Association Between Breastfeeding During Infancy and Obesity During Adolescence

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Introduction
- The short-term benefits of breastfeeding for both mothers and their infants are now well-recognized by all.
- Childhood obesity and its consequences represent a major public health problem.
- Globally, it has been estimated that 15% of children and adolescents aged 5-19 years old were either obese or overweight.
- While the short-term benefits of breastfeeding are well-recognized for infants and young children, there is currently a huge interest in whether breastfeeding also has long-term benefits beyond early childhood, such as during adolescence or adulthood.
- According to the Developmental Origins of Health and Disease (DOHaD), breastfeeding, as an early life exposure, has been proposed to play a role in reducing the risk of overweight/obesity throughout life.
- Several epidemiological studies have attempted to demonstrate the link between breastfeeding during infancy and the risk of obesity in adolescence and adulthood, but the findings remain inconclusive.

Purpose
This study aimed to investigate the association between breastfeeding during infancy and overweight/obesity during adolescence.

Methods
Study Site and Participants:
- This is a cross-sectional study in which data were collected on schoolgirls attending public and private high schools (age range: 14 – 19 years).

Data Collection:
- Data were collected from schoolgirls by self-administered questionnaires.
- Participants were considered the only source of information about their breastfeeding history and other factors such as their lifestyle and dietary habits.
- Body weight was measured using calibrated digital scales (Seaker 650 S) without shoes or heavy clothing.
- Height was measured to the nearest 0.1 cm using a stadiometer with fully extended knees and shoes off.

Statistical Methods:
- Body mass index (BMI) was calculated as weight in kg – height in meters.
- BMI-for-age z-scores were calculated using WHO growth charts. Overweight was defined as >1 SD to <2 SD of BMI > 2 SD using WHO growth reference median.
- BMI cut-off points for adults were used for schoolgirls aged >18 years (<18.5 kg/m² overweight, 18.5-24.0 kg/m² normal weight, 25.0-29.0 kg/m² overweight, >30.0 kg/m² obese).

Prevalence Ratio was calculated using Stata command "outreg2".

Univariable and multivariable logistic regression was used to assess the association between obesity and breastfeeding during infancy while adjusting for potential confounders.

Results
- The total number of schoolgirls included in this analysis was 775.
- The mean (SD) age was 15.7 (1.41) years.
- The prevalence of overweight and obesity was (23.6%) and (33.3%) respectively. The prevalence was not significantly different between public and private schools (p=0.32).

Findings
- Whether the schoolgirl was ever breastfed or not showed no association with overweight/obesity (c-stat 0.52 [95%CI: 0.41 – 0.63]; p=0.23) and adjusted PAR = 1.07 [95%CI: 0.92 – 1.24]; p=0.41).
- Type of breastfeeding (exclusive, mixed, no breastfeeding) during infancy was not significantly associated with overweight/obesity in both univariable (P=0.53) and multivariable analysis (P=0.48).
- There was no significant association between duration of breastfeeding and overweight/obesity, whether it was fitted as a continuous or a categorical variable at 0.05 compared to 1.0 months of life and also at 1.05 compared to 0.0 months and conducted separate analyses.

- Whether the participant was breastfed or not was not significantly associated with overweight/obesity (c-stat 0.59 [95%CI: 0.44 – 0.75])); p=0.41) and adjusted PAR = 1.09 [95%CI: 0.95 – 1.25]; p=0.25).
- There was no significant association between the age at which breastfeeding was initiated whether fitted as a continuous or a categorical variable at 0.04 vs. >4 months of life.

Conclusions
In conclusion, we found no significant association between breastfeeding or breastfeeding duration during infancy and overweight/obesity during adolescence. Breastfeeding has other indisputable benefits for mothers and children and should be encouraged whether or not it is associated with obesity later in life. Further longitudinal studies that collect data on breastfeeding and other feeding practices prospectively from birth until adolescence are needed to elucidate the long-term benefits of breastfeeding in terms of obesity during adolescence. Such studies should collect data on potential confounders such as parental and environmental factors in addition to repeatedly monitor diet over the whole study period.
Association Between Meal Program Participation and Protein Intake in US Adults 65 and Older: A Cross-Sectional Analysis of the NHANES 2013-2018
Sarah V. Collins, MPH, RD, RES, Robert A. Buron, MPH, and Arline L. Hires, PhD, MPH
Virginia Commonwealth University School of Medicine

MAIN FINDINGS
- There was no significant difference in protein intake by meal program participation.
- Race may play a role in protein intake among individuals 65 years and older.
- Non-Hispanic Blacks experienced a two-day average of 8.82 grams lower than their white counterparts [SE=1.48; p<0.0001], even when gender, income, age, and marital status were controlled.
- Hispanic/Latinos two-day protein average was 1.29 grams lower [SE=0.65; p=0.0426].

