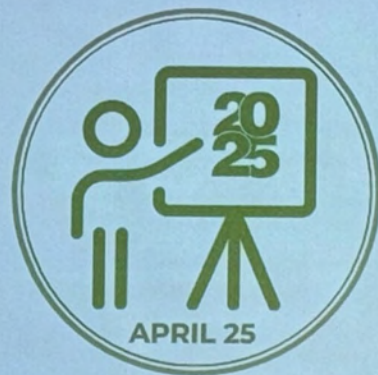
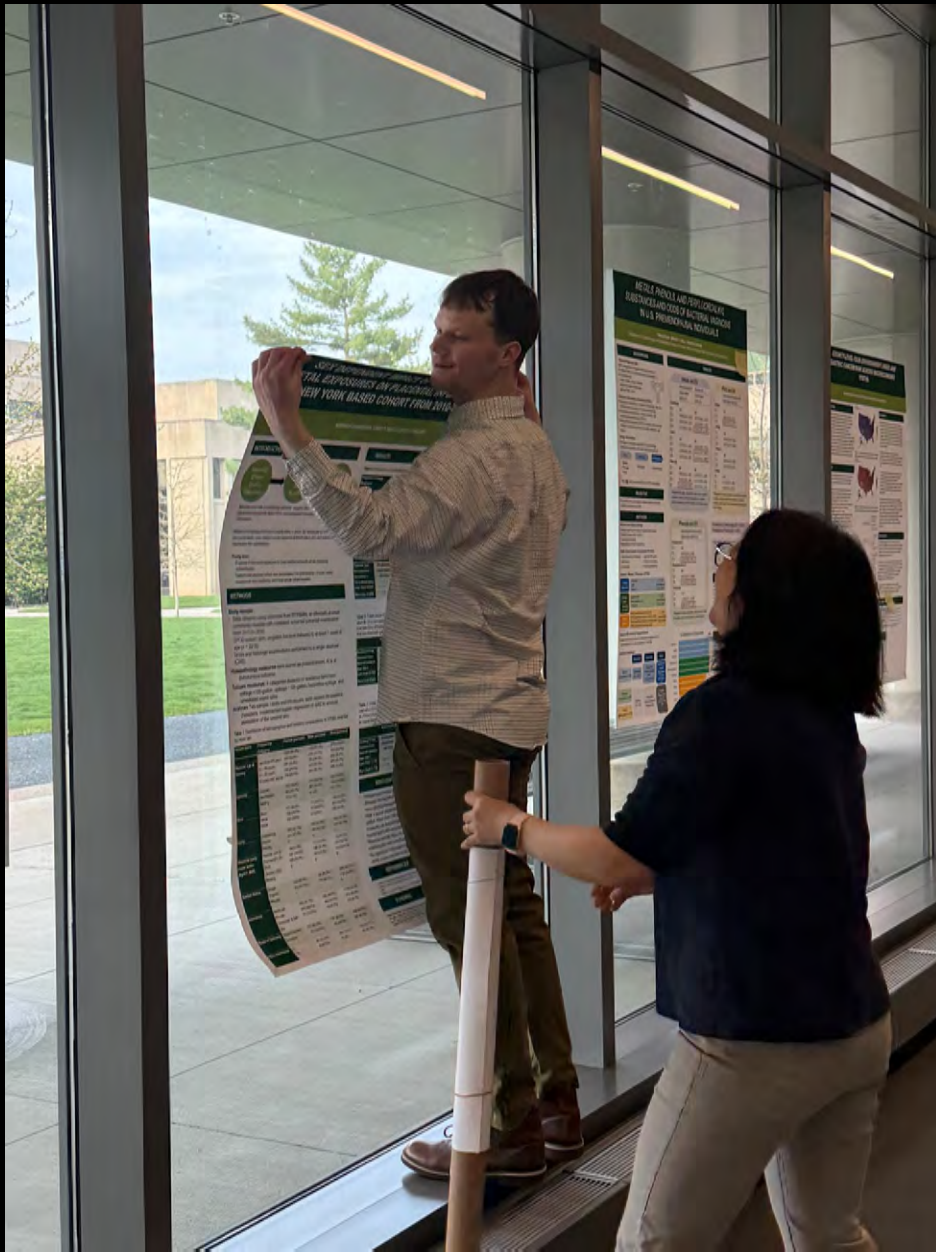


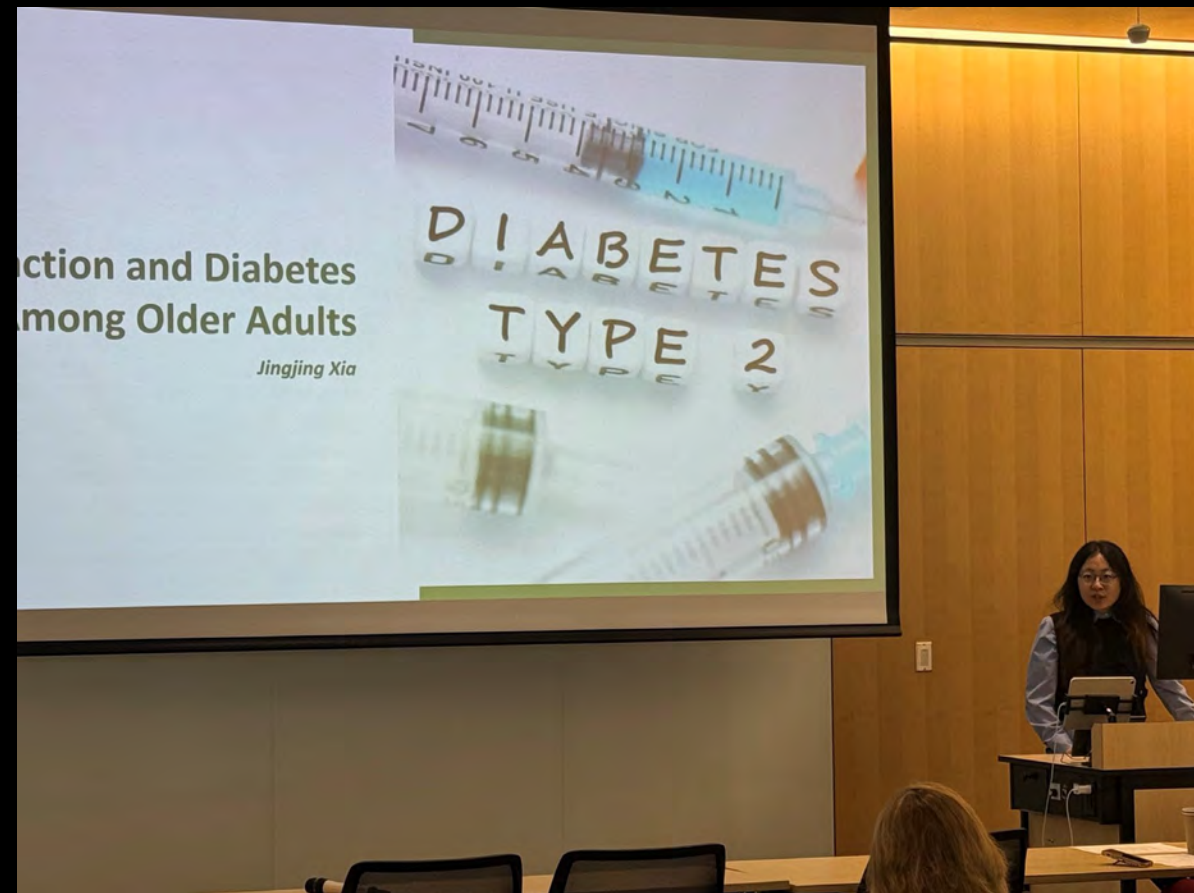
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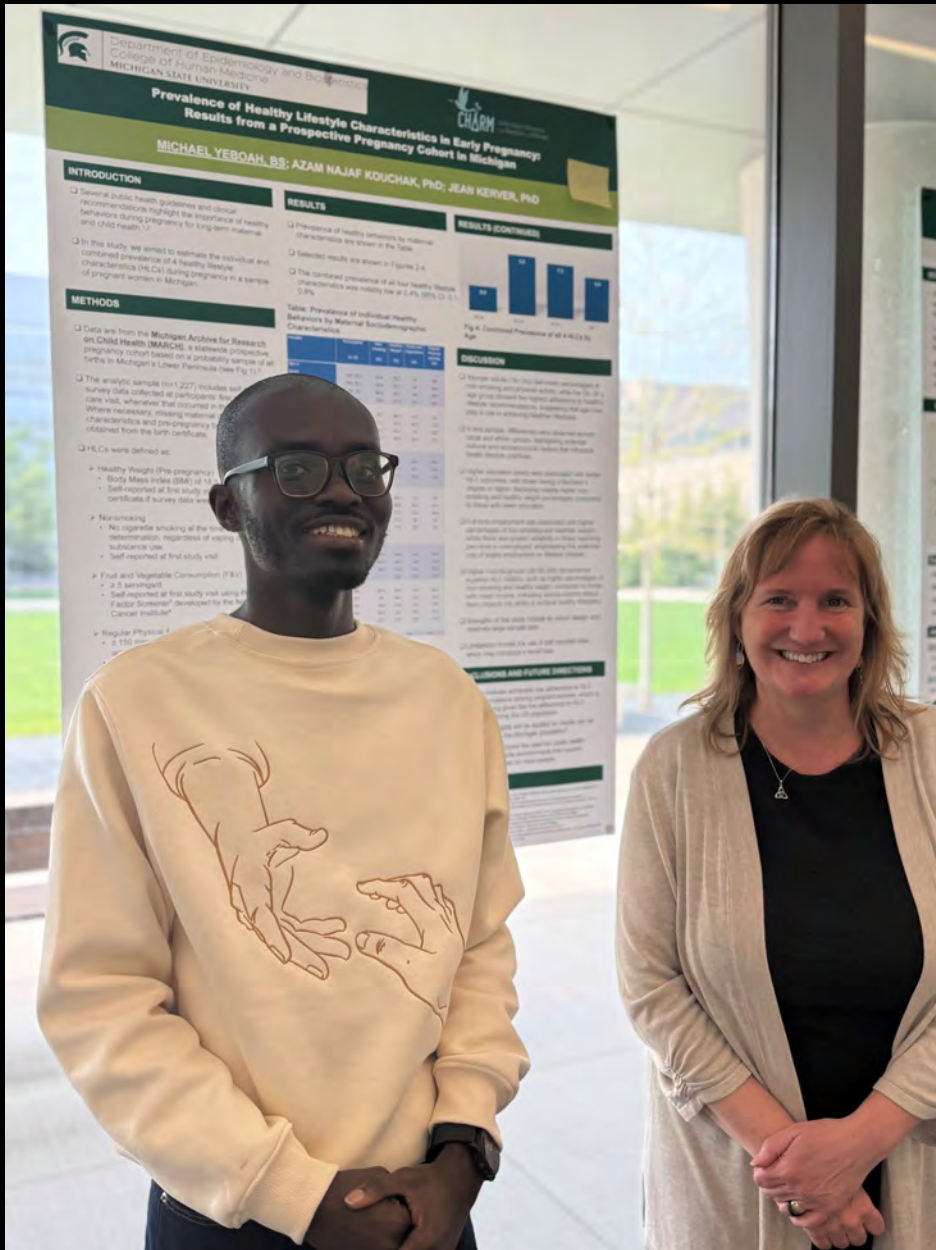


