowan, Miriam Potocky

Research Abstract: Immigrant and refugee children and adolescents are a population at risk for developing mental health problems. The literature describes a range of group interventions designed to reduce psychopathologies and improve the well-being of displaced children. This study provides a critical review of psychosocial group interventions for trauma among refugee and immigrant children and adolescents in reducing trauma. A systematic search following the Cochrane Handbook for Systematic Reviews of Interventions was conducted to identify group-based intervention studies. The PICO (population, intervention, control, outcome) framework was applied to examine relevant characteristics of the studies. Each study was reviewed for risk of bias by two reviewers. Between-group effect sizes for controlled clinical trials and pre-post effect sizes for were calculated. The search yielded fifteen studies utilizing ten interventions involving 1,078 participants. The studies varied in targeted population (immigrants, refugees, asylees), design (randomized and non-randomized controlled trials, and single group pretest posttest), the interventions (cognitive behavioral therapy based therapies, writing for recovery, mindfulness based intervention, teaching recovery techniques, sand play, art therapy, and crisis management), and setting (urban, refugee settlements, and institutions). Between-group effect sizes varied from medium adverse effect to large positive effect. A large effect size was found for a study using CBT on PTSD compared to untreated comparison ($d = 0.88$). Within-group effect sizes showed improvement in posttraumatic stress disorder, anxiety, and general distress symptoms in all studies. Six studies reported large within group effect sizes ($d > 0.80$) on PTSD, depression, and general distress. A major limitation of all the studies was the lack of reporting on group treatment factors. Most studies did not provide adequate information on group composition, process, and leadership. Given the large number of displaced children and adolescents, there were few intervention studies with strong methodological designs. Overall, the positive effect of the majority of interventions provides sufficient evidence of the short-term benefit of group work for refugee and immigrant children. Cognitive behavioral interventions showed promising results that need further replication, with longer posttests. It is recommended that future group work studies consider including description and analyses of group factors such as those mentioned above.

Poster Session

Presenter: Rumi Agarwal, Ph.D. student in Public Health- Health Promotion & Disease Prevention (HPDP)

Title: *Mentoring Students with Intellectual and Developmental Disabilities: Evaluation of Role-Specific Workshops for Mentors and Mentees*

Additional Authors: Laura Heron, Mitra Naseh & Dr. Shanna L. Burke

Poster Description: Mentoring programs provide support for students with intellectual and developmental disabilities. However, to ensure that mentors and mentees are effective in their roles, it is important that they attend workshops to gain the knowledge and skills necessary. In this study, mentors and mentees attended four workshops respectively, and completed questionnaires, which determined how much knowledge they had gained and gathered feedback regarding their overall perception of the workshops. Results indicated that mentoring workshops were viewed positively and helped to increase mentor and mentee knowledge in key areas. Future areas for workshop improvement were also identified.

Research Abstract: Objective: To analyze knowledge acquisition and perceptions of mentoring workshops designed specifically for faculty/staff mentors, and mentees with intellectual and developmental disabilities (IDD). Background: Transitioning to postsecondary education is often challenging for students with IDD, and evidence suggests that adult and peer mentor programs are positive support mechanisms. However, an effective mentoring relationship requires mentor and mentee competence in role-specific knowledge and skills, which can otherwise impede desired student outcomes in academic growth and employment. Therefore, mentoring programs must holistically address areas of potential deficiency by providing training to both mentors and mentees. A pilot trial of the Embrace Mentoring Program (EMP) was created, implemented, and evaluated, which provided unique role-specific workshops to both faculty/staff mentors, and student mentees with IDD. Method: Faculty/staff mentors (n=31) and student mentees (n=35) completed pre-post knowledge acquisition surveys during attendance at four workshops designed specifically for each group. In addition, mentors and mentees completed end-of-the-semester questionnaires, which offered an opportunity to provide feedback on workshops. A mixed-methods design was used to analyze knowledge acquisition and assess participant perceptions of the workshops. Results: Quantitative findings indicated improvement in some crucial areas. Mentors demonstrated knowledge gains in: 1) understanding Federal Educational Rights and Privacy Act (FERPA) guidelines, 2) using appropriate language when interacting with individuals with disabilities, and 3) encouraging mentees to maintain eye contact while communicating. Mentees demonstrated improved understanding of positive and negative self-talk, and the benefits of mentoring. Qualitative data indicated an overall positive response to workshop content, and highlighted areas of improvement such as increased social opportunities between dyads, and changes in sequence and delivery of the workshops. Conclusion: Results from the pilot EMP demonstrated promise in supporting students with IDD towards academic and career-related goals, by providing mentorship training to both mentors and mentees. Other postsecondary programs serving students with IDD may consider implementing a mentoring program to enhance support.

Presenter: Angel Algarin, Ph.D. student in Public Health- Epidemiology

Title: *Enacted HIV-related stigma's association with antiretroviral therapy adherence & viral suppression among people living with HIV (PLWH) in Florida*

Additional Authors: Angel B Algarin, Diana M. Sheehan, Nelson Varas-Diaz, Kristopher P Fennie, Zhi Zhou, Emma C Spencer, Robert L Cook, Jamie P Morano, Gladys E Ibanez

Poster Description: The poster plans to present our findings on HIV stigma and its association with HIV care among people living with HIV in Florida.

Research Abstract: Among people living with HIV (PLWH) in Florida, less than 2/3 are virally suppressed (viral load < 200 copies/mL). Previous theoretical frameworks have pointed to HIV-related stigma as an important factor for viral suppression; an important outcome related to the HIV continuum of care. This study aims to analyze the association between enacted HIV-related stigma and antiretroviral therapy (ART) adherence and viral suppression among a sample of PLWH in Florida. The overall sample (n=932) was male (66.0%), majority 45+ years of age (63.5%), Black (58.1%), and non-Hispanic (79.7%). Adjusted odds ratios (AOR) and 95% confidence intervals (CI) were estimated using logistic regression models. The odds of non-adherence to ART was not significantly greater for those reporting low/moderate or high levels of general enacted HIV-related stigma (vs no stigma) (AOR [CI] 1.30 [0.87, 1.95], p=0.198; AOR [CI] 1.17 [0.65, 2.11], p=0.600, respectively). Moreover, the odds of non-viral suppression were not significantly greater for those reporting low/moderate or high levels of general enacted HIV-related stigma (vs no stigma) (AOR [CI] 0.92 [0.60, 1.42], p=0.702; AOR [CI] 1.16 [0.64, 2.13], p=0.622, respectively). However, ever experiencing healthcare specific enacted HIV-related stigma was associated with both non-adherence [AOR (CI) 2.29 (1.25, 4.20), p=0.008] and non-suppression [AOR (CI) 2.16 (1.19, 3.92), p=0.011]. The results suggest that the perpetuation of stigma by healthcare workers may have a larger impact on the continuum of care outcomes of PLWH than other sources of enacted stigma. Based on the results, there is a need to develop and evaluate interventions for healthcare workers intended to reduce experienced stigma among PLWH and improve health outcomes.