CONCLUSIONS
- Cross-sectional, complete case analysis design limits ability to make causal judgements or recommendations.
- Our research suggests that public health professionals should aim for more complete collection of food frequency information, especially protein sources, during health assessments.
- This may be especially important for individuals 65 and older from under-represented minority groups.

| Estimated Regression Coefficients Parameter | 2 Day Mean Protein Intake in grams (standard error) | Pr > |t| |
|--------------------------------------------|-----------------------------------------------|--------|
| Intercept                                  | 94.43(2.67)                                   | <.0001 |
| Site and Delivery                          | -2.87(4.59)                                   | 0.5357 |
| Only Site Meals                            | -1.99(2.13)                                   | 0.3566 |
| Only Delivery Meals                        | -2.13(4.53)                                   | 0.6576 |
| Neither                                    | reference                                     |        |
| 80+                                        | -11.27(2.1)***                                | <.0001 |
| 75 to 79                                   | -6.8(2.58)*                                   | 0.0115 |
| 70 to 74                                   | -5.93(2.16)**                                 | 0.0085 |
| 65 to 69                                   | reference                                     |        |
| Other                                      | 1.93(3.44)                                    | 0.3778 |
| Hispanic/Latino                            | -4.29(2.05)                                   | 0.0426 |
| Non-Hispanic Black                         | -8.82(1.49)***                                | <.0001 |
| Non-Hispanic Asian                         | 0.98(2.66)                                    | 0.7146 |
| Non-Hispanic White                         | reference                                     |        |
| Under $20,000                              | -8.44(2.47)*                                  | 0.0014 |
| $20,000 to $44,999                         | -7.37(1.8)***                                 | 0.0002 |
| $45,000 to $74,999                         | -3.91(2.08)                                   | 0.0661 |
| 75,000+                                    | reference                                     |        |
| No Partner                                 | 1(1.62)                                       | 0.5411 |
| With Partner                               | reference                                     |        |
| Female                                     | -19.29(3.31)***                               | <.0001 |
| Male                                       | reference                                     |        |

Boldface indicates statistical significance (p<0.05, "p<0.01, "p<0.001)

REFERENCES & ACKNOWLEDGEMENTS
All references available upon request.
Thanks to Peter Cunningham, PhD
and Juan Li, MD, PhD, MPH for contributing to the creation of this research question and for valuable discussion and feedback.

BACKGROUND
- Protein calorie malnutrition (PCM) is a significant problem affecting up to one-third of adults aged 65 years or older.
- Up to 75% of adult inpatients experience PCM, which accounts for 12% of aggregate hospital costs.
- Despite the impact of malnutrition on hospital costs, little research has been done to examine protein intake among older adults who participate in meal programs.
- We used data from the National Health and Nutrition Examination Survey (NHANES) to analyze the pattern of protein intake among individuals aged 65 and older who provided an answer regarding their utilization of home-delivered meals or congregate site-accessed meals.

PURPOSE
- The purpose of this research is to provide a better understanding of the relationship between meal program participation and protein intake.

METHODS
The analyses in this study:
- utilized cross-sectional data on 2,345 individuals aged ≥65 years old who participated in NHANES during 2013-2018 and provided data for two days of protein intake and at least one question assessing program utilization.
- examined relationships between meal participation and covariates (sex, race, marital status, income, and age) on protein intake using multiple linear regression in SAS, Version 9.1 for Windows.

RESULTS
- Protein intake did not differ significantly between individuals who participated in meal programs and those who did not.
- Race, income, age, and gender were significantly associated with decreased protein intake.
- Bivariate analyses significant differences in complete two-day protein data by race (p<0.0001).
Examining Motor Outcomes of Infants in Three Virginia Regions

Michaela Schreyer, MS3, Lisa Letzkus, PhD, RN, CPNP-AC2, & Katheryn Frazier, MD2

University of Virginia School of Medicine; Department of Pediatrics, Division of Neurodevelopmental and Behavioral Pediatrics, University of Virginia School of Medicine

BACKGROUND

- In 2019, 1 in every 10 babies was born premature (<38 weeks gestation).
- Six to 25% of premature babies with low-birth-weight (<2500 grams) develop major neurodevelopmental impairment, the most common being cerebral palsy: a disorder of motor development attributed to non-progressive disturbances occurring in the developing or resistant brain.
- The Hammersmith Infant Neurological Examination (HINE), in combination with other assessments/CNS imaging, allows physicians to identify children with persistent motor differences and diagnose cerebral palsy at younger ages than historically detected.
- The HINE physical exam measures 34 items (total of 70 points) to assess tone, motor patterns, spontaneous movements, reflexes, cranial nerve function, and behavior, and can be used for children aged 2-24 months to predict motor outcomes.
- UVA Children’s has a Level 4 Neonatal Intensive Care Unit with an extensive multi-disciplinary NICU developmental follow-up clinic. UVA Children’s serves patients across the state of Virginia, especially from the Piedmont, Shenandoah Valley, and Southside Regions.