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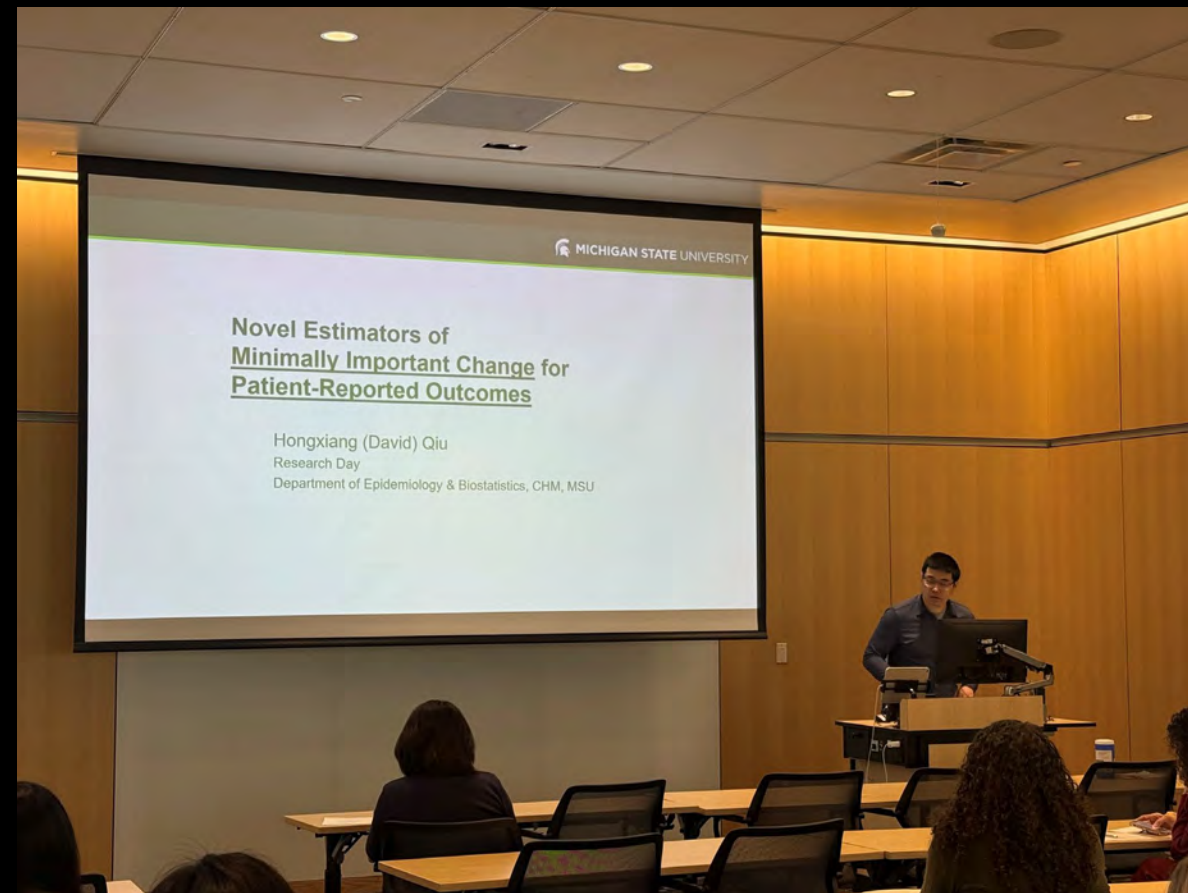
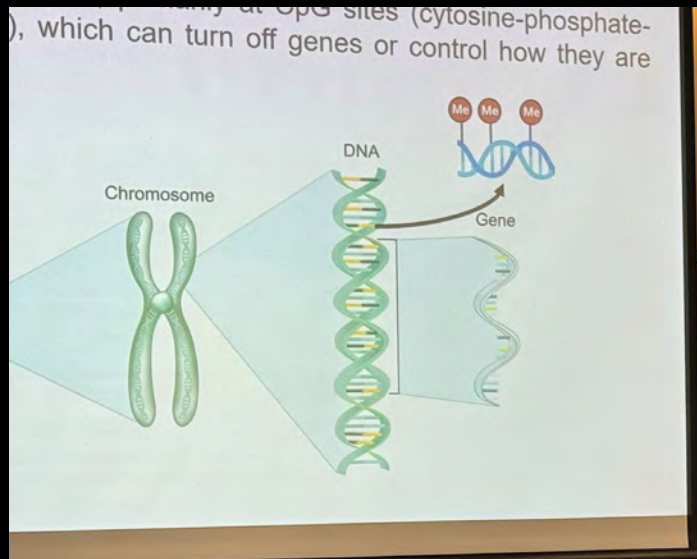