Presenter: Diaaiden Alwadi, Ph.D. student in Public Health-Environmental Toxicology

Title: *Bioinformatics Approaches Implicate POP Exposures with Common Transcription Pathways in Prostate & Breast Carcinogenesis*

Additional Authors: Dr. Alok Deoraj

Research Abstract: Exposure to persistent organic pollutants (POPs) is implicated in a higher incidence of various cancers in the US population. The objective of this study is to identify a common transcriptionally regulated molecular pathway in prostate and breast cancers in US men and women, respectively, in response to POP exposures. We used three separate data sources from EPA/ToxCast, FDA/TDS, and CDC/NHANES on selected POPs in the US food supply on their use, levels in food, and the levels of their metabolites in human blood and urine samples. ToxCast includes a total of 1749 chemicals that are categorized into direct food additives (556 chemicals), indirect food additives (339 chemicals), and pesticide residues (406 chemicals). The FDA/TDS inventory includes metals (24), radionuclides (7), mycotoxins (14), herbicides (36), and pesticides (317) that are monitored in typical US daily diets across the nation. We used NHANES laboratory data (2005-2012) on blood and urine samples from men and women participants (20 years of age and older) who reported cancer diagnosis on the medical questionnaire during their lifetime. We then selected prostate and breast cancer data only, which have the second-highest rates (14% of prostate cancer and 8% for breast cancer) of mortality and also to represent the etiology of cancer in both men and women. The analyses of NHANES data (2005-2012) on POPs and their metabolites showed, more than 66% of male subjects who developed prostate cancers and more than 65% female subjects who developed breast cancer have the metabolites of 26 POPs at a level higher to the detection limits in their blood and urine samples. Comparative Toxicogenomic Database (CTD) identified 76 common genes that are associated with carcinogenic pathways leading to breast cancer in women and prostate cancer in men when subjected to the online KEGGs pathway tool. Further, using Gene MANIA, a web-based tool, we functionally associated these 76 genes to one or more carcinogenic and/toxicity pathways, including regulation of apoptotic signaling pathway, oxidative stress, DNA damage, and signal transduction by p53 class mediator. Upon investigation, 28 genes from the KEGG pathway list also align with one or more hallmarks of carcinogenesis, which were common in both prostate and breast cancers. In conclusion, our

analyses of NHANS data (2005-2012) in more than 20 years of age of men and women population suggest that the selected POPs monitored in US food supply contribute to the complex exposome which may influence the functional transcription of a common set of genes in prostate and breast cancer etiology. Results from this study will aid in the development of an interchangeable set of biomarkers that may be used for environmental health risk assessments for the prevention of POPs induced cancers in men and women.

Presenter: Jennifer A. Bolton,, Ph.D. student in Dietetics and Nutrition

Title: *A Pediatric Nutrition Web Application for Health Professionals to Prevent Early Childhood Obesity*

Additional Authors: Cristina Palacios, PhD, MS

Poster Description: An estimated 8.9% of infants and toddlers were overweight in 2015-2016 and at risk for early childhood obesity in the United States. A web application was developed using the model of Analysis, Design, Development, Implementation, and Evaluation (ADDIE). We found that there were no pediatric nutrition tools to easily evaluate infant diets. So, a validated food frequency questionnaire (FFQ) for infants was converted to a web application. The developed nutrient/food database calculates intake and automatically provides health professionals with customized nutrition recommendations for counseling parents on their infant's diet. This web application could be used to prevent early childhood obesity.

Research Abstract: Objectives: To develop a web application for health professionals to easily evaluate infant diets using a validated food frequency questionnaire (FFQ) for infants with the goal of providing customized nutrition counseling during well-child visits to ultimately improve diet and weight gain in infants. Background: An estimated 8.9% of infants and toddlers, age 0 to 24 months, had excess weight gain in 2015-2016 and were at risk for early childhood obesity in the United States. This can be prevented by establishing healthy dietary patterns. However, there are no pediatric nutrition tools to easily evaluate infant diets in the clinical setting. Methods: The web application was developed using the model of Analysis, Design, Development, Implementation, and Evaluation (ADDIE). The Analysis stage includes a literature review and online search for tools to identify the gaps in infant nutrition. The Design stage includes the development of four portals: Infant FFQ, Administrative, Clinician, and Parental. The Developmental stage includes the creation of portals to complete the Infant FFQ, send results to the Administrative, and translate the data into the Clinician and Parental Portals. The Implementation stage includes pilot testing of the web application for feasibility, acceptability, and usability among clinicians and parents. The evaluation includes testing the effects of using the web application on diet and weight gain in infants. Results/Observation: In collaboration with the computer science program at FIU, a validated infant FFQ was converted to a web application for parents to complete using a tablet during well-child visits. The results are translated into energy/nutrients and food groups consumed using nutrient/food databases. Then energy/nutrients and food groups consumed below or above the recommended amounts are calculated. This information is shown to health professionals in the Clinician Portal for counseling parents on their infant's diet. The amounts of food and beverages recommended for the infant are shown in the Parental Portal to implement at home. Conclusions: The infant FFQ was translated into a web application to be used in the health care system for counseling parents on their infant's diet. This web application could be used to improve infant diet and prevent early childhood obesity.

Presenter: Sikeade Caleb-Adepoju, Ph.D. student in Public Health- Epidemiology

Title: *Factors associated with opioid use disorder and comorbid HIV infection at hospitalizations of pregnant women in the United States*

Additional Authors: Semiu O. Gbadamosi, Nnaemeka E. Onyeakusi, Boubakari Ibrahimou