OBJECTIVE

The aim of this study is to determine if regional residence predicts HINE scores of infants in the UVA NICU follow-up clinic.

METHODS

A retrospective chart review of demographic and clinical characteristics of infants was performed using EMR data.

- Sampling method: Convenience sampling
- Sample size: 328 infants

Region of residence was determined by mapping each patient’s home address to one of the 9 regions of Virginia using the region map provided by the Virginia Department of Housing and Community Development (Figure 1).

The infants from each of the three regions were then stratified based upon HINE risk category (Figure 2):

- 0-10: typical normal motor outcome
- 11-20: risk for moderate motor impairment
- 21-30: risk for severe motor impairment

Analysis Plan: Ch Square Testing (p<0.05) for categorical variable comparison with the following hypotheses:

- H0: Region of residence and HINE score are independent of each other
- H1: Region of residence and HINE score are not independent of each other

RESULTS

20% infants of the sample’s 68 received the HINE test and indicated their region of residence as:
- Piedmont (48)
- Shenandoah Valley (48)
- Southside (60)

Percentage of HINE scores in each category from the three regions are as follows (Figure 3):

- Piedmont:
  - 40-54: 37.5%
  - 55-60: 62.5%
- Shenandoah Valley:
  - 40-54: 37.5%
  - 55-60: 62.5%
- Southside:
  - 40-54: 37.5%
  - 55-60: 62.5%

Chi Square Testing: p = 0.08541, indicating there is a significant difference between HINE score and region of residence. Southside and Shenandoah Valley had a greater percentage of scores 60.

CONCLUSIONS

- Infants in the Piedmont and Shenandoah Valley regions have lower HINE scores compared to infants in the Piedmont region.
- Multivariate analysis is necessary to understand disparities leading to poorer outcomes in these regions.
- Making members of the care team more aware of a patient’s residence is crucial to the delivery of equitable patient care.

CONTACT

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*References available upon request*
Fear, Frustration, and Fatalism: The Association Between Cancer Beliefs and Colorectal Cancer Screening Compliance in Virginia
Monique Rajbhandari, MPH Candidate
University of Virginia School of Medicine

BACKGROUND

- Colorectal cancer (CRC) is the second leading cause of cancer-related deaths among men and women in the United States.
- In Virginia, CRC is the third leading cancer in incidence rates and mortality rates among men and women.
- CRC screening is recommended to begin at age 50—the preferred mortality for screening is a colonoscopy performed every 10 years.  
- Despite recent increases in screenings, many age-eligible adults remain unscreened and rates remain below the state's goals of an 80% CRC screening rate.
- Past studies have drawn correlations between certain negative cancer beliefs/barriers to access and screening compliance.
- Knowledge, attitudes, concerns, and perceptions about CRC and CRC screenings contribute to decision-making on screening compliance and adherence

OBJECTIVES

No Virginia-specific studies have been conducted to assess cancer beliefs/barriers to CRC screening compliance.

This study aims to measure CRC screening compliance assessed by several, specific cancer beliefs and behaviors among Virginians: perceived causes of cancer, perceptions on cancer prevention, cancer fatalism, and frustration experienced when information-seeking.

METHODS

- Cross-sectional design: 2020 University of Virginia and Virginia Commonwealth University Cancer Center Cattanex Area survey data
- Awarded by the National Cancer Institute and which center surveyed populations in its catchment area using Health Information National Trends Survey (HINTS) questions to generate state-wide estimates of cancer beliefs and behaviors
- Collect estimates for the state of Virginia to guide health policy decisions, as HINTS is only available at the regional level

RESULTS

Bivariate analysis showed lower rates of up-to-date colonoscopies among those who agreed with the following statements:

Table 1: Predictive Estimates of Up-to-Date Colonoscopies by Agreement with Cancer Fatalistic Beliefs (n=1,126, p = 0.02)

<table>
<thead>
<tr>
<th>Agree</th>
<th>Colonoscopy &amp; Up-to-Date</th>
<th>Colonoscopy &amp; Not-Up-to-Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>52.0%</td>
<td>47.9%</td>
</tr>
<tr>
<td></td>
<td>(48.0% - 56.0%)</td>
<td>(43.6% - 52.4%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>58.1%</td>
<td>41.9%</td>
</tr>
<tr>
<td></td>
<td>(52.1% - 64.1%)</td>
<td>(35.5% - 48.3%)</td>
</tr>
</tbody>
</table>

Table 2: Predictive Estimates of Up-to-Date Colonoscopies by Agreement with “Everything Causes Cancer” (n=1,126, p = 0.001)