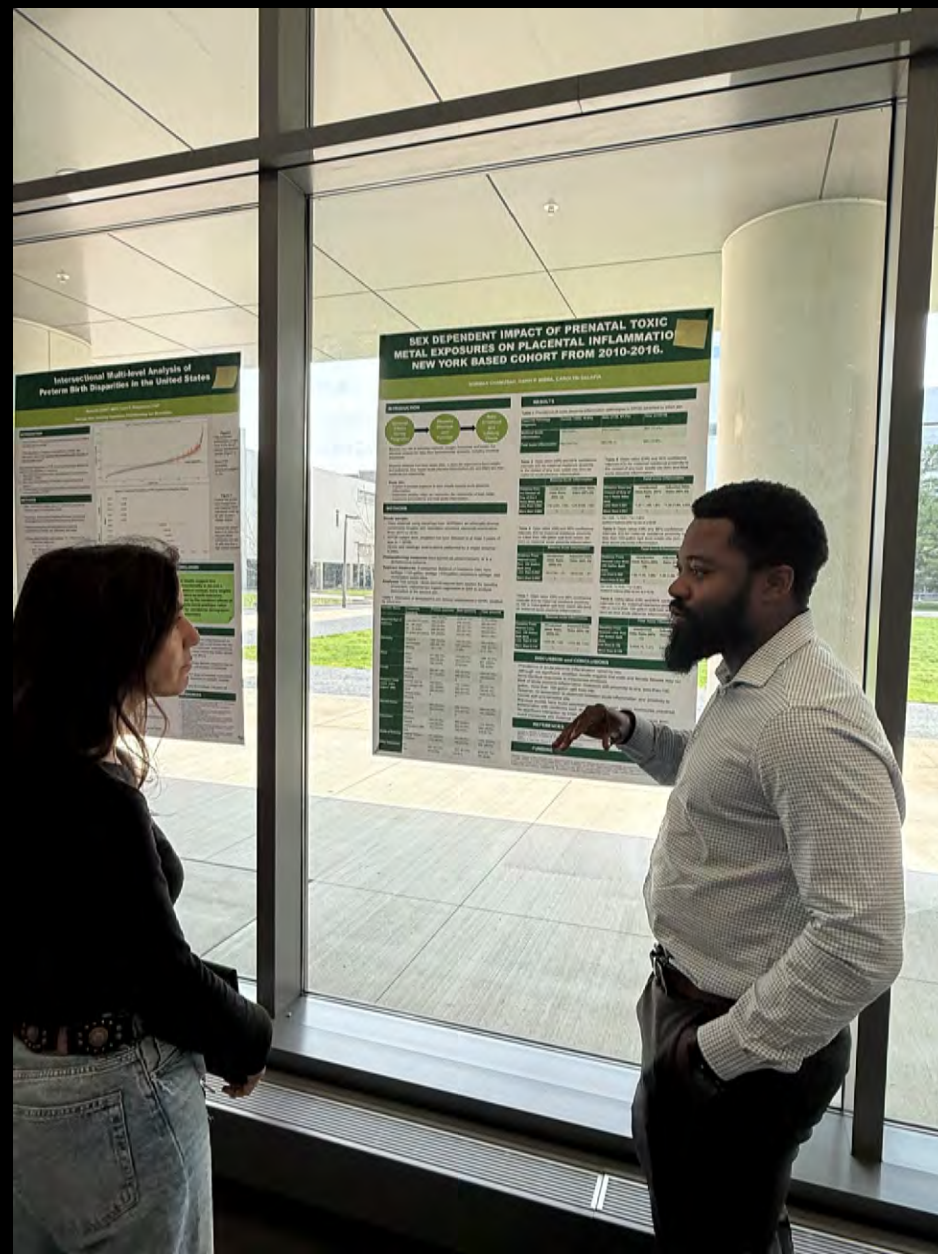


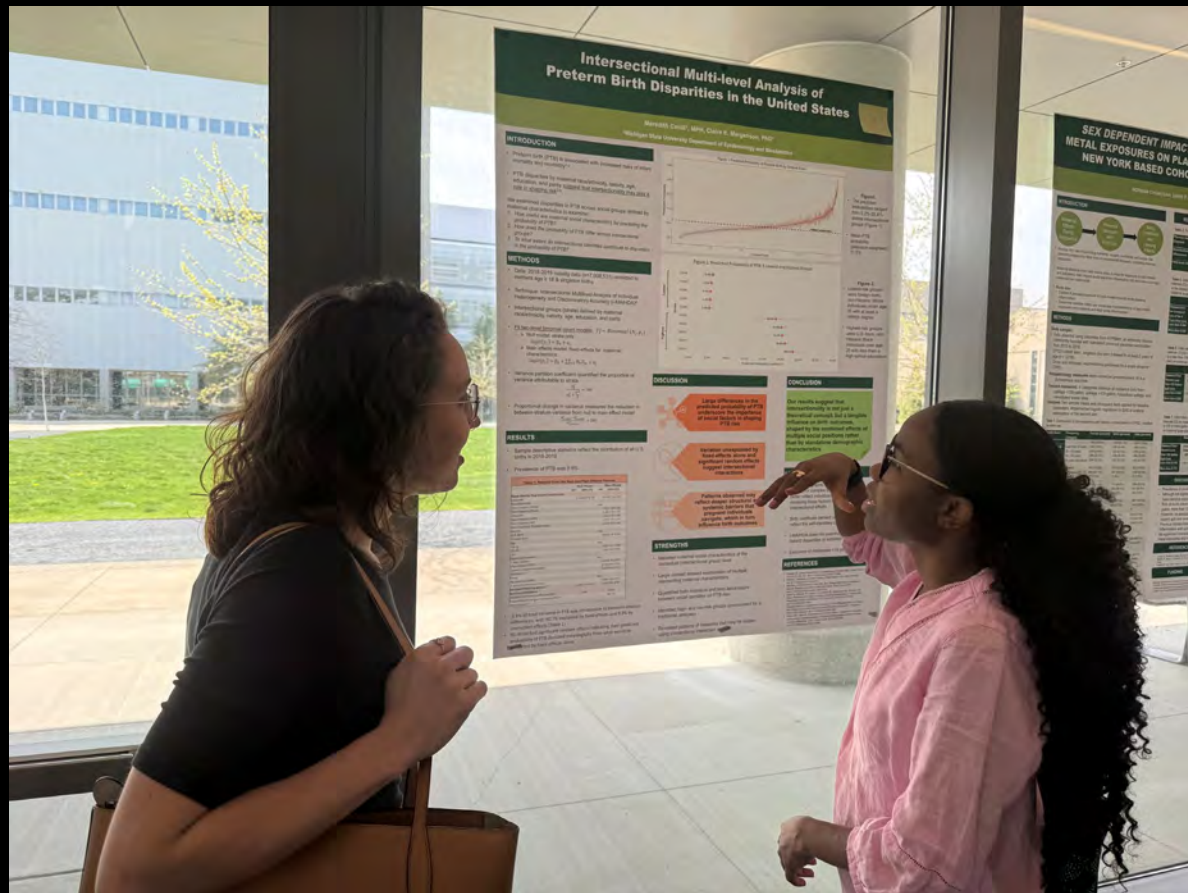




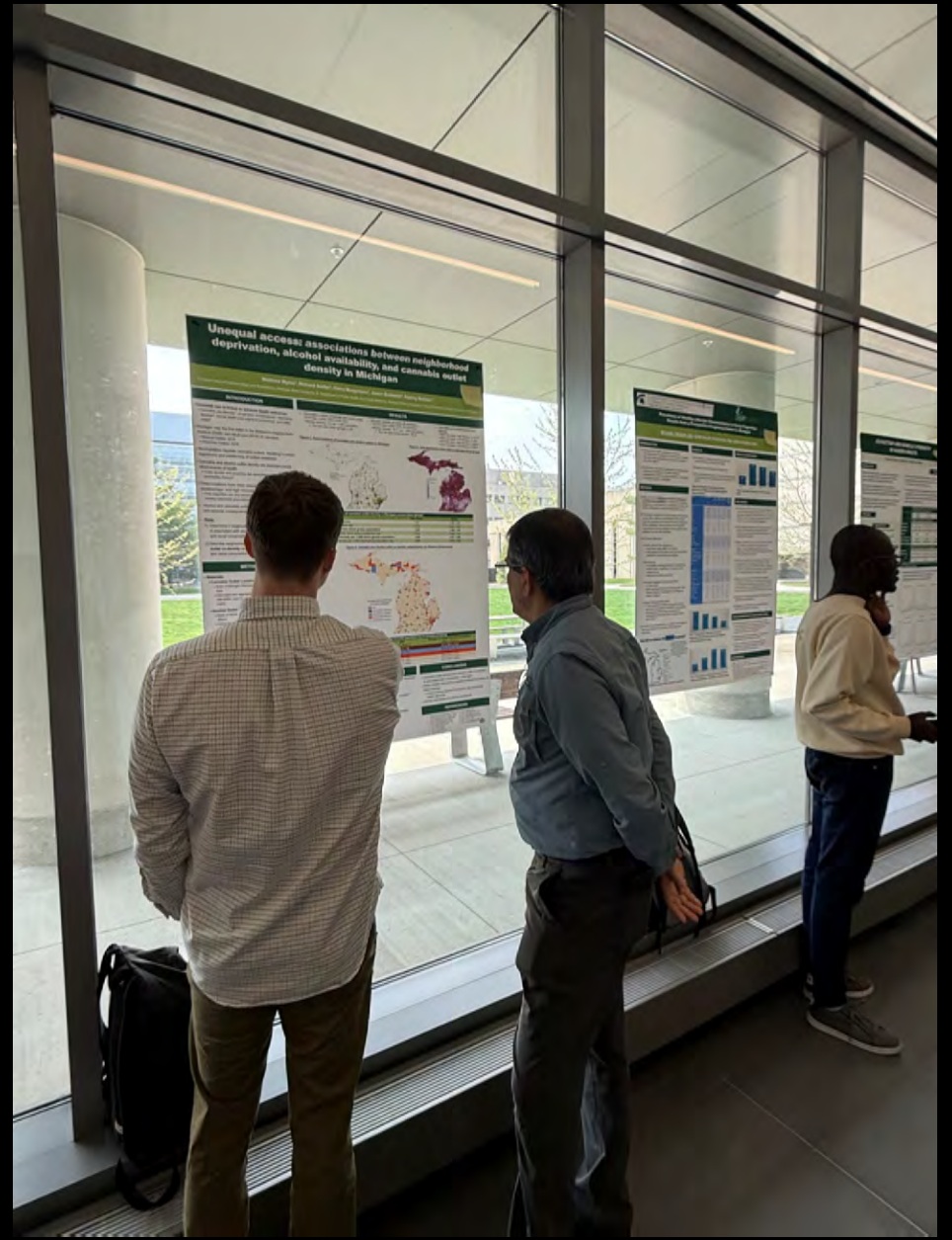
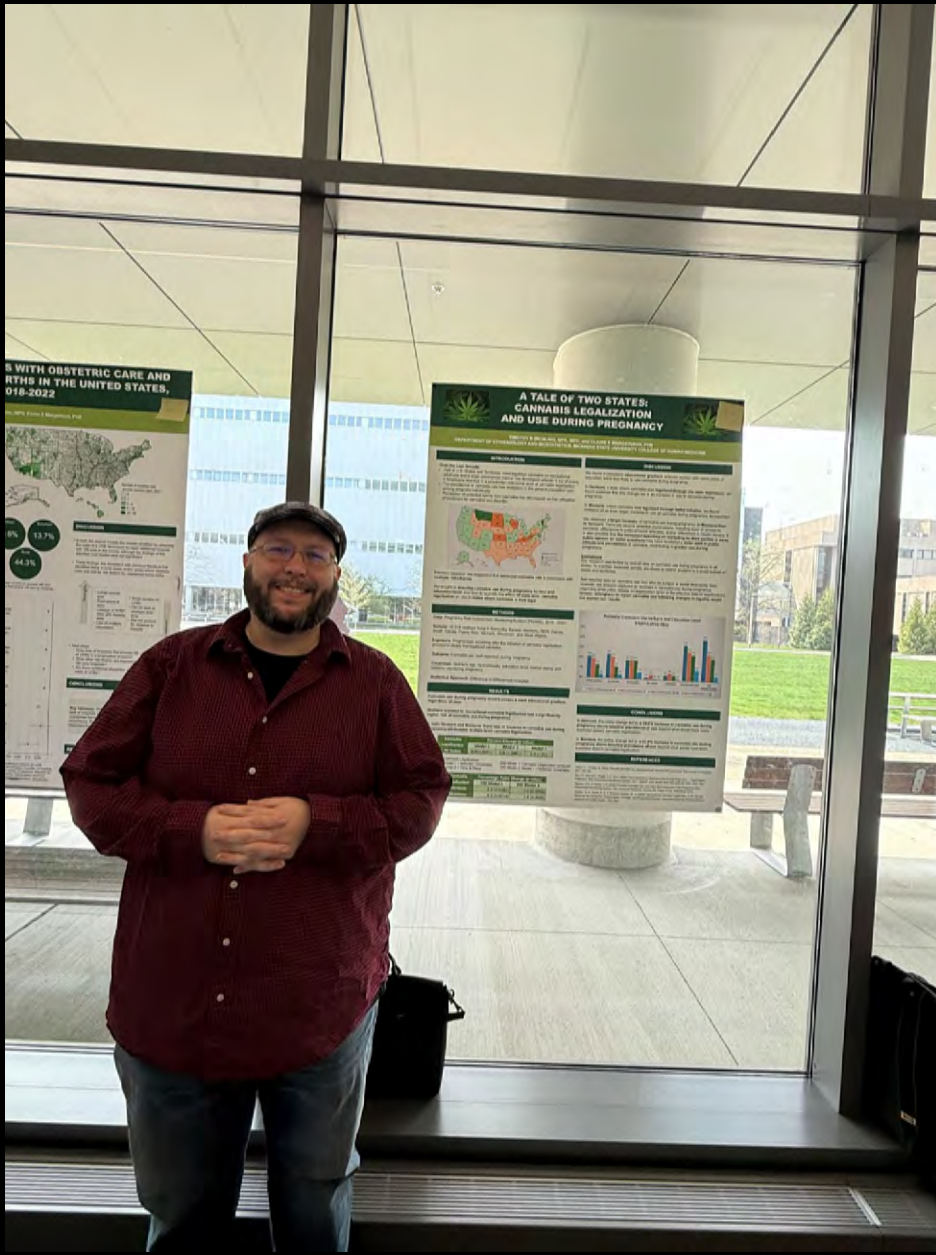