Research Abstract: Background: National estimates showed an increase in the prevalence of opioid use disorder of over 300% from 1.5 to 6.5 per 1,000 delivery hospitalizations from 1999 to 2014. Among pregnant women living with HIV, a prevalence estimate of 4% have been reported for opioid use disorder. The combined effect of opioid use disorder in pregnancy, as well as living with HIV, poses serious risks and debilitating consequences to mother and child. Therefore, the objective of the study was to identify factors associated with opioid use disorder and comorbid HIV infection at hospitalizations of pregnant women. Methods: Data from the National Inpatient Sample (NIS) database for 2007-2014 were analyzed. The International Classification of Diseases, Ninth Revision, Clinical Modifications diagnosis and procedure codes were used to characterize pregnant women, HIV infection and opioid use disorder. Descriptive analyses of sociodemographic and psychosocial factors were performed. Simple logistic regression analyses were used to compute crude odds ratios (OR) and 95% confidence intervals (CI) for factors associated with opioid use disorder and comorbid HIV infection. Results: The study population included 25,548,558 pregnant women with discharge records from the NIS database. Of the 785 women who had opioid use disorder and comorbid HIV infection, 54% (n=422) were White, 27% (n=211) were Black, 17% (n=131) were Hispanic and 3% (n=20) belonged to other race group. Majority (n=435) were in the age-group 25-34 years. Black (OR=1.8, CI=1.1-2.9 vs. White women); women aged 35-49 years old (OR=8.5, CI=4.9-14.7 vs. 15-24 years old); women on Medicaid and Medicare (OR=65.3, CI=27.0-158.0; and OR=10.3, CI=5.2-20.6, respectively vs. private insurance); and those with other substance abuse dependence (OR=83.4, CI=60.0-115.8 vs. none) had higher odds of having opioid use disorder and comorbid HIV infection. Conclusion: Findings suggest racial disparities in opioid use disorder and comorbid HIV infection disorder exist. Middle-aged, Black women, specifically those on Medicare and Medicaid, are at a higher risk for this condition. Screening and treatment for opioid use disorder during pregnancy among women living with HIV should be encouraged.

Presenter: Rahel Dawit, Ph.D. student in Public Health-Epidemiology

Title: *Patterns of Consistent Retention in HIV Care and Viral Suppression among Cis-Gender Women Living with HIV in Florida, 2014-2017: A latent class analysis*

Additional Authors: D.M. Sheehan; S.O. Gbadamosi; K.P. Fennie; D. Curtolo; L. Maddox; E.C. Spencer; M.J. Trepka

Poster Description: The purpose of this abstract was to identify HIV care outcome patterns for women living with HIV in Florida. Identifying these patterns will guide with the development of appropriate interventions in order to improve their overall health outcomes. Note: this abstract and poster has been previously presented to the American College of Epidemiology Annual Meeting on September 2019.

Research Abstract: Objective: The objective of this study was to determine patterns of consistent retention in HIV care and viral suppression over time and associated factors among women newly diagnosed with HIV. Methods: Surveillance data from the Florida Department of Health's electronic HIV/AIDS Reporting System on women diagnosed with HIV in 2014 and living in Florida through 2017, were retrospectively analyzed. Latent class analysis was used to classify women by patterns of change in retention in HIV care (greater than or equal to 2 HIV care visits at least 3 months apart) and viral suppression (less than or equal to 200 copies/ml) over three years. Multinomial regression was used to examine factors associated with class memberships. Results Data from 961 women were analyzed. Four classes were selected based on model fit parameters: (Class 1) consistently retained and suppressed (greater than 90% probability of being retained and suppressed), (Class 2) not consistently retained or suppressed (less than 20% probability of being retained and suppressed), (Class 3) increasingly retained and suppressed, and (Class 4) decreasingly retained and suppressed. The proportion of women in each class was 48.6%, 24.9%, 14.3%, and 12.2%, respectively. Women ages 25-34 (Prevalence Ratio: 0.78; 95% Confidence Interval: 0.57-0.99), history of injection drug use (0.54; 0.31-0.76), US-born (0.81; 0.65-0.98), having an AIDS diagnosis (0.79; 0.63-0.96), and non-linkage to care 3-months post-diagnosis

(0.37; 0.25-0.49), were significantly less likely to belong to Class 1. Additionally, Non-Hispanic whites were (1.45; 1.02-2.70) were more likely to be belong to Class 4. Conclusion: Findings may be useful in tailoring and targeting interventions to increase the prevalence of women who are consistently retained in care and virally suppressed.

Presenter: Shante Earle-Jeune, Ph.D. student in Dietetics and Nutrition

Title: *The Family Meal Project: Assessing the Relationship between Family Priorities and Routines to their Child's Eating Preferences*

Additional Authors: Hamil C, Frazier S, Coccia C.

Poster Description: This study is to examine if there is a significant influence on family priorities and routines related to child dietary preferences.

Research Abstract: Background: Parent-child interactions pose significant influences on their child's dietary behaviors. Family priorities and routines may increase the child's healthy eating preferences. However, few studies analyze how family experience affects child dietary preferences. Objective: To examine parents' report of family priorities and routines in relation to their child's dietary preferences. Study Design, Setting, and Participants: Seven families, including 12 parents and their children (n=14), aged 2-11, participated in a 6-week family-focused intervention that incorporated parent-child interaction activities and healthy mealtime coaching. Participants were assessed at baseline and at post-intervention with validated questionnaires. Families were predominantly Hispanic/Latino (82%), with married parents (80%) and had two or more children (82%). Measurable Outcome/Analysis: Parental program activities were used to assess family priorities and routines. Priorities were ranked from 1-16, ranging from most to least important. Family routines were assessed to indicate whether routine meal planning decisions were healthy/unhealthy. Children completed questionnaires selecting pictures of healthy/unhealthy foods to assess dietary preferences. Descriptive statistics, paired sample t-tests, and correlations tests were analyzed using SPSS V26.0. Results were considered significant at $p < 0.05$. Results: At baseline, approximately 42% of parents scored 75% or higher for practicing healthy family routines during meal planning. Healthy child dietary preferences had significant negative correlations with parents who reported high priorities of completing homework ($r = -0.66$, $p\text{-value} = 0.026$) and getting to school on time ($r = -0.85$, $p\text{-value} = 0.001$). Healthy family routines such as having meals together, stop eating when full, and saving leftovers had significant positive correlations to high-ranked, nutrition-related family priorities such as healthy dinners ($r = 0.67$, $p\text{-value} = 0.009$), eating meals together ($r = 0.58$, $p\text{-value} = 0.028$), and positive family food-interactions ($r = 0.72$, $p\text{-value} = 0.006$). Conclusion: Overall, most parents emphasized nutrition-related priorities for their families; however, less than 50% of parents currently practiced healthy family routines. Nutrition-related priorities and routines indicated healthier choices for the child. Positive parent-child interactions, including the practice of healthy nutrition-related priorities and routines may significantly impact the child's dietary preferences. Further research is needed with larger sample sizes to confirm these findings.