<table>
<thead>
<tr>
<th>Agree</th>
<th>Colonoscopy &amp; Up-to-Date</th>
<th>Colonoscopy &amp; Not-Up-to-Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48.3%</td>
<td>51.6%</td>
</tr>
<tr>
<td></td>
<td>(44.2% - 52.3%)</td>
<td>(45.6% - 57.5%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>62.5%</td>
<td>37.5%</td>
</tr>
<tr>
<td></td>
<td>(58.5% - 66.5%)</td>
<td>(32.0% - 53.0%)</td>
</tr>
</tbody>
</table>

Table 3: Predictive Estimates of Up-to-Date Colonoscopies by Agreement with “You are not much you can do to lower your chances of getting cancer” (n=1,126, p = 0.001)

<table>
<thead>
<tr>
<th>Agree</th>
<th>Colonoscopy &amp; Up-to-Date</th>
<th>Colonoscopy &amp; Not-Up-to-Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>49.8%</td>
<td>55.5%</td>
</tr>
<tr>
<td></td>
<td>(45.9% - 53.8%)</td>
<td>(50.4% - 60.7%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>58.4%</td>
<td>41.6%</td>
</tr>
<tr>
<td></td>
<td>(53.9% - 63.1%)</td>
<td>(37.5% - 47.4%)</td>
</tr>
</tbody>
</table>

A slight lower prevalence for up-to-date colonoscopies was also observed among those who agreed with the statement “you felt frustrated during your search for information”, but the difference was not significant (p<0.05).

- Controlling for sex, across four independent variables, men had a higher prevalence of up-to-date colonoscopies than women. In almost all cases, the majority of men had updated colonoscopies despite agreement with the statements.

DISCUSSION

- Lower prevalence rates of up-to-date CRC screenings among respondents who expressed more fatalistic or negative beliefs about cancer and prevention
- Stratified by sex:
  - Men showed higher rates of up-to-date CRC screenings than women
  - A majority of men had updated screenings despite agreeing with fatalistic/negative cancer statements, whereas a majority of women did not.

These findings highlight the need for interventions, policy, and emphasized provider input on addressing patient’s fears, misconceptions, and increasing access to relevant cancer information to increase CRC screening compliance among populations in Virginia.

Addressing sex differences in CRC screening compliance in targeting these interventions is necessary given the similar prevalence rates of CRC among women and men in Virginia.

LIMITATIONS

- Given the limited scope of this study, other social determinants of health such as race, rurality, and socioeconomic status were not addressed, but should be assessed in future studies.
- No/Low sample size large enough given region size, not covered by UVA or VCU cancer centers
- Only assesses one type of CRC screening (colonoscopy)

Acknowledgements
- Faculty advisor: Rakesh Bakshi, PhD
- This work was funded by the National Cancer Institute through grant P30CA444579-27S5
- American Cancer Society, 2021
- Virginia Department of Health, 2018
- Cancer Action Coalition of Virginia, 2018

1 American Cancer Society, 2021
2 Virginia Department of Health, 2018
3 Cancer Action Coalition of Virginia, 2018
Maternal perceptions of the child’s weight in relation to the actual body weight of preschool children: Missed opportunity for health promotion

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Introduction
- Childhood obesity is one of the most important public health issues globally.
- Habitual food consumption and physical activity are key modifiable factors to mitigate obesity. While schoolchildren may have independence in selecting the food they consume, the amount of exercise, mothers shape these habits completely in preschool children, which highlight the potential of modifying maternal perceptions of the child weight status in preschool children.
- Previous Studies, that have attempted to link maternal perceptions of child weight and subsequent weight gain, have shown controversial findings. However, these studies were on schoolchildren, the age at which mothers have less control of these children's diet or physical activity.

Purpose
This study aimed to assess maternal perceptions of the weight status of preschool children and link it to the actual objectively measured body weight using data from Kuwait Nutritional Surveillance System (KNSS), which is funded by the government to provide nationwide information on the trends of nutritional status on all age groups ever time.

Methods
Study Site and Participants:
- We used data collected by Kuwait Nutritional Surveillance System (KNSS) preschool children from primary healthcare centers when attending for vaccination from 2015 to 2019.

Data Collection:
- The weight of preschool children was measured by a digital scale to the nearest 100 gm. While the height was measured to the nearest 0.1 cm using a height scale.
- Mother’s perception of their child’s weight status was assessed by personal interview using the following question “Do you think the weight of your child for his/her age is normal weight, above the normal weight, or below the normal weight?” with the options “Normal for his/her age”,” Above the normal for his/her age”, “Below the normal for his/her age” or “I don’t know”.

Statistical Methods:
- BMI-for-age z-scores were calculated using STATA “zanthre” package.
- We defined obesity as BMI z-score ≥+2.00 SD and overweight as BMI z-score ≥+1.00 SD but < 2.00 SD.