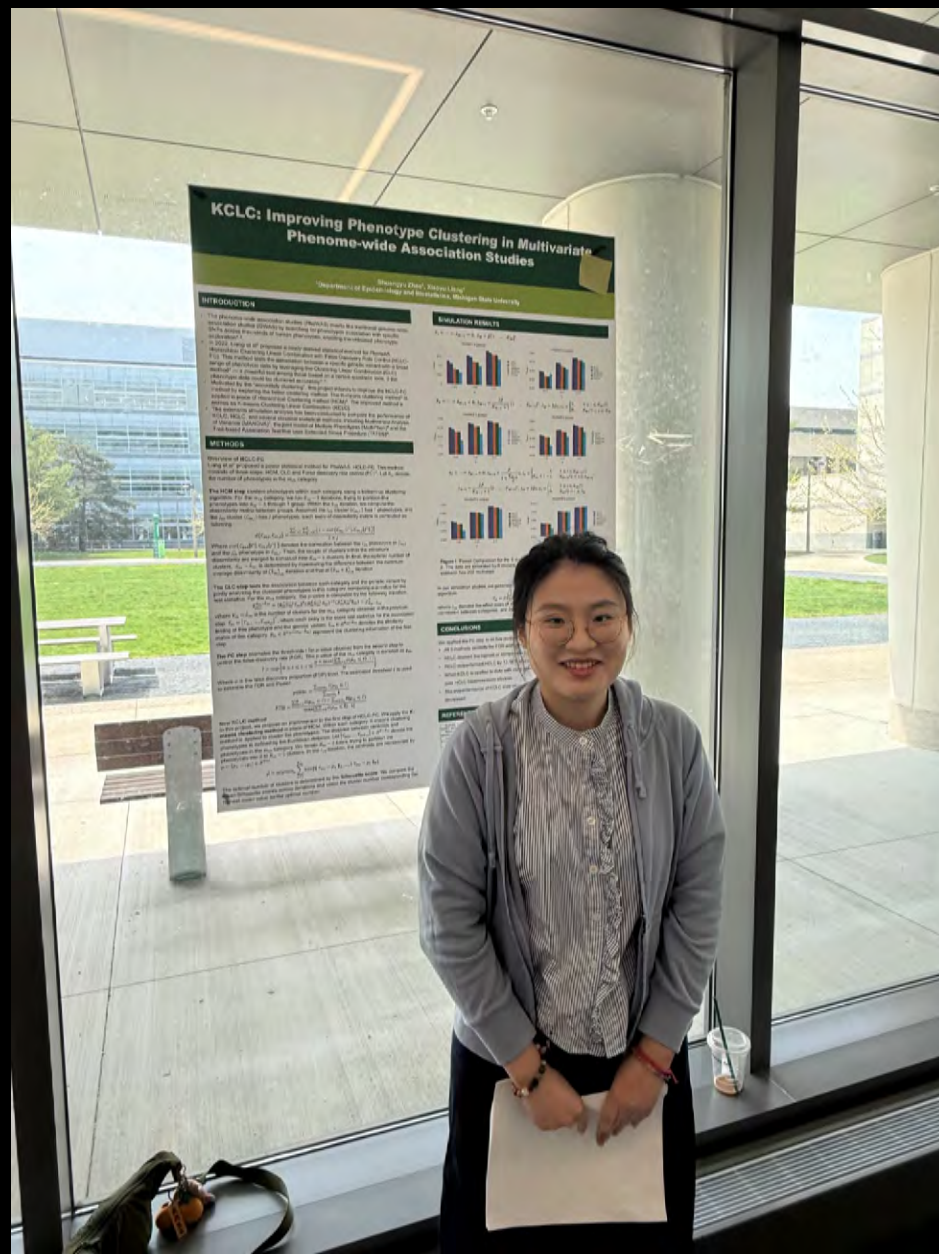




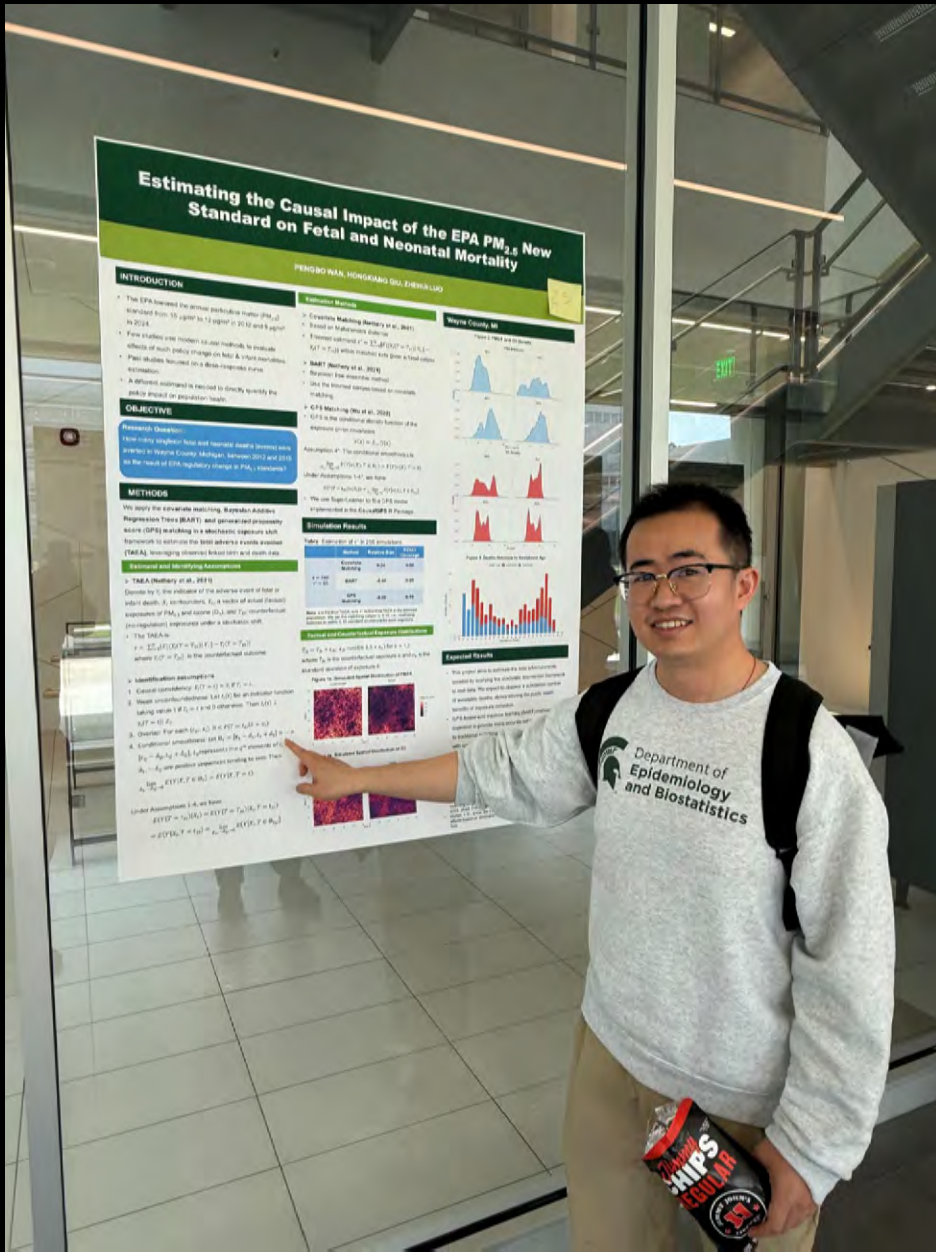




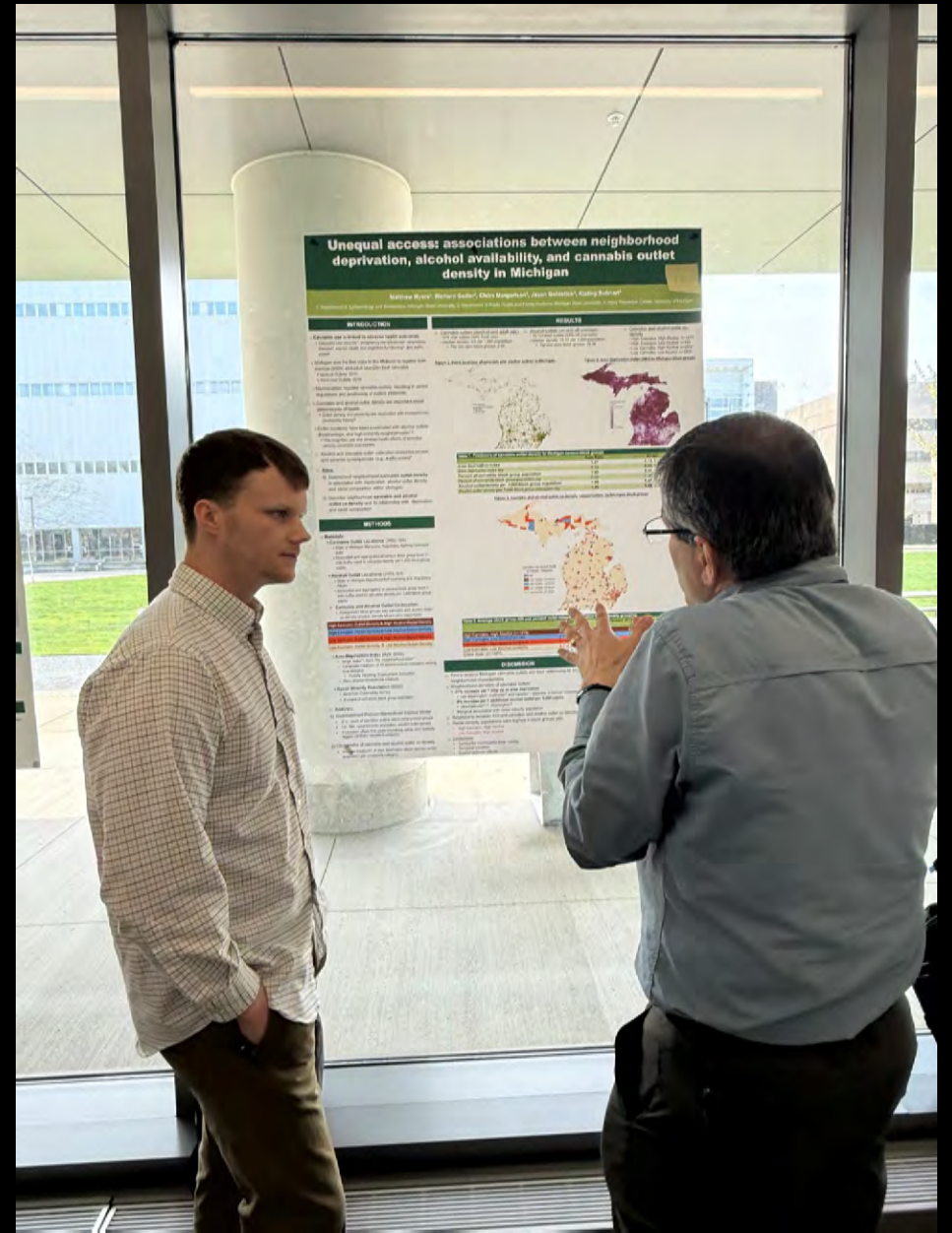


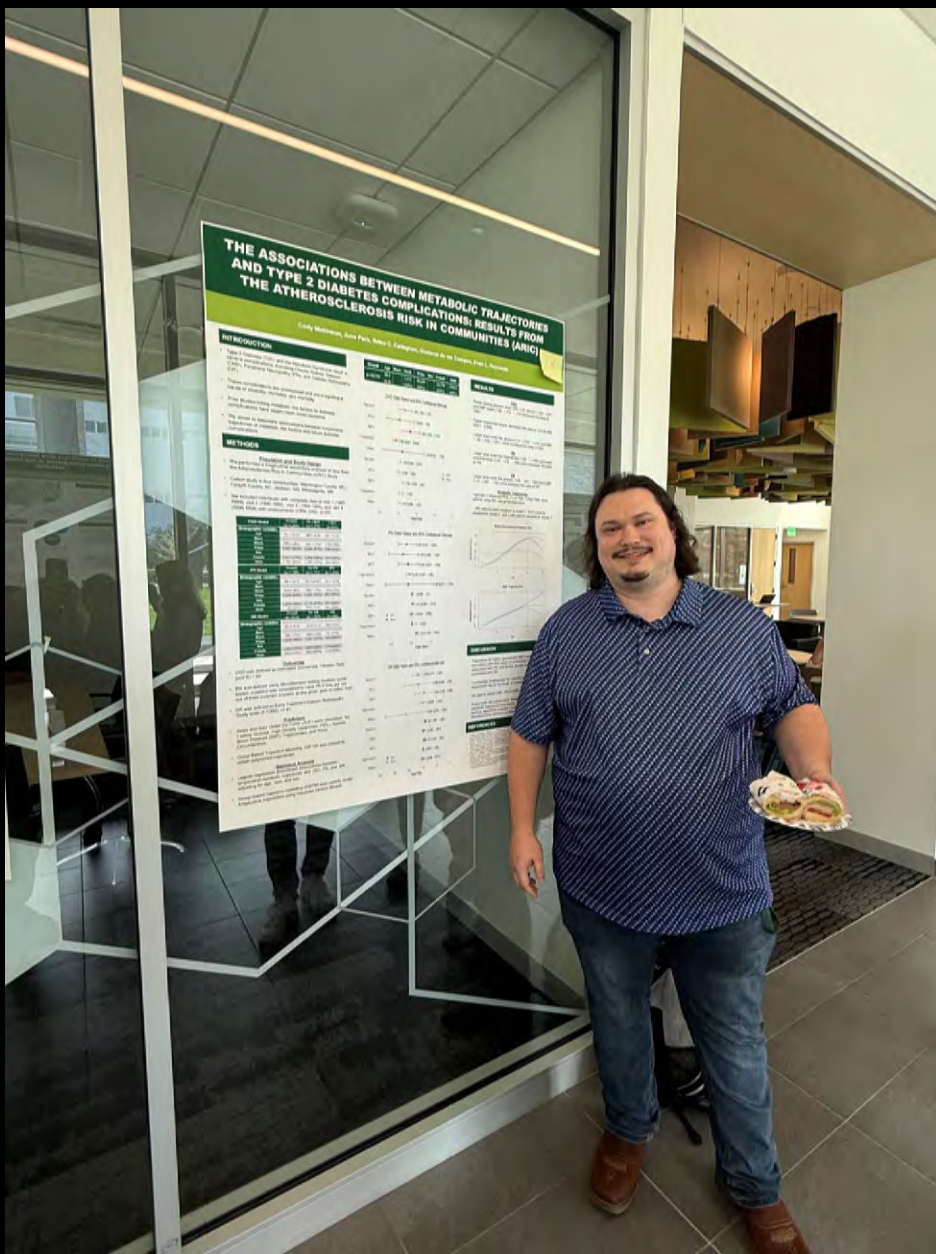


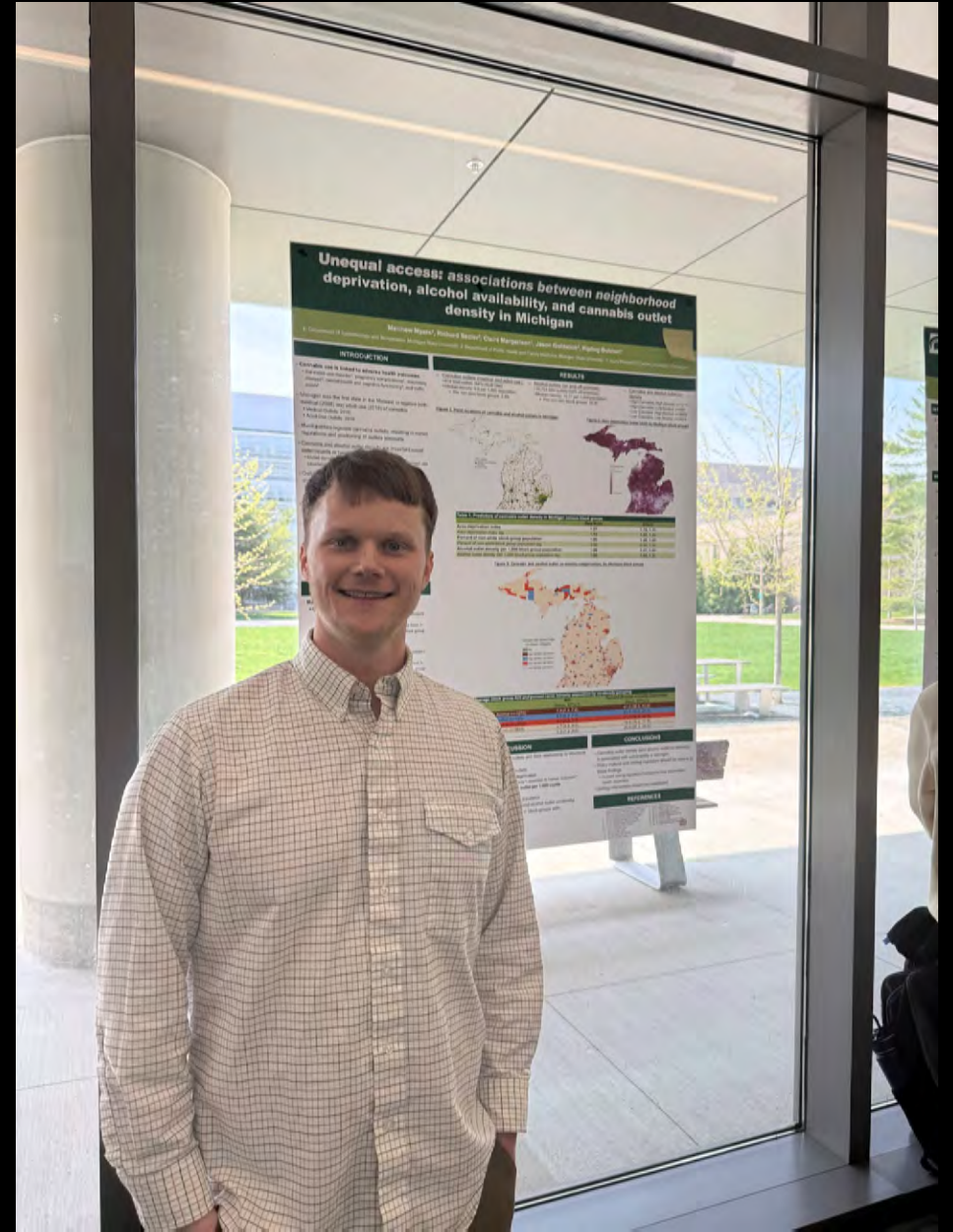
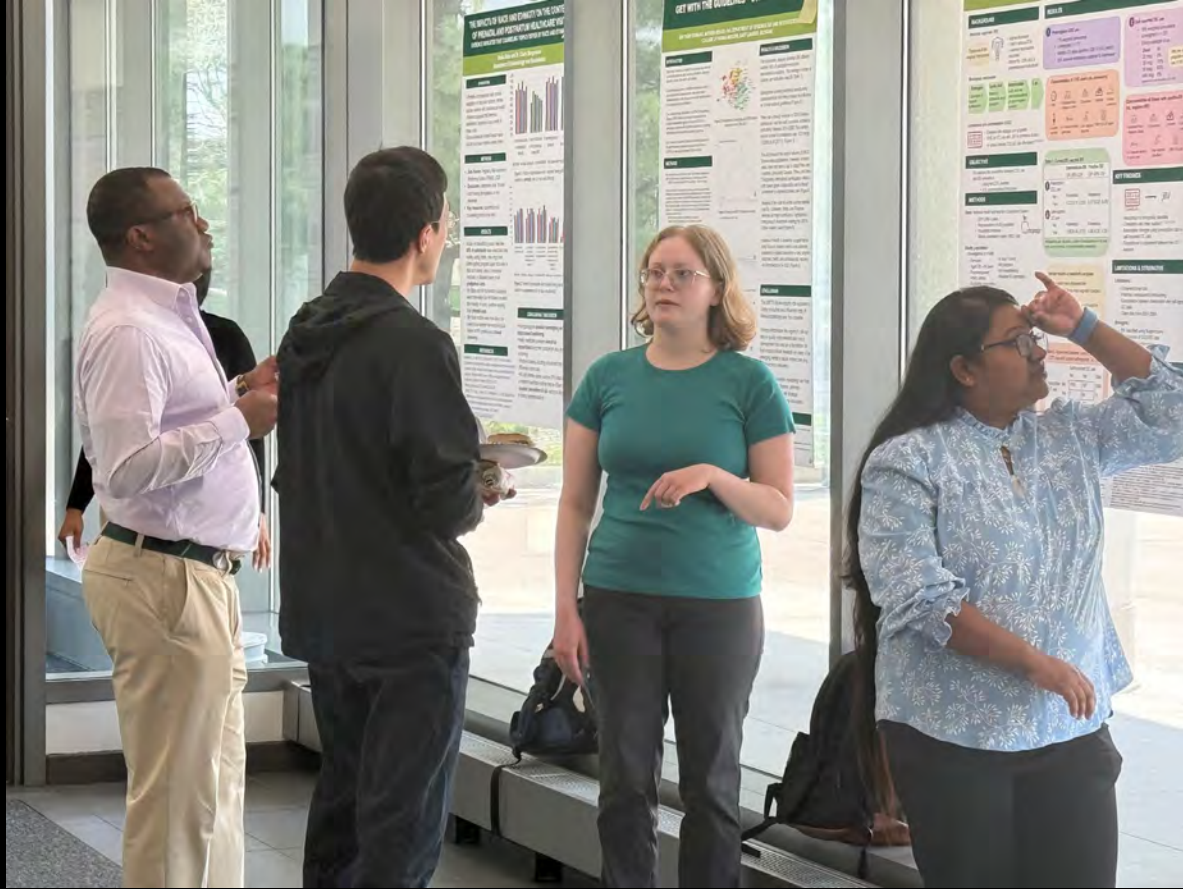




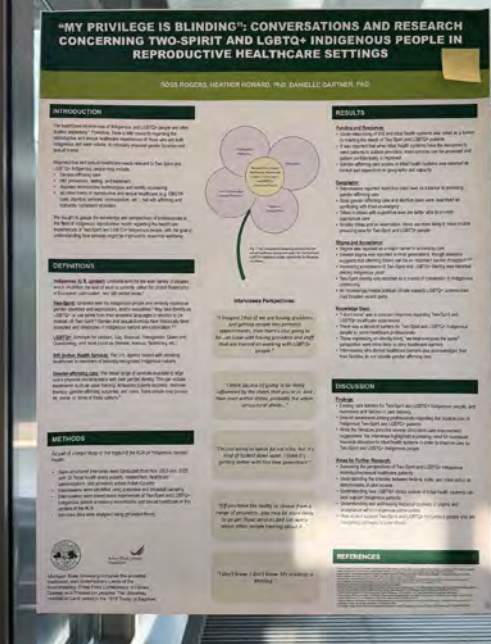
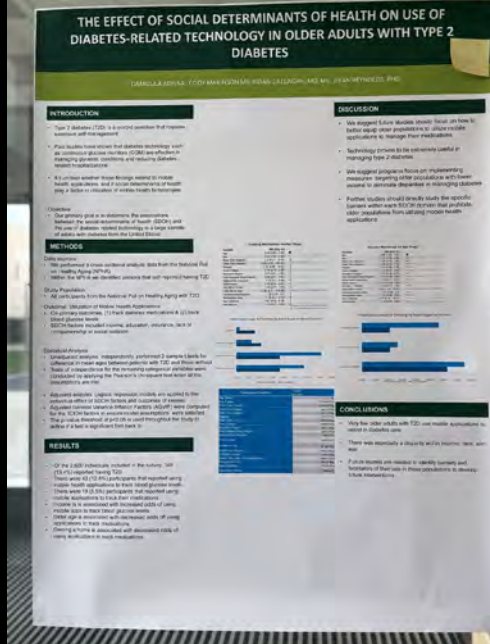












Intersectional Multi-level Analysis of Preterm Birth Disparities in the United States

Meredith Calkins, MPH, David R. Magerman, PhD
Michigan State University Department of Epidemiology and Biostatistics

INTRODUCTION

Preterm birth (PTB) is associated with increased rates of infant mortality and morbidity.
PTB disparities by maternal race/ethnicity, parity, and education are well documented but inconsistent in the literature.
PTB disparities by PTB status have been difficult to interpret in cross-sectional studies.
The current study aims to: 1) examine the prevalence of PTB, 2) assess the prevalence of PTB, 3) and assess the intersectional effect of maternal race/ethnicity, parity, and education on PTB.

METHODS