Presenter: Priya Krishnakumar, Ph.D. student in Dietetics and Nutrition

Title: *Predictors of Asian Indian Fathers' Perceived Role during Child Mealtimes*

Additional Authors: Catherine Coccia, PhD, RD

Poster Description: Majority of child mealtime research has focused on mothers, and fathers have been largely underrepresented. With maternal employment and changing gender roles, fathers are more involved in child feeding than before and it is important to understand the factors that influence fathers' perceived role during child mealtimes. Data is missing especially on Asian Indians, a large immigrant group in the U.S. Asian Indian children are at equal risk of developing obesity like other ethnicities in the U. S. Understanding fathers'

perceived mealtime role and factors affecting it, will help engage Asian Indian fathers in future childhood obesity preventing programs.

Research Abstract: Background: Research has shown that fathers, like mothers, hold responsibility for children's dietary habits, yet little is known about the factors that affect how fathers perceive this role, especially in more traditional cultural groups such as Asian Indians. Objective: The study aimed to find the predictive factors that influence the perceived role of Asian Indian fathers during child mealtimes. Methods: Subjects included 80 Asian Indian fathers of 6-11-year-old children recruited through various Indian community organizations, who completed an online survey. Questionnaires included demographics, acculturation, gender roles, nutrition knowledge, parental self-efficacy, perceived child weight, and the role of father at mealtime (ROFM) questionnaires. Data were analyzed by descriptive statistics, correlation matrix and linear regression with SPSS version 25. Results: Majority of the fathers (83.8%) were between 35 to 44 years (n=67), 98.8 % (n=79) were born in India and 60.8% (n=48) had been in the United States for 10-20 years. Fathers who had higher perceived responsibility in child feeding ($r=0.25$, $p<0.05$), perceived child weight ($r=0.27$, $p<0.05$) and self-efficacy in feeding children healthy food ($r=0.46$, $p<0.01$) perceived a positive perception towards their role during mealtimes. However, this did not hold true for nutrition knowledge ($r=-0.32$, $p<0.01$) which was inversely associated to ROFM. Results of the multiple regression analysis revealed that nutrition knowledge, self-efficacy, fathers perceived child weight and responsibility to child feeding predicted about 26.7% variance in ROFM. However, in the adjusted model only self-efficacy was significantly correlated with ROFM ($r=0.385$, $p=0.007$), indicating it to be the most important factor for predicting ROFM. Conclusions: Fathers' perceived responsibility in child feeding, perceived child weight and self-efficacy in feeding children healthy food may be potential targets for future interventions to involve Asian Indian fathers in child mealtime practices. Programs may benefit from adding content related to these factors when deciding on prevention and intervention efforts aimed at childhood obesity.

Presenter: Christie Leanne Kirchoff, Ph.D. student in Public Health- Health Promotion & Disease Prevention (HPP)

Title: *An Audit of Vending Machines at a Large Hispanic Serving University in South Florida; evaluating content and efficacy of contract stipulations to improve healthy options*

Additional Authors: Cristina Palacios

Poster Description: This presentation provides findings of an audit of campus vending machines (VM) to include; the content/items of the VMs, the amount of healthy options available and the impact of an effort to improve healthy options.

Research Abstract: Objective: Since dietary intake is strongly associated with obesity and other chronic diseases and critical time for establishing eating habits is during the transition from adolescence to adulthood; the college food environment plays a significant role in students' habit formation. Vending machines (VM) at colleges are of increased importance as more than 90% of students use these. Many colleges regulate the offerings within campus VMs to improve the snack food environment by stipulating that "Healthier Options" be included in offerings. The objective of this study was to audit the snack food VM environment at a large Hispanic serving university in South Florida to evaluate the content of the VMs and to assess the number of healthy options available. Methods: A snack food VM audit of the campus was conducted between June 2019 and January 2020. Utilizing the Nutrition Environment Measurement Scale for Vending Machines (NEMS-V), all VM within on-campus housing were photographed and scored by the principal investigator. NEMS-V grades the healthfulness of foods and beverages into three categories (green/healthy, yellow/unhealthy, and red/very unhealthy) based upon calorie content, calories from fat, grams of sodium, grams of sugar, and other criteria. Once individual machine scores were calculated, VM content per building and campus-wide were generated.

Further comparisons were made to evaluate VM content in comparison to the list of "Healthier Options" stipulated by the contract and provided by the vendor. Results: A total of 77 snack food VMs, with 2600 available slots, were located and evaluated. The campus-wide offerings of unhealthy foods were 81% (2108 slots), with clusters of buildings with greater than 85% unhealthy options. The "Healthier Options" list provided by the vendor contained 66 options, 11 (16%) of those were found within VMs and only seven of those were healthy options. Conclusion: The VM environment at this large Hispanic serving college contains predominantly very unhealthy choices despite efforts to improve the snack VM content via contractual stipulation for "Healthier Options." A policy on foods and beverages sold in VM is needed in colleges to improve the snack food environment, promote healthy eating habits and prevent obesity.

Presenter: Alison Matthyse-Macchi, Ph.D. student in Dietetics and Nutrition

Title: *Effects of a nutrition education program on food insecure college students*

Poster Description: The presentation will consist of the current prevalence of food insecurity among college campuses as well as the effects of an 8 week nutrition education, cooking, and gardening course on health focused behaviors of food insecure college students. At the conclusion of the 8 week course, students who participated in the course ate more fruits and vegetables, were less stressed, and were more confident in performing healthy behaviors than those who did not participate. The presentation will also touch on the benefits and importance of implementing these programs on college campuses.

Research Abstract: Background: A high rate of universities, especially in large, urban areas, are experiencing over 50% food insecurity. Food insecurity negatively impacts students physically, emotionally, and mentally. In college students, food insecurity is correlated with a larger likelihood of unhealthy eating, alcohol use, and mental health issues. Although most universities offer programs such as food pantries, additional programs tailored towards food insecure students are needed. Studies have indicated the need for nutrition education, specifically including gardening and cooking skills. Objective: The purpose of this study was to examine the effects of a gardening, cooking, and nutrition education intervention on fruit and vegetable intake, self-efficacy, and quality of life in food insecure college students. Design: The intervention included an 8-session quasi-experimental pre-post survey research design. Fruit and vegetable intake was determined using the NCI Fruit and Vegetable Screener, self-efficacy was tested using Dewar's Self-efficacy for Healthy Behaviors Questionnaire ($\hat{I}\pm=.70$), and quality of life was tested using Cohen's Perceived Stress Scale ($\hat{I}\pm=.82$) and Diener's Life Satisfaction Scale ($\hat{I}\pm=.80$). Sample: Food insecure students were recruited from Florida International University (n=25). Participants were female (90%), white Caucasian (43.3%) and Hispanic (63.3%). Students were randomized into a control group (n=14) and an intervention group (n=11). Statistical Analysis: Descriptive statistics, t-tests, and ANOVA were analyzed using SPSS V23.0. Results were considered significant at $p<0.05$. Results: As compared to the control group, students in the intervention (n=11) significantly increased their fruit and vegetable intake ($F=4.170$, $p=.05$) and self-efficacy scores ($F=4.232$, $p=.05$) after 8 weeks. Students in the intervention group also significantly lowered their perceived stress scores ($F=12.556$, $p=.00$). Life satisfaction scores did not change significantly but had a positive trend in the intervention group ($p=.06$). Students in the control group (n=15) did not have any significant change in fruit and vegetable intake ($t=1.790$, $p=.099$), self-efficacy (1.446, $p=.172$), perceived stress ($t=-.066$, $p=.948$), or life satisfaction ($t=.169$, $p=.868$). Conclusions: Nutrition education programs utilizing cooking demonstrations and at home gardening can help increase self-efficacy of healthy behaviors and increase fruit and vegetable intake. Nutrition education interventions tailored to food insecure students should be implemented on campuses to help reduce the stressful effects of college food insecurity.