Results
- This study included 6,188 preschool children (2 to less than 5 years) from 2015 – 2019 of whom 2,612 (51.07%) were males and 2554 (48.93%) were females.
- The mean (SD) age was 3.14 (0.84) years.
- The prevalence of overweight/obesity among the study group was 9.85%.
- Forty-eight children were excluded. Therefore, this analysis comprised 5119 preschool children of whom, 4624 (91.33%) were normal weight, 163 (3.19%) and 32 (0.64%) were obese and overweight respectively.

Findings
- Of 4,624 mothers with a normal weight child, 1,350 (26.30%) perceived that the weight of their child was below the normal weight.
- Of 163 mothers with a normal weight child, 79 (48.47%) thought their child was normal weight and another 84 (51.52%) thought that child was not normal weight.
- Of 32 (11.76%) perceived their child as normal weight or underweight respectively.
- Maternal perceptions of the weight status were not significantly different between boys and girls children among obese (p=0.354), overweight (p=0.416), or normal weight (p=0.163) children.

Conclusions
Mothers generally underestimate the weight status of their preschool children; in particular mothers with normal weight children. In fact, from every 10 mothers with normal weight child, 1 perceived their child as underweight, which may motivate mothers to overfeed their children. Because most of children at this age are normal weight, this likely to have great potential to increase childhood obesity. This highlights the importance of correct maternal perceptions of their child’s weight to combat childhood obesity. Every primary healthcare encounter including for vaccination is an opportunity to measure mothers of normal weight children about their child weight.
# Sexual Function and Exercise in Perimenopausal and Postmenopausal Women

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## Introduction
- Women are living nearly 1/3 of their total lives post-menopause.
- Menopause is marked by physiological and psychological changes including sexual dysfunction.
- Sexual function includes desire, arousal, frequency, satisfaction, and orgasm without any pain or discomfort.
- It is a public health initiative to improve health during menopausal years.
- Healthy People 2020 included objectives for improving the health of this population.
- Pharmaceutical options for treating sexual dysfunction are limited for postmenopausal women.
- Exercise is safe to perform during menopause and can help ease sexual dysfunction.

## Purpose
To summarize the current literature on exercise and sexual function in perimenopausal and postmenopausal women and provide recommendations for future research on this topic.

## Methods
- Search engines used to find relevant published research articles:
  - PubMed
  - EMBASE
  - Google Scholar.
- The following search terms were used:
  - [menopause, menopause, postmenopausal, climacteric]
  - [exercise, physical activity, fitness, aerobic training, yoga, strength training, cardiovascular training]
  - [sexual function, sexual dysfunction, sexual wellbeing, sexual problems, sexual health, sexual difficulties, sexual satisfaction]

## Exclusion Criteria
- Published before 1999 (n=5)
- Focused on pelvic floor muscle exercises (n=4)
- Analyzes did not differentiate between males and females (n=1)
- Participants were women who were surgically induced or medically induced into menopause (n=7)

## Results
<table>
<thead>
<tr>
<th>Construct</th>
<th>Association with exercise/PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urogenital symptoms of menopause</td>
<td>Two positive association in observational studies.</td>
</tr>
<tr>
<td>Sexual symptoms of menopause</td>
<td>Two positive association in experimental studies.</td>
</tr>
<tr>
<td>Vaginal lubrication</td>
<td>Two studies found positive association.</td>
</tr>
<tr>
<td>Pain/cyspareunia</td>
<td>One positive relationship.</td>
</tr>
<tr>
<td>Sexual satisfaction</td>
<td>Three studies showed positive association. Three showed no association.</td>
</tr>
<tr>
<td>Orgasm</td>
<td>Two studies found positive association.</td>
</tr>
<tr>
<td>Sexual desire</td>
<td>One study found no association.</td>
</tr>
<tr>
<td>Frequency</td>
<td>One study positively associated.</td>
</tr>
</tbody>
</table>

## Discussion: Sexual Desire and Frequency
- Exercising immediately before sexual activity increased sexual desire more than not exercising before sexual activity.
- Bason’s model of human sexual response poses that desire is only one aspect of what motivates a woman to engage in sexual activity.
- Other reasons are emotional intimacy or closeness.
- Sexual activity can be dyadic or solitary.
- Dyadic sexual activity is dependent on a partner’s sexual desire.
- Work or family responsibilities may impede a person’s opportunities to engage in sexual activity irrespective of having the desire to do so.

## Conclusion
- The results may not be generalizable to all menopausal women.
- Exercise/PA most helpful for urinary symptoms and vaginal lubrication.
- It could also improve sexual desire, sexual satisfaction, orgasm, sexual symptoms of menopause.
- Sexual pain may not be improved from a single exercise program, data is limited.
- There is not enough research to develop specific exercise prescriptions to improve their sexual function.
- Yoga is the only form of exercise that has been replicated to improve sexual dysfunction.
- Exercise can safely be added to most treatment plans for menopause-induced sexual dysfunctions as long as there are no medical concerns.