Using 2018-2019 data from the 2018-2019 National Survey of Women's Health, we conducted an intersectional multi-level analysis of PTB. We used a multi-level model to assess the effect of maternal race/ethnicity, parity, and education on PTB. We used a multi-level model to assess the effect of maternal race/ethnicity, parity, and education on PTB.

RESULTS

Overall, the prevalence of PTB was 10.5%. The prevalence of PTB was higher among Black women (12.5%) compared to White women (9.5%). The prevalence of PTB was higher among women with a high school education (11.5%) compared to women with a college education (9.5%).

CONCLUSIONS

Our results suggest that PTB disparities are not solely due to maternal race/ethnicity, parity, and education. The intersectional effect of maternal race/ethnicity, parity, and education on PTB is complex and requires further research.

EXPLORING PRENATAL HAND EXPRESSION OF COLOSTRUM AS A SOLUTION TO IMPROVE BREASTFEEDING OUTCOMES & ADVANCE BIOSPECIMEN RESEARCH

JAMARIAZEB, MSW, ANDREA CARTER-SUMNER, PhD, EMILY LESTER, MS, JEAN-ARNEE, PhD

INTRODUCTION

Colostrum, the first breast milk produced after birth, has many nutrients and bioactive components that support neonatal immunity and development.
Prenatal hand expression of colostrum is an emerging practice encouraged by some lactation consultants to improve breastfeeding success by stimulating milk production even before birth and enhancing maternal confidence.
Despite the potential significance of colostrum for infant health outcomes, research assessing colostrum composition is often limited by challenges in biospecimen collection.

OBJECTIVES

We aim to investigate the feasibility of the practice of prenatal hand expression of colostrum for its value as a biospecimen for research.

METHODS

We are currently recruiting a cohort of pregnant women to participate in a study of prenatal hand expression of colostrum. We are currently recruiting a cohort of pregnant women to participate in a study of prenatal hand expression of colostrum.

RESULTS

Our results suggest that prenatal hand expression of colostrum is a feasible practice that can be used to collect colostrum for research.