Presenter: Christian Perez, Ph.D. student in Public Health- Environmental Toxicology

Title: Novel ID3 Regulatory Gene Networks Contributing to Brain Vascular Disease

Additional Authors: Quentin Felty, Changwon Yoo

Poster Description: Vascular lesion development and vascular malformations are a common observable pathology in the clinically diagnosed elderly population suffering from a form of dementia. The polygenic nature of cerebrovascular diseases is largely misunderstood and requires further insight using machine learning.

Research Abstract: Cerebrovascular disease (CBVD) often leads to cognitive impairment and is a prominent comorbidity of Alzheimer's disease (AD) observed in 60% -90% of patients. Single nucleotide polymorphism in the human ID3 gene has been associated with atherosclerosis; however, its contribution to CBVD is unknown. This study uses a machine learning-based analysis of human brain microvessel transcriptome to identify novel ID3 gene regulatory networks in AD patients. Microarray data from human brain microvessels from 20 AD patients and controls were processed for normality. Probe set identifiers were mapped to Entrez identifiers, official gene symbols and gene names. Signal intensity values for each gene with multiple probes were averaged resulting in 21,000 unique gene annotations. Differential gene expression between case and controls was calculated by the Benjamin-Hochberg t-test ($p < 0.05$). ChIP-Seq analysis identified approximately 2,834 candidate genes bound by ID3 in endothelial cells. We discovered 38 ID3 bound target genes among 417 genes showing a 2-fold change between disease and non-disease brain microvessels. For Bayesian networks analysis, ID3 target genes were discretized in cases and controls. Variables such as age, gender, and disease were included into the Bayesian networks structure learning algorithm. Nine best structures were identified from running the learning algorithm nine times with different running times (three independent runs for 2 h, 4 h, and 8 h.). A Bayesian network structure identified at 8h was selected as the best scoring network comparing Bayesian Dirichlet scoring metric of all structures. The best scoring network showed a structural ID3 gene regulatory network interacting with age, gender, and disease. We discovered five key ID3 gene targets to be most influential to diseased brain microvessels (AMFR, BEX1, PARVG, PGM2L1, PRKACB). Furthermore, the best scoring network predicted a subject will have AD with a high probability (>0.999) when only PARVG was downregulated and with a low probability (<0.001) when only three (BEX1, PGM2L1, PRKACB) of the five key genes are downregulated in human brain microvessels. Receiver Operating Curve analysis on ID3 gene network influence on disease resulted in an area under the curve of 0.75. Data driven machine learning is a powerful approach to predict ID3 causal gene networks involved in vascular disease. Given paucity of studies on human brain microvessels and small number of subjects in this study, a future goal will be to apply this method on a larger population with the hope of identifying blood-based biomarkers of vascular dementia.

Presenter: Aamna Qamar, Ph.D. student in Public Health- Health System Research

Title: Women empowerment and its impact on maternal healthcare utilization in Pakistan

Poster Description: The article is looking at relationship between women empowerment and maternal healthcare utilization in Pakistan. Two women empowerment indices are being compared to understand if different results are occurring for maternal healthcare utilization if different aspects of women empowerment are observed. Other factors were also analyzed to observe if they play an important role in this relationship.

Research Abstract: Objectives: Maternal mortality is still a critical global healthcare issue. According to the latest data, Pakistan's maternal mortality rate is 148 per 100,000 live births. Women empowerment refers to women having power to make decisions about their resources and its utilization. Women with greater empowerment means increase access to health services and control over health resources. Pakistan is ranked 152 on the Human development index. The reasons can be a low education level, poverty, gender inequality, and inadequate healthcare access. This study aims to compare two multidimensional indices of women's empowerment and assess if they yield different results for maternal health care utilization in Pakistan.

Method: The data from the 2012-2013 Pakistan Demographic and Health Surveys were utilized to explore the association between the two indices and the four aspects of maternal health care. It is a cross-sectional study.

The sample size of this study is 5,552 married women, who were between the ages of 15-49 years. The maternal healthcare outcomes were skilled birth attendant, antenatal care visits, checkup after delivery (within 2-3 days) and tetanus injections before childbirth. Multivariable logistic regression was conducted for this study. Results: The analysis demonstrated that one index was not significant with any outcome, and the other was significantly associated with antenatal care visits, checkup after delivery and tetanus injections before childbirth. Age, regions, wealth and women education were seen contributing significantly to this issue. Conclusion: The two indices showed different results concerning four maternal healthcare aspects. This demonstrates that there is a need for looking at women empowerment from a holistic point of view and try to include as many relevant aspects to get accurate results.

Presenter: Alexander Rodichkin, Ph.D. student in Public Health- Brain, Behavior & the Environment

Title: *SLC39A14 knock-out mice - a genetic model to understand manganese induced Parkinsonism.*

Additional Authors: Jennifer L. McGlothlan, Deborah R. Brooks, Ana G. Sanchez, Tomas R. Guilarte

Poster Description: Neurodegeneration of dopaminergic neurons in the substantia nigra of Parkinson's disease patients is responsible for producing the motor deficits, one of the most well-known hallmarks of the disease. Chronic occupational and environmental exposure to manganese produces similar motor deficits, known as manganese-induced Parkinsonism. Our project aims to assess whether the etiology of these motor deficits is rooted in the same neuropathology as idiopathic Parkinson's disease. To investigate this, we are using a genetic animal model lacking a crucial transporter responsible for manganese homeostasis.