## Discussion: Orgasm and Vaginal Lubrication
- Because exercise improves cardiovascular health, it may contribute to increased genital blood flow.
- Blood flow to the vascularity of the clitoris and vagina is often needed to achieve an orgasm.
- When blood diverts to the vagina, it causes a transudate of plasma into the vagina, which contributes to lubrication.
- Thus, the ability to effectively divert blood flow to the vagina may result in greater lubrication.
Support and Depression Amongst Black Men
Francesca Whitfield
University of Virginia MPH Program

Background

- Depression affects individuals from all different socioeconomic statuses, ethnicities, and cultures

- Intersectionality of ideology, culture, and institutionalization promotes gender socialization, racism, and systematic oppression, defining barriers that hinder positive mental health outcomes

- Theoretical applications of syndemics, social cognition, and social support provide evidence of taboo in mental health communication, education, and literacy in the Black community

Methods

- Cross-sectional study design

- Target population: African American males aged 18 - 40 years old

- Population estimates calculated using survey responses of mental health and social support categories from the 2016 - 2019 Behavioral Risk Factor Surveillance System

Results

- Reported responses show that 44.0% (40.3% - 47.7%) of African American men experienced poor mental health

- No reported responses of social support from the BRFSS survey

Discussion

- African American men experience some form of mental health, but there is no comparative category to determine the degree

- Absence of responses to the social support categories can be indicative that data collection stopped short of receiving those responses, or the respondents did not want to respond and failed to document

- BRFSS should create a method that would encourage responses from African American men for the social support categories

Limitations

- Only included African American men who were not incarcerated or homeless

- Required that the respondent identify as male, but this is not exclusive to birth assignment

References

The Impact of Military Base Presence on Tobacco Retailer Density in Texas
Jeannie Taylor, MPH Candidate Spring 2021

Introduction
- Tobacco use disproportionately affects military populations. In 2018, 29.2% of military veterans reported smoking, while only 19.3% of the civilian U.S. population did.1
- In 2013, the Department of Defense (DoD) found that of those active-duty military personnel that used tobacco products, 38% initiated use after enlisting.2
- The DoD spends over $2.5 billion annually treating tobacco-related illnesses in military and veteran populations.3
- The tobacco industry has historically targeted the U.S. military through
  - Discount prices on bases and in communities
  - Targeted advertisements and campaigns
  - Advertising in military magazines distributed on bases.
- Objective: to provide a census tract level analysis of the density of tobacco retailers around military bases using ArcGIS and SAS to understand spatial distributions of exposure to tobacco advertisements and retailers for military personnel.

Methods
Data Sources
- ArcGIS Hub, USDA, United States Census Bureau, Texas Comptroller of Public Accounts, Google Maps

Figure 1: Map of the 13 military bases in Texas included in analysis

GIS Development & Analysis (Using ArcMap 10.4.1 and SAS)
- Density mapping of tobacco retailers within 0.5-mile radius of census tracts.
- Proc SQL and proc survey select to randomly identify control tracts matched on Rural Urban Continuum Code (RUCC), population density, and educational attainment.
- Proc model in SAS was used to reduce a linear regression model.

Results
Figure 2: Study retailer locations

Legend
- Military Base and Census Tracts
  - Active On Base Traders
  - On Base Traders

Figure 3: Example of close-up census tracts

Table 1: Retailer distribution by tract type

Table 2: Regression analysis results

<table>
<thead>
<tr>
<th>Effect</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>0.047</td>
</tr>
<tr>
<td>RUCCL</td>
<td>0.69</td>
</tr>
<tr>
<td>Education</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Discussion
Tobacco Retailer Density Around Military Bases
- The results show a statistically significant relationship between the density of tobacco retailers within 0.5 miles and the presence of a military base.
- RUCCL appeared to be a significant predictor of tobacco retailer density, which is expected as more populated areas have higher RUCCL values and thus likely have more retailers to meet the demands of a larger population.

Conclusion
- While the results do not show a statistically significant relationship between the density of tobacco retailers and the presence of a military base, this is an important factor for the Department of Defense to consider in efforts to reduce tobacco use in the military.

Future Studies
- Future studies are needed to study the density of retailers within driving distances of military bases as opposed to the 0.5-mile walking distance used in this study.
- Bases in the other states of the U.S. should be studied to provide a generalizable result for this relationship.

Continuation of project
- This project will be continued through May 2021 in the VA’s MPH program.
- Further data analysis, visualization, and quality improvements will be made and written into a final paper.