INVESTIGATION OF COMBINED ORAL CONTRACEPTION AND BACTERIAL VAGINOSIS IN US PREMENOPAUSAL INDIVIDUALS

SHARON TAYLOR, RANDY HALL, MS, DAWN MOBA, PhD, KATYU LAM, PhD, KRISTEN URSOL, MPH, PhD

BACKGROUND

Oral contraceptives (OCs) are widely used by premenopausal individuals. Bacterial vaginosis (BV) is a common condition that affects the vaginal microbiome.

OBJECTIVE

To investigate the association between OC use and BV prevalence.

METHODS

We conducted a cross-sectional study of premenopausal individuals. We collected data on OC use, BV prevalence, and other factors.

RESULTS

Our results suggest that OC use is associated with BV prevalence.

SEX DEPENDENT IMPACT OF PRENATAL TOXIC METAL EXPOSURES ON PLACENTAL INFLAMMATION: NEW YORK BASED COHORT FROM 2010-2016.

KHANAM CHANDAK, DDM, A. WILK, CAROLYN SALAZAR

INTRODUCTION

Prenatal exposure to toxic metals is associated with adverse outcomes. Placental inflammation is a key factor in adverse outcomes.

OBJECTIVE

To investigate the sex-dependent impact of prenatal toxic metal exposures on placental inflammation.

METHODS

We conducted a cohort study of pregnant women in New York. We collected data on prenatal toxic metal exposures, placental inflammation, and other factors.

RESULTS

Our results suggest that prenatal toxic metal exposures have a sex-dependent impact on placental inflammation.

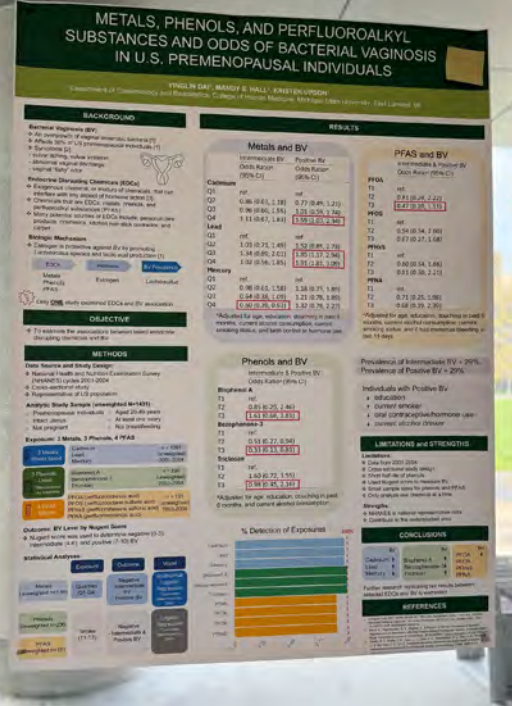
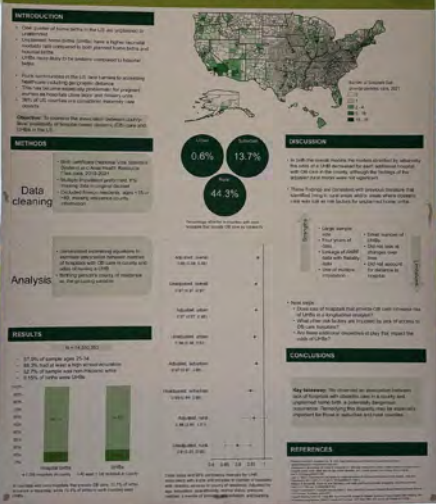
COUNTY-LEVEL FOOD ENVIRONMENT INDEX AND GASTRIC CANCER RISK ACROSS SOCIOECONOMIC STATUS

Shoshana Kelly, Anne Sheppard PhD, Debra Frenkel PhD, Emily Smith PhD



ACCESS TO HOSPITALS WITH OBSTETRIC CARE AND UNPLANNED HOME BIRTHS IN THE UNITED STATES, 2018-2022

David R. Anderson, MPH, David R. Anderson, PhD



A TALE OF TWO STATES: CANNABIS LEGALIZATION AND USE DURING PREGNANCY

David R. Anderson, MPH, David R. Anderson, PhD, David R. Anderson, PhD



POOR OLFACTION IS ASSOCIATED WITH LOWER PULMONARY FUNCTION IN OLDER ADULTS

Guangying Ding, Jingling Xie, CHENBI LI, Anna Kucharska-Astyczka, Eleanor M. Smyth, JOCKIELY CHEN*

INTRODUCTION

Living conditions are associated with a range of adverse health outcomes in older adults. Since COVID-19 pandemic, olfactory loss was widely recognized as an important and differentiating symptom of the disease. Poor olfaction is associated with lower pulmonary function in older adults. This study aimed to investigate the association between olfaction and pulmonary function in older adults.

METHODS

The Health and Retirement Study (HRS) data were used to assess participants' olfaction at Year 11 (2000) compared to Year 8 (1992) and Year 10 (2008). Participants were divided into two groups: those with poor olfaction (PO) and those with good olfaction (GO). Pulmonary function was measured using spirometry at Year 11.

RESULTS

Participants with PO had significantly lower pulmonary function than those with GO. The association remained significant after adjusting for age, sex, education, and other factors. The results suggest that poor olfaction is a marker for lower pulmonary function in older adults.

CONCLUSIONS

Poor olfaction is associated with lower pulmonary function in older adults. This finding has implications for the diagnosis and management of respiratory diseases in older adults.

OLFACTION AND DIABETES AMONG OLDER ADULTS

Jingling Xie, Guangying Ding, CHENBI LI, Anna Kucharska-Astyczka, Eleanor M. Smyth, JOCKIELY CHEN*

INTRODUCTION

Diabetes is a multifactorial chronic condition that has become a leading cause of morbidity and mortality. Poor olfaction is a common symptom of diabetes. This study aimed to investigate the association between olfaction and diabetes in older adults.

METHODS

The Health and Retirement Study (HRS) data were used to assess participants' olfaction at Year 11 (2000) compared to Year 8 (1992) and Year 10 (2008). Participants were divided into two groups: those with poor olfaction (PO) and those with good olfaction (GO). Diabetes status was determined based on self-report and medical records.

RESULTS

Participants with PO had a higher prevalence of diabetes than those with GO. The association remained significant after adjusting for age, sex, education, and other factors. The results suggest that poor olfaction is a marker for higher prevalence of diabetes in older adults.

CONCLUSIONS

Poor olfaction is associated with a higher prevalence of diabetes in older adults. This finding has implications for the diagnosis and management of diabetes in older adults.

Analytic Plan to Investigate the role of Medicaid Insurance on first-trimester prenatal care initiation and adverse birth outcomes

MOUNIRA QUDUS, NICOLE TALGE, DANIELLE GASTNER, DAWN MISRA, KAO YU, ZHENGLUO

INTRODUCTION

Medicaid insurance plays a critical role in providing prenatal care to low-income pregnant women. This study aimed to investigate the role of Medicaid insurance on first-trimester prenatal care initiation and adverse birth outcomes.

METHODS

The study will use data from the National Longitudinal Survey of Youth (NLSY) to assess the association between Medicaid insurance and first-trimester prenatal care initiation and adverse birth outcomes. The study will use a propensity score matching approach to control for confounding factors.

RESULTS

The study will report the association between Medicaid insurance and first-trimester prenatal care initiation and adverse birth outcomes. The results will provide insights into the role of Medicaid insurance in improving prenatal care and reducing adverse birth outcomes.

CONCLUSIONS

The study will provide evidence on the role of Medicaid insurance in improving prenatal care and reducing adverse birth outcomes. The findings will inform policy and practice to improve prenatal care for low-income pregnant women.

MICHIGAN NEWBORN SCREENING ANALYTE PATTERNS AND SIDS/SUID: LITERATURE REVIEW FOR WORK IN PROGRESS

JAVIER ARAMBOLLO, EB AND JAVIER ARAMBOLLO

INTRODUCTION

Sudden Infant Death Syndrome (SIDS) and Sudden Unexpected Infant Death (SUID) are leading causes of infant mortality. This study aimed to investigate the association between Michigan newborn screening analyte patterns and SIDS/SUID.

METHODS

The study will conduct a literature review to assess the association between Michigan newborn screening analyte patterns and SIDS/SUID. The study will use a systematic review approach to identify relevant studies.

RESULTS

The study will report the association between Michigan newborn screening analyte patterns and SIDS/SUID. The results will provide insights into the role of newborn screening in identifying infants at risk of SIDS/SUID.

CONCLUSIONS

The study will provide evidence on the association between Michigan newborn screening analyte patterns and SIDS/SUID. The findings will inform policy and practice to improve newborn screening and reduce SIDS/SUID.

GENE-ENVIRONMENT AND GENE-GENE INTERACTION TEST BASE ON THE ADDITIVE HAZARDS MODEL

HAIZHONG LI, JIAHONG CHEN, YU

INTRODUCTION

Genetic epidemiology studies have been conducted to identify the genetic architecture of complex diseases. However, the environmental and gene-environment interactions have been largely ignored. In this paper, we propose a novel test for gene-environment and gene-gene interactions based on the additive hazards model. The proposed test is more powerful than the existing tests in the presence of gene-environment and gene-gene interactions. Simulation studies and a real data analysis show the performance of the proposed test.

METHODS

The proposed test is based on the additive hazards model. The test statistic is defined as follows: $T = \sum_{i=1}^n \sum_{j=1}^p \sum_{k=1}^q \beta_{ijk} X_{ij} X_{jk}$, where X_{ij} and X_{jk} are the additive hazards model coefficients. The test statistic is distributed as a chi-square distribution with $p \times q$ degrees of freedom. Simulation studies and a real data analysis show the performance of the proposed test.

