2022

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NCPHA Emerging Leaders Program aims to provide emerging leaders in public health with skills and knowledge to become even more effective in their work. Skills include successfully leading teams through change and the ability to communicate with a diverse group of stakeholders as these relate to public health and the complex landscape of health care. This program is offered through the North Carolina Medical Society Foundation's KANOF Institute for Physician Leadership. The program is further built on project based learning and participants worked in groups across counties and positions selecting a topic within one of these specific public health areas: oral health, food insecurity, behavioral health, environment, and housing.

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KANOF INSTITUTE FOR PHYSICIAN LEADERSHIP

Assessing the Knowledge of ACEs & Resiliency in Haywood County's Public Health & Social Services Staff

By Megan Hauser, MA, MCHES®[1] and Piper Yerger[2], RN, MS-C

Introduction

Adverse childhood experiences (ACEs) are traumatic circumstances or events experienced in childhood. Examples include individual or familial exposure to violence, neglect, substance misuse, mental health disorders, incarceration, and divorce; the 10-question ACE questionnaire is in Appendix 1. Approximately 61% of adults have experienced at least one ACE, while 16.7% have experienced four or more ACEs (CDC, 2021). ACEs negatively impact health across the life course. A gradient exists between ACEs and health – increased ACEs are associated with poorer health outcomes. Physiologically, ACEs cause "toxic stress" in the developing child, which negatively affects the immune, metabolic, and cardiovascular systems. Repeated or continuous exposure to stressors resulting from adversity causes permanent negative changes in bodily functions and development (Center for the Developing Child, nd). As such, ACEs are at the root of many chronic illnesses, impacting the immune system and the body's response to stress. Ultimately, ACEs can lead to a reduced life span (PACES Connection, 2019). This project assesses the knowledge of ACEs and resiliency among Haywood County's public health and social services staff.

Local context

Haywood County is a rural community in southwestern North Carolina mountains. The area is home to over 62,000 residents (US Census Bureau, 2021). The community's population of ages 65 and older is

[1] Haywood County Health and Human Services Agency
[2] Care Ring

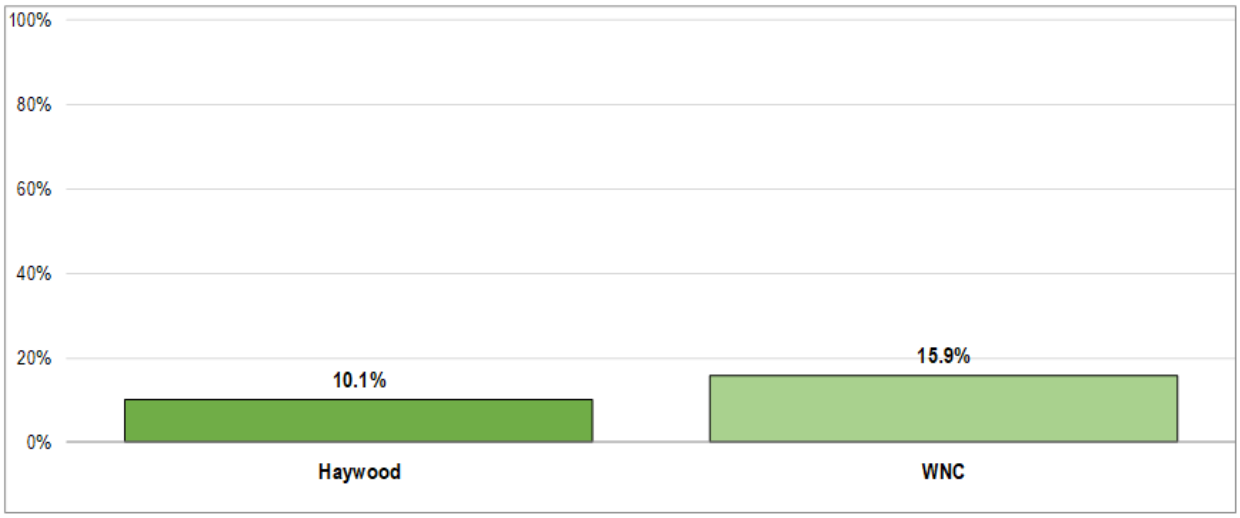
higher than the state average (US Census Bureau, 2021). Nearly 18% of the county's residents are under eighteen, with over four percent under age five (US Census Bureau, 2021). A 2019 estimate shows that 48% of the population was male and over 51% was female (US Census Bureau, 2021). The beautiful mountains are intermingled with over 13% of residents living in poverty (US Census Bureau, 2021). Residents have difficulty accessing affordable housing, transportation, and broadband internet. From 2015-2019, an estimated 41% of renters spent more than 30% of household income on housing (US Census Bureau, 2021).

Rural and minority children often have higher rates of ACE exposure than their peers. A recent study found that children in rural areas were more likely to have been exposed to several types of ACEs such as financial stress, parental separation/divorce, household incarceration, witnessing household violence, witnessing neighborhood violence, household mental illness, and household substance misuse. Furthermore, compared to children in urban areas, rural children were more likely to experience a total of four or more ACEs (Crouch et al., 2022).

During 2018, over 36% of Haywood County adults reported having experienced ACEs (WNC Health Network-WNCHN, 2018). Over 10% reported a score of four or more ACEs (WNC Health Network-WNCHN, 2018). Over 18% of the county's adults reported not being able to obtain mental health care or counseling in the past year. The survey also showed that 36% have been negatively affected by substance use, whether theirs or another person's (WNC Health Network-WNCHN, 2021).

The county's data portrays both adversity and resilience. Of those surveyed, 88% reported an ability to stay hopeful in difficult times (WNC Health Network-WNCHN, 2021). Furthermore, 87% were confident in their ability to manage stress (WNC Health Network-WNCHN, 2021). Though pediatric data is limited, adult data shows that nearly 80% have someone to rely on for help or support when needed (WNC Health Network- WNCHN, 2021). Caring adults also offer a tremendous asset for children. Connecting a child to a caring adult has the potential to both prevent and mitigate the effects of ACEs (CDC, 2019). Positive experiences have an effect known as a dose-response relationship: the more positive experiences the child has, the greater the impact in reducing the impact of ACEs (ACES Too High, no date).

Percent of adults reporting four or more ACEs (WNC Health Network, 2018)



Haywood County Health and Human Services Agency

The Haywood County Health and Human Services Agency (HHSA) houses numerous public support services, including public health, social work, environmental, and economic services. Many of these services support families with children and adolescents to live safe and healthy lives. As the professionals have direct encounters with children and adolescents, it follows that they can recognize, prevent, and treat ACES in the populations that they serve and have a direct impact on the local ACEs data. Additionally, professionals in the HHSA must be equipped with the necessary knowledge and tools themselves before they are able to help others.

Purpose

Against this backdrop, our project assesses the knowledge of ACES and trauma among HHSA staff in Haywood County