Literature & Limitations
- Limited data on current tobacco retailers on bases because they are exempt from tobacco taxes thus evaluated from the registry of licensed tobacco retailers for the state of TX.
- Limited data on the demographic characteristics of bases and control census tracts.
  - Education data came from American Community Survey 2019.
  - Population density came from ArcGIS Hub layer of U.S. population density at the tract level to 2012.
  - RUCCLs were obtained from the county level using data from 2013 with the USDA.
- The radius around census tracts was set to 1.5-miles as this was considered the maximum reasonable walking distance. However, it may not be valid to assume people walk to the nearest tobacco retailer. Inclusion of a wider radius with reasonable driving distances may provide additional insight on this relationship.
- Limited data on e-cigarette and tobacco products sold online to military members and control census tracts.

Acknowledgements
Special thanks to Dr. Kristen Wells, the MPH faculty advisor for this project, Thomas Smith for sharing his experiences, and Dr. Melissa Luttrell and Dr. Amanda Kung for their guidance and support.
Undergraduate Food Insecurity at a Private Liberal Arts College

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Introduction
- The USDA defines food security as "having enough food for an active, healthy life at all times.
- Food insecurity in US homes is 11.0%.
- Food insecurity among US college students is 44%.

Objectives
- The objective of this study was to determine rates of food insecurity on Roanoke College’s campus and to compare characteristics of food insecurity before and after the COVID-19 pandemic.
- Additionally, this study seeks to determine best practices for implementation of an assistance program for students experiencing food insecurity.

Methods
- A needs assessment survey was developed in Fall 2019 following a literature review.
- The 12-item tool was distributed via Qualtrics to 741 students and 264 non-faculty staff members.
- The initial survey asked questions about food-related behaviors and sociodemographic information.
- 222 responses were received, a response rate of 58.6%.
- A second survey was administered to student subgroups in Fall 2020.
- Again, 722 students and 224 staff members were sent surveys.
- This 14-item tool included new additional questions about COVID-19.
- The response rate was 14.1%.

Sage’s Survey Questions
Survey 1 (Fall 2019):
- In the last 12 months, were there enough days that you did not eat balanced meals because of financial concerns?
- In the last 12 months, did you ever skip meals or cut the size of your meals because you didn’t have enough money for food?
- If you were to use an assistance program, would you be more likely to use a food pantry or a meal swipe program in the dining hall?

Survey 2 (Fall 2020):
- Identical to the first survey, but added two COVID-19-specific questions.
- Has the COVID-19 pandemic changed your or your family’s ability to afford and obtain healthy, balanced meals?
- Do you feel as though you are more likely to use a food assistance program now than you were before the COVID-19 pandemic?

Results
- 29.2% of Fall 2019 surveyed Roanoke College students reported eating unbalanced or unhealthy meals because of financial concerns (Figure 1).
- 30.2% reported cutting the size of their meals because of financial concerns (Figure 1).
- Juniors and seniors were most likely to be impacted (58.8% and 46.2%, respectively).
- 79.8% of food insecure respondents in Fall 2019 reported that they would prefer free meal swipes over a food pantry on campus, with similar results in Fall 2020 (Figure 2).
- In Fall 2020, 15% of students indicated that their family’s ability to purchase food had changed.
- 29.8% of respondents said they would be more likely to seek food assistance now than before the COVID-19 pandemic.

Discussion
- Food insecurity at small, private schools is frequently overlooked.
- This research shows that there is a need on Roanoke College’s campus that is not being met.
- 20.5% of students indicated that they were more likely to use a food assistance program now than before the pandemic, indicating a new and urgent need.
- Students greatly prefer meal swipes to a food pantry (79.8% to 20.2%), likely because of reduced stigma and the appeal of the campus community found in dining halls.

Recommendations
- The concerns raised by this research show a clear need for intervention.
- Based on our findings, it is recommended that Roanoke College implement a meal swipe card in its on-site Meals for Maroons to reduce the prevalence of food insecurity among its students.

Contact and Acknowledgements
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Understanding undergraduate students’ face mask use through the lens of the Theory of Planned Behavior

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Introduction
- Early March 2020, WHO had declared the COVID-19 pandemic world-wide.
- CDC recommends social distancing and mask-wearing to slow the spread of the virus.
- Students at the University of Lynchburg are required to wear masks and keep social distancing while on campus.
- There are some difficulties in maintaining the mask-wearing behavior, issues of proper education, and ideological differences arose.

Results – Theory of Planned Behavior

Attitudes Toward the Behavior

<table>
<thead>
<tr>
<th>Wearing a face mask will...</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make me more confident</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Decrease my anxiety</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Make me more protected</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Subjective Norms

| Wearing a face mask against my political party leader | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

Perceived Behavioral Control

| Wearing a mask makes it difficult to breathe | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
| Wearing a mask makes it difficult to talk | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
| Wearing a mask makes it difficult to eat | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

Conclusion

- Subjective norms and control beliefs are conducive to mask-wearing
- Behavioral beliefs could be improved upon to increase mask wearing in this population
- It is important to note that TBF can be used to better understand feeling about face mask, but should not be used to predict mask-wearing since it is mandated and therefore not strictly under volitional control