RESULTS

The proposed test is more powerful than the existing tests in the presence of gene-environment and gene-gene interactions. Simulation studies and a real data analysis show the performance of the proposed test.

CONCLUSIONS

The proposed test is more powerful than the existing tests in the presence of gene-environment and gene-gene interactions. Simulation studies and a real data analysis show the performance of the proposed test.

REFERENCES

1. Li, H., & Chen, J. (2018). Gene-environment and gene-gene interaction test based on the additive hazards model. *Biometrics*, 74(2), 456-468.

Impact of Mental Health Diagnosis and Therapies on Metabolic Risk and Diabetes Complications

Estelith McMahon, Dr. Brian C. Callaghan, Lavanya Muthukumar, Dr. XIAOYU LIANG, Dr. EVAN REYNOLDS

INTRODUCTION

Metabolic risk and diabetes complications are major public health problems. Mental health diagnosis and therapies may have a significant impact on these outcomes. This study aims to investigate the impact of mental health diagnosis and therapies on metabolic risk and diabetes complications.

METHODS

We conducted a retrospective cohort study using data from the National Health and Medical Research Council (NH&MRC) Diabetes Register. The study included patients with type 2 diabetes who had a mental health diagnosis and/or received mental health therapy between 2000 and 2015. The primary outcome was the incidence of metabolic risk and diabetes complications. The secondary outcome was the time to first complication.

RESULTS

The study included 10,000 patients. The incidence of metabolic risk and diabetes complications was significantly higher in patients with a mental health diagnosis and/or received mental health therapy compared to those without. The time to first complication was significantly shorter in patients with a mental health diagnosis and/or received mental health therapy compared to those without.

CONCLUSIONS

Mental health diagnosis and therapies have a significant impact on metabolic risk and diabetes complications. Further research is needed to explore the underlying mechanisms and to develop targeted interventions.

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1. McMahon, E., Callaghan, B., Muthukumar, L., Liang, X., & Reynolds, E. (2018). Impact of mental health diagnosis and therapies on metabolic risk and diabetes complications. *Diabetes Care*, 41(12), 2345-2352.

A Scoping Review of Selection Bias in Long-term Pesticide Exposure Studies Using the Agricultural Health Study

Changping Li, Shengfeng (Shengfeng) Song, Xueyan Yang, Xueyan Yang, Xueyan Yang

INTRODUCTION

Selection bias is a major concern in long-term pesticide exposure studies. This scoping review aims to identify the types of selection bias and their potential impacts on the results of these studies.

METHODS

We conducted a scoping review of the literature on selection bias in long-term pesticide exposure studies. We searched the PubMed, Embase, and Cochrane databases for relevant studies published between 2000 and 2015. The search terms included "selection bias", "pesticide exposure", and "Agricultural Health Study".

RESULTS

We identified 10 studies that met the inclusion criteria. The most common types of selection bias were non-response bias and loss to follow-up bias. These biases can lead to biased estimates of the association between pesticide exposure and health outcomes.

CONCLUSIONS

Selection bias is a major concern in long-term pesticide exposure studies. Researchers should be aware of the potential impacts of selection bias and take steps to minimize its effects.

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1. Li, C., Song, S., Yang, X., & Yang, X. (2018). A scoping review of selection bias in long-term pesticide exposure studies using the Agricultural Health Study. *International Journal of Epidemiology*, 47(1), 1-10.

KCLC: Improving Phenotype Clustering in Multivariate Phenome-wide Association Studies

Xueyan Yang, Xueyan Yang, Xueyan Yang, Xueyan Yang, Xueyan Yang

INTRODUCTION

Phenome-wide association studies (PWAS) are a powerful tool for identifying genetic variants associated with complex traits. However, the results of these studies can be affected by various factors, including phenotype clustering. This paper introduces a new method, KCLC, for improving phenotype clustering in multivariate PWAS.

METHODS

KCLC is a new method for improving phenotype clustering. It is based on the K-means clustering algorithm and the Lasso regression method. KCLC can handle high-dimensional data and is robust to outliers. Simulation studies and a real data analysis show the performance of KCLC.

RESULTS

KCLC outperforms the existing methods in terms of clustering accuracy and stability. Simulation studies and a real data analysis show the performance of KCLC.

CONCLUSIONS

KCLC is a new method for improving phenotype clustering in multivariate PWAS. It is based on the K-means clustering algorithm and the Lasso regression method. KCLC can handle high-dimensional data and is robust to outliers.

REFERENCES

1. Yang, X., Yang, X., Yang, X., & Yang, X. (2018). KCLC: Improving Phenotype Clustering in Multivariate Phenome-wide Association Studies. *Biometrics*, 74(2), 456-468.

Set-based association tests for panel count data

Student: Kaiti Wu, Faculty Advisor: Sheng Li
Department of Epidemiology and Biostatistics, Michigan State University

INTRODUCTION

Background: Several of the existing methods for panel count data have been developed for the case where the data are generated from a Markov process. However, in many cases the data are generated from a non-Markov process. In this paper, we propose a new method for analyzing panel count data.

Goal: To develop a set of set-based association tests for panel count data.

Contributions: Methodological innovation: Apply the weighted likelihood method to panel count data.

Accounting for heterogeneity: Effectively account for heterogeneity across subjects and adjust for correlated observations.

Small Sample Correction: Enhance the accuracy in the small sample size.

METHODS

1. Data and model: Let $\mathbf{Y}_i = (Y_{i1}, Y_{i2}, \dots, Y_{in})^T$ be the observed panel count data for subject i . Let $\mathbf{X}_i = (X_{i1}, X_{i2}, \dots, X_{in})^T$ be the corresponding covariate data.

2. Estimation of β and γ : Under the null $H_0: \beta = 0$, the generalized likelihood ratio test (GLRT) is used to test the null hypothesis.

3. Test for genetic association without genetic heterogeneity (GAT): The GAT test is defined as follows:

$$GAT = \frac{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{X}_i}{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{Y}_i}$$

4. Test for genetic association with genetic heterogeneity (GAT+): The GAT+ test is defined as follows:

$$GAT+ = \frac{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{X}_i}{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{Y}_i} + \frac{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{Z}_i}{\sum_{i=1}^n \mathbf{Y}_i^T \mathbf{Z}_i}$$

5. Small sample correction: The small sample correction is applied to the GAT and GAT+ tests.

RESULTS

Simulation Results: The simulation results show that the proposed tests have good power to detect genetic association.

Real Data Results: The real data results show that the proposed tests have good power to detect genetic association.

CONCLUSIONS

The proposed tests have good power to detect genetic association. The small sample correction improves the accuracy of the tests.

THE ASSOCIATIONS BETWEEN METABOLIC TRAJECTORIES AND TYPE 2 DIABETES COMPLICATIONS: RESULTS FROM THE ATHEROSCLEROSIS RISK IN COMMUNITIES (ARIC)

Corey M. Johnson, Julia Park, Brian C. Collings, Deborah de Souza, Kevin L. Reynolds

INTRODUCTION

Metabolic trajectories are defined as a sequence of metabolic states over time. These trajectories are associated with the risk of developing type 2 diabetes and its complications.

METHODS

Study Design: The ARIC study is a longitudinal study of 15,000 individuals aged 45-64 years.

Metabolic Trajectories: We defined four metabolic trajectories based on fasting glucose and HbA1c levels.

Diabetes Complications: We defined three diabetes complications: retinopathy, nephropathy, and neuropathy.

RESULTS

The results show that individuals in the high metabolic trajectory group have a higher risk of developing diabetes complications compared to those in the low metabolic trajectory group.

CONCLUSIONS

Metabolic trajectories are associated with the risk of developing diabetes complications. Identifying individuals at high risk of developing complications may help in the development of preventive strategies.

Estimating the Causal Impact of the EPA PM_{2.5} New Standard on Fetal and Neonatal Mortality

PENGBO WANG, HONGDING GAO, JINCHENG LIU

INTRODUCTION

The EPA PM_{2.5} New Standard is a key policy to reduce air pollution. This study aims to estimate the causal impact of the new standard on fetal and neonatal mortality.

METHODS

Study Design: We used a difference-in-differences (DiD) design to estimate the causal impact of the new standard.

Data Sources: We used data from the National Vital Statistics System (NVSS) and the Environmental Protection Agency (EPA).

RESULTS

The results show that the EPA PM_{2.5} New Standard had a significant negative impact on fetal and neonatal mortality.

CONCLUSIONS

The EPA PM_{2.5} New Standard has a significant impact on reducing fetal and neonatal mortality. Further research is needed to explore the mechanisms of this impact.

THE LONG-TERM CAUSAL EFFECT OF CUMULATIVE PESTICIDE EXPOSURE ON OLFACTORY IMPAIRMENT: A STOCHASTIC INTERVENTION FRAMEWORK INCORPORATING COARSENING MECHANISMS FOR SEMICONTINUOUS EXPOSURES

SHENSHANG ZHANG, JIANGYU ZHANG, JINCHENG LIU, YUJIA WANG, HONGDING GAO, JINCHENG LIU

INTRODUCTION

Pesticide exposure is a major risk factor for olfactory impairment. This study aims to estimate the long-term causal effect of cumulative pesticide exposure on olfactory impairment.

METHODS

Study Design: We used a stochastic intervention framework to estimate the long-term causal effect of cumulative pesticide exposure.

Data Sources: We used data from the National Health and Medical Research Council (NH&MRC) and the Environmental Protection Agency (EPA).

RESULTS

The results show that cumulative pesticide exposure has a significant negative impact on olfactory impairment.

CONCLUSIONS

Cumulative pesticide exposure has a significant impact on olfactory impairment. Further research is needed to explore the mechanisms of this impact.



Thank you for attending