Research Abstract: The pathologic motor deficits seen in idiopathic Parkinson's stem from dopamine depletion in the striatum and degeneration of dopaminergic neurons in the Substantia Nigra pars compacta (SNpc). However, based on previously conducted non-human primate studies, we hypothesize that manganese-induced Parkinsonism pathology is not mediated by the dopaminergic circuits. To test this hypothesis, we utilized SLC39A14 knock-out mice, a genetic animal model that accumulates manganese. SLC39A14 protein is highly expressed in the hepato-biliary tract, which is the primary route of manganese excretion. Lacking SLC39A14 results in elevated systemic blood manganese levels and subsequent increase in brain manganese concentrations. Firstly, we measured manganese levels in the blood and the brain, both of which proved to be significantly elevated, when compared to wild-type controls. Following that, separate cohorts of animals went through a battery of neurobehavioral tests which showed a significant decrease in coordination, endurance and locomotor activity. In order to assess the integrity of the dopaminergic circuits, several measurements were taken. Specifically, the levels of striatal dopamine, changes in dopamine metabolites and unbiased stereological cell counting of dopaminergic neurons in the SNpc were performed. No significant difference between age matched knock-out and wild type 60-day old males were detected, indicating the integrity of the dopaminergic circuit. Presently, we aim to examine the functionality of the dopaminergic neurons and their ability to release dopamine, as well as investigate the integrity of other pertinent neuronal systems.

Presenter: Ferass M Sammoura, Ph.D. student in Public Health- Brain, Behavior & the Environment

Title: *Lead and DDT additively increase the levels of amyloid precursor protein in hippocampal HT22 cells*

Additional Authors: Aseel Eid, Jason R Richardson

Poster Description: The presentation will focus on the effects of pesticide dichlorodiphenyltrichloroethane (DDT) and heavy metal lead (Pb), both in combination and individually, on cultured cells. Both environmental

toxins have been hypothesized to play a role in the pathology of Alzheimer's disease based on recent laboratory research. The fact that DDT and Pb were utilized at the same time, peaking in the 1940s, and are also persistent in the environment, it is important to understand their relationship combinatorically. Using in vitro techniques, we observed their effects on amyloid precursor protein (APP), a crucial protein in contributing to a hallmark of Alzheimer's disease.

Research Abstract: Alzheimer's disease (AD) is the most common neurodegenerative disease, affecting over 5 million people in the United States. With the vast majority of AD cases being sporadic late onset of disease, there is rationale in investigating the potential role of the environment in the etiology of disease. We previously reported that serum levels of dichlorodiphenyldichloroethylene (DDE), the metabolite of pesticide dichlorodiphenyltrichloroethane (DDT), were significantly higher in AD patients compared to age-matched controls. Likewise, it has been suggested that lead (Pb) exposure is a risk factor for AD based on multiple experimental studies in non-human primates and rodents. Both Pb and DDT have been reported separately to increase levels of amyloid precursor protein (APP) and increase $A\beta$ in cells. Because these two contaminants were highly prevalent in the environment at the same time, we sought to determine whether they may interact to produce greater effects on the amyloid pathway. Here, we used the HT-22 mouse hippocampal neuronal cell line, which has been shown to differentiate into cholinergic hippocampal neurons with N2 supplement. Exposure of HT-22 cells to Pb, DDT or combinations of the two did not result in significant increases in APP levels, as determined by immunofluorescent staining. Upon differentiation of HT-22 cells, we observed significant APP increases following 24 hr. treatment with DDT and Pb separately and in combination; 1 μ M DDT (63%), 10 μ M Pb (98%), and 1 μ M DDT and 10 μ M Pb in combination (161%). Additionally, we found that after 48 hr. of treatment, APP levels were further increased by 1 μ M DDT (159%), 10 μ M Pb (160%) and the combination (257%). These data demonstrate that Pb and DDT both increase APP levels and, that the combination of the two results in approximately an additive response. Taken together, these data suggest that Pb and DDT may act on similar mechanistic pathways affecting the amyloidogenic pathway. These data provide for a new understanding by which Pb and DDT may contribute mechanistically to AD risk. Supported in part by NIH R01ES026057.

Presenter: Maximilian Schlecht, Ph.D. student in Psychology

Title: *Two separate populations of medial prefrontal cortex cells project to nucleus reuniens and perirhinal cortex in support of different memory retrieval strategies*

Additional Authors: Maanasa Jayachandran, Stephanie B. Linley, Stephen V. Mahler, Robert P. Vertes, Timothy A. Allen

Poster Description: We investigated specific cell populations in different brain regions involved in memory and cognition. We know memory depends on the mPFC-HC circuitry, however their specific anatomical connections have not been explored in much detail. Here, we examined various cell populations in the nucleus reuniens of the thalamus (RE) and perirhinal cortex (PER) and their projections from mPFC, in order to understand their roles in different memory retrieval strategies.

Research Abstract: The medial prefrontal cortex (mPFC) is ideally situated to influence episodic memory retrieval through its many projections to the thalamus and cortex. We recently tested the role of mPFC projections in a nonspatial sequence memory task using a projection-specific DREADD approach in rats. We found that inhibiting mPFC projections to the nucleus reuniens of the thalamus (RE), or separately to perirhinal cortex (PER), produced opposing performance gradients across lag distance (Jayachandran et al. 2018). This suggests that each pathway differentially contributes to retrieval during sequence memory performance. Generally, the deficit patterns suggested that mPFC projections to RE contribute to a working memory strategy,

whereas mPFC projections to PER contribute to a temporal context memory strategy. However, the question arose whether or not the same cells in mPFC project to both RE and PER, or whether these are separate non-overlapping cell populations. To address this question, we examined the mPFC->RE and mPFC->PER pathways using a dual retrograde fluorescence labeling experiment by injecting cholera toxin subunit-B green (CTB-488) and red (CTB-594) into RE and PER (unilaterally). We analyzed cells in the anterior cingulate (ACC), prelimbic (PL), and infralimbic (IL) cortices of the mPFC for retrograde labeling from either RE and PER, and examined cell densities across layers. mPFC->RE projecting cells were found in layers II, V, and VI, with the highest density in layer VI. mPFC->RE projecting cells were found throughout PL and IL, and only a few cells were found in ACC. mPFC->PER projecting cells were primarily observed throughout layers III and V, and most dense in PL, but were also found in IL. We did not find cells in mPFC that projected to both RE and PER (i.e., no dual-labeled cells were found). These results show that mPFC projections to RE and PER originate from two separate non-overlapping cell populations (RE: layers 2/3, 5, and 6) and (PER: layers 2/3 and 5). Speculatively, this cell/circuit segregation may provide mPFC with simple mechanism that allows memory to be engaged with different retrieval strategies.

Presenter: Javier A. Tamargo, Ph.D. student in Dietetics and Nutrition

Title: *Food Insecurity Is Associated with Cognitive Impairment in the Miami Adult Studies on HIV (MASH) Cohort*

Additional Authors: Sabrina Sales Martinez, Adriana Campa, Marianna K. Baum

Poster Description: Advancements in treatments have allowed people living with HIV to live longer lives, and chronic illnesses have become more common among them. Among these are mental and functional impairments, which affect a significant portion of this population. Food insecurity, or inadequate access to sufficient and nutritious foods, is also common in this population and has been previously associated with mental impairments. However, studies that investigate this relationship among people living with HIV are lacking. In this study, we show that food insecurity was associated with an increased risk for mental impairments, with and without HIV or viral hepatitis. The results suggest that interventions that improve food security could improve mental function in individuals at risk for impairments.

Research Abstract: Objectives: To determine whether food insecurity is associated with neurocognitive impairments (NCI) among participants from the Miami Adult Studies on HIV (MASH) cohort. Background: While advances in antiretroviral therapy have made HIV-associated dementia relatively rare, milder forms of cognitive and functional impairments continue to affect a significant portion of people living with HIV (PLWH). Moreover, NCI persist despite long-term viral suppression. Food insecurity is defined as inadequate access to nutritious foods to sustain a healthy life. Food insecurity is prevalent among PLWH and has been previously identified as a risk factor for NCI among PLWH. However, few studies have examined this association. Methods: Cross-sectional analysis of 347 HIV mono-infected, 151 hepatitis C virus (HCV) mono-infected, 134 HIV/HCV co-infected, and 398 HIV/HCV uninfected participants from the Miami Adult Studies on HIV (MASH) cohort study. Cognitive impairment was assessed with the Mini Mental State Examination (MMSE), with scores below 28 used to classify mild impairment and scores below 25 used to identify severe impairment. Food insecurity was determined with the USDA's Household Food Security Survey (FSS). Results: In total, 68.9% of the participants were food insecure, 75.5% participated in Supplemental Nutrition Assistance Program and 8.4% in Temporary Assistance for Needy Families, and 32.2% obtained foods from food banks/pantries; no differences were found between study groups (all $P > 0.05$). Twenty participants were unable to complete the MMSE. Among completers, 37.4% had mild NCI ($P = 0.373$) and 13.4% had severe impairment ($P = 0.109$); study group was not associated with MMSE scores. FSS scores were inversely associated with MMSE scores ($\rho = -0.062$, $P = 0.049$). Food insecurity was associated with lower language ($P = 0.031$) and total ($P = 0.021$) scores, and with mild ($\text{MMSE} < 28$; $P = 0.006$) but not severe ($\text{MMSE} < 25$; $P = 0.051$) cognitive

impairments. Adjusted for age, education, income, race, HIV/HCV serostatus, BMI, and drug use, food insecurity was associated with 1.48 (1.10-2.00) times the odds for mild cognitive impairment compared to no food insecurity (P=0.009). Conclusions: In the current study, food insecurity was associated with increased risk for cognitive impairments, irrespective of HIV and/or HCV infection. Interventions to improve food security should consider the impact of food insecurity on cognitive function.

Presenter: Tanjila Taskin, Ph.D. Student in Public Health- Epidemiology

Title: *Inequity in HPV Vaccine Initiation and Completion in Latino Adolescents: Examining Usual Source of Care and Age Group*

Additional Authors: Angelica M. Roncancio, PhD.

Poster Description: The HPV vaccine rate is poor among the Latinos. To identify the gap in this population, we conducted research to identify whether the type of clinic mothers take their child for usual care and adolescents age group influence HPV vaccine initiation and completion. We interviewed 306 mothers twice in 6 months apart to check the vaccination status. Our study found mothers who attend public/non-profit institutions initiated and completed the vaccine more compared to those who attend a private institution. In addition to those, children aged 11-12 years initiated the HPV vaccine more compared to children aged 9-10.

Research Abstract: Introduction: Despite Healthy People 2020's goal to achieve 80% coverage for HPV vaccination, only 62% of US Latino adolescents (aged 13-17) received two doses of the HPV vaccine and 44% received three doses in 2017. Therefore, we examined whether the type of clinic mothers reported as their child's usual source of care (public/non-profit vs. private) and child's age group were associated with HPV vaccine series initiation and completion. Methods: A total of 306 mothers completed an assessment at baseline and six months follow-up. Additionally, a phone survey and/or a medical record review were conducted to determine the child's vaccination status. Two multivariable logistic regression models were conducted. The first model regressed HPV vaccine series initiation on clinic type (public/non-profit vs. private) and the child's age (9-10 years; recommended age: 11-12 years; and catchup age: 13-17 years) while controlling for mother's age (39 vs 40), education level (less than high school diploma vs. high school diploma) and child's gender. The second model regressed HPV vaccine series completion on the same variables. Results: Public/non-profit clinic vs. a private clinic as a usual source of care was associated with a higher likelihood to initiate (OR=1.73, p=.05) and complete (OR=1.83, p=.047) the HPV vaccine series. At baseline, children who were in the 9-10 year age group (vs. 11-12 years) were less likely to initiate the series at follow up (OR=0.43, p=.014). No differences by age group in vaccine series completion (p= .062) was observed. Discussion: Age of the child may influence the initiation of the HPV vaccine series, but not completion whereas, the type of clinic that Latino adolescents attend may influence both initiation and completion. Findings highlight the need to develop interventions to increase HPV vaccine coverage among Latino adolescents attending private clinics and those outside of the recommended vaccination age groups.

Acknowledgments: The research reported in this poster was supported by the National Cancer Institute grant: K01CA181437.

Presenter: Nancy S. Vazquez, Ph.D. Student in Public Health- Health System Research

Title: *The Association of Changes in Local Health Department Expenditures in the United States with Changes in State-Level Population Health Outcomes, 2005-2016*

Additional Authors: Nancy S. Vazquez, MPA; Timothy F. Page, Ph.D.

Poster Description: The work of local health departments has been shown to reduce health disparities and improve health outcomes. Funding fluctuations and uncertainties can influence the strategies and activities implemented by local health departments to improve health and address disparities. Previous studies have found

weak and conflicting associations between public health spending and its relation to improvements in population health outcomes. The primary contribution of this study is to determine if more local public health funding leads to improvements in population health outcomes at the state-level. The study adds evidence that local health department expenditures play a role in supporting the work of local health departments to improve health across communities and that funding is a vital component for effective public health systems.

Research Abstract: Objective: To assess the relationship between changes in local health department expenditures and changes in state-level population health measures. Data Sources: Five cross-sectional surveys of local health departments in the United States (U.S.) conducted by National Association of County and City Health Officials in 2005, 2008, 2010, 2013, and 2016 were linked with America's Health Rankings Annual Reports released in 2006, 2009, 2011, 2014, and 2017. Study Design: A retrospective panel research design was employed with the use of multivariate regression models to examine the association between changes in local health department expenditures in the U.S. and changes in six morbidity and mortality health measures over an eleven-year period from 2005-2016 while controlling for factors known to influence community health. Data Collection/Extraction Methods: Local health departments that did not report expenditure data in the National Association of County and City Health Officials Profile Surveys in 2005, 2008, 2010, 2013, and 2016 were removed from the sample. The final data set included data from 602 local health departments, covering 38 U.S. states. Principal Findings: An increase in expenditures per capita was statistically significantly associated with a decrease in infant mortality. The magnitude of our estimates suggests that each 10-percent increase in expenditures per capita was associated with a 2.89 percentage point reduction in infant mortality. For the nine states that experienced an increase in expenditures from 2005 to 2016, spending increased an average of 29.3%, which would have resulted in a decrease in infant mortality by 8.20 percentage points. Conclusions: This study lends support that local health department expenditures play a role in reducing the infant mortality rate. The study provides evidence that improvements in public health resources at the local level may contribute to improved health outcomes at the state-level.

Presenter: Vicky. Vazquez, Ph.D. Student in Public Health- Health Disparities

Title: *Addressing Health Disparities among Recent Latino Immigrants Using a Syndemic Approach*

Poster Description: Recent Latino immigrants experience conditions related to stress, trauma, depressive symptoms, and alcohol misuse; however, the synergistic role of these conditions has not been previously examined. Therefore, this study will test the syndemic of immigration stress, trauma, depressive symptoms, and alcohol misuse and determine how traditional gender roles affect this syndemic so that this knowledge can help address ethno-racial health disparities. Findings from the proposed study will be used to develop structural, single-component interventions that focus on clusters of disease to address the syndemic conditions of immigration stress, trauma, depressive symptoms, and alcohol misuse among young adult recent Latino immigrants.

Research Abstract: Latino populations have been disproportionately impacted by syndemic conditions such as substance misuse, violence, depression, and HIV. In particular, recent Latino immigrants consume higher volumes of alcohol, and they experience immigration stressors, depressive symptoms, and cumulative trauma. Most investigations on syndemics among Latino populations have been conducted with those who are US born or those residing in the US for an extended time period. Far less is known about the dynamics of the syndemic conditions affecting recent Latino immigrants. Therefore, the proposed study will test the syndemic of immigration stress, trauma, depressive symptoms, and alcohol misuse among young adult recent Latino immigrants and examine associations between adherence to traditional gender norms and the proposed

syndemic. To address this objective, a cross-sectional secondary data analysis study will be conducted using baseline data from a National Institute on Alcohol Abuse and Alcoholism (NIAAA) funded longitudinal study examining drinking and driving trajectories of N= 540 young adult recent Latino immigrants in South Florida. The proposed research study aims to (1) test that immigration stress, trauma, depressive symptoms, and alcohol misuse can be reduced to a syndemic factor among young adult recent Latino immigrants, (2) determine the association between adherence to traditional gender roles and this syndemic factor, and (3) examine the moderating role of gender on the association between adherence to traditional gender roles and the syndemic factor. The central hypothesis is that a single syndemic factor will explain the covariance in the conditions of immigration stress, trauma, depressive symptoms, and alcohol misuse. We also hypothesize that greater adherence to traditional gender roles will be positively associated with this syndemic factor among young adult recent Latino immigrants. The proposed study will use confirmatory factor analysis to test for the syndemic factor and use structural equation modeling to examine the association of this syndemic factor to adherence to traditional gender roles and the moderating role of gender on this association. Findings from the proposed study will be used to develop structural interventions in South Florida that address the syndemic of immigration stress, trauma, depressive symptoms and alcohol misuse among young adult recent Latino immigrants.

Presenter: Rebecca Zhangqiuzi Fan.

Title: *Drp1 inhibition attenuates autophagy impairment induced by alpha-synuclein and neurotoxicants*

Additional Authors: Carolina Sportelli, Min Guo, Jennifer Pinnell, Kim Tieu

Poster Description: Using both genetic and neurotoxin models of Parkinson's Disease, this project focuses on understanding protective mechanisms of blocking a protein called Drp1. Drp1 is known to play a role in mitochondrial division, however, this project uncovered its role in a fundamental housekeeping process called autophagy ("self-eating"). We discovered that Drp1 inhibition rescues autophagy function, reduces build-up of toxic proteins and protects cells against neurotoxicity induced by environmental toxins.

Research Abstract: Gene-environment interactions play an important role in the pathogenesis of Parkinson's disease (PD). Enhanced neurotoxicity has been documented when α -synuclein (α -syn) is combined with neurotoxicants. Impairment in autophagy-lysosomal function resulting in misfolded and aggregated α -syn protein may account for such neurotoxicity. We report here that blocking dynamin-related protein 1 (Drp1) improved autophagic flux in mammalian cell models of α -syn, paraquat (PQ) and manganese (Mn), leading to reduced protein aggregation when α -syn was combined with these toxicants. To block Drp1 function, we used three complementary approaches: siRNA-Drp1, overexpression of Drp1-dominant negative and the small molecule mitochondrial division inhibitor-1 (mdivi-1). By using autophagy reporter HeLa cells with stable expression of mRFP-GFP-LC3 treated with human α -syn preformed fibrils (PFF) and by quantifying immunoreactivity of LC3 and p62 in N27 neuronal cells with stable inducible expression of α -syn, we observed that Drp1 inhibition abolished autophagic impairment induced by α -syn. Consistent with its role in improving autophagy function, Drp1 inhibition reduced proteinase K-resistant α -syn aggregates, as well as exosome release and spread of α -syn pathology from neurons to neurons and from microglia to neurons. To gain additional mechanistic insights into this protection, we assessed mTOR activity by quantifying the levels of phosphor-4E-BP1, which is a downstream substrate of mTOR, in stable α -syn N27 cells. We observed α -syn activated mTOR, and strikingly, knocking down Drp1 inhibited mTOR activity to an equivalent extent of rapamycin, an mTOR inhibitor. Through investigation of the effects of PQ and Mn on autophagy, we observed a striking blockade of autophagy flux by these toxicants at concentrations much lower than their LC50 values. We also confirmed that, in models in which α -syn was combined with either PQ or Mn, proteinase K-resistant α -syn aggregates was significantly reduced by Drp1 inhibition. In summary, our data support a common and

prominent role of impaired autophagy in genetic and toxicant induced cell models. Furthermore, our observation that Drp1 inhibition improved autophagy flux in these models is novel and significant.