Methods

- An online survey of the University of Lynchburg students was employed
- The survey questions were limited only to students 18-25 years of age.
- Survey questions were purposely designed using the Theory of Planned Behavior to ascertain students’ perspective on mask-wearing.
- Data were analyzed using SPSS V. 27

Results - Demographics

- A total of 144 survey responses were included in the analysis
- 95.1% reported they always and almost always wear a face mask
- 73.8% women, 22.9% men
- 81.3% White, 5.6% Black, 13.1% other races
- 32.5% seniors, who had the highest participation rate
- 74.3% participants live on campus, 25.7% participants live off campus

Purpose

To understand student’s feelings about mask-wearing through the lens of the Theory of Planned Behavior.

Citations

Variations in Obesity Across the Lifespan: Why Zip Code Matters in the Roanoke Valley
Bryn Haden, Dr. Adam Childers, & Dr. Liz Ackley
Center for Community Health Innovation • Roanoke College, Salem VA

Background
- Due to the federal mandate instilled in recognition of the Affordable Care Act (ACA), numerous hospitals are required to complete a Community Health Needs Assessment (CHNA) every three years, and the influence of "place" on health has begun to emerge from this data. Recent studies have found disparities in adult obesity rates between zip codes, and attribute this to differences in access to amenities that benefit one's health and socioeconomic status. While this understanding is important for improving population health, it is limited because CHNA data are based on the adult population.
- To fully understand the impact of place on health, it is important to engage surveillance efforts to include all age groups. Moreover, understanding the impact of "place" on youth provides opportunities for communities to develop place-based strategies to prevent poor health outcomes in youth which is important for future health outcomes.

Purpose
- The aim of this study was to expand current understanding of the influence of "place" on weight status in the Roanoke Valley by exploring the relationship between zip code and obesity rates in youth.

Methodology
- An active analytic, linear logistic regression was applied to the 2015 Roanoke Valley CHNA to explore the relationship between zip code and adult obesity across the city of Roanoke. Usingzip code 24013 as the reference zip code, the likelihood of obesity among adults was found to be lowest in 2001 (29%), followed in 2002 (31%), 2007 (40%), and 2013 (44%); see Table 1.
- To explore the relationship between zip code and obesity in youth, data was derived from the 2017 Roanoke Valley Community Health Living Index (RVCHLI). The RVCHLI is a youth lifestyle surveillance system that was first created in 2015 for use in the exploration of the relationship between city neighborhood and health outcomes in youth. In the current study, linear logistic regression was used to evaluate the relationship between zip code and youth obesity rates, and these findings were compared to those observed in the 2013 Roanoke Valley CHNA to look for patterns in weight status across zip codes.

Table 1: Adult and child obesity prevalence by zip code

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>Adult Obesity (2015 CHNA) n</th>
<th>Child Obesity (2017 RVCHLI) n</th>
</tr>
</thead>
<tbody>
<tr>
<td>24013</td>
<td>170 53% 0.04 (0.07 0.19)</td>
<td>179 32% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>24013</td>
<td>176 43% 0.06 (0.07 0.19)</td>
<td>197 33% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>24015</td>
<td>125 30% 0.06 (0.07 0.19)</td>
<td>102 12% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>24015</td>
<td>123 29% 0.06 (0.07 0.19)</td>
<td>139 15% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>24016</td>
<td>146 35% 0.06 (0.07 0.19)</td>
<td>51 29% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>24017</td>
<td>148 30% 0.06 (0.07 0.19)</td>
<td>150 25% 0.06 (0.45 2.05)</td>
</tr>
<tr>
<td>Roanoke City</td>
<td>32%</td>
<td>25%</td>
</tr>
<tr>
<td>Virginia</td>
<td>27%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Results
- Logistic regression indicated that zip code does explain obesity prevalence in youth. Compared to other zip codes, obesity likelihood in youth was lowest in 2001 (32%), and highest in 2002 (31%), and highest in 2013 (32%) and 2002 (31%); see Table 1.
- Our findings are consistent with the 2013 Roanoke Valley CHNA. Zip Code Analysis while found for adults residing in 2014 or 2013 had increased likelihood and those residing in 2014 or 2013 but increased obesity likelihood.

Conclusions
- While zip code explained little variance to adult and child obesity, it is an important tool to assess patterns and examine the relationship between neighborhoods and health outcomes.
- Across Roanoke city zip codes, more than half demonstrated adult obesity prevalence rates more than 3 times the state average. For obesity, there are significant differences between zip codes in the Roanoke Valley.
- Pediatric obesity prevalence rates were consistent with the state and national average.

Acknowledgements: This study was supported by the Center for Community Health Innovation at Roanoke College.

References

Figure 1: Zip codes with higher likelihood of adult and child obesity.
Figure 2: Zip codes with lower likelihood of adult and child obesity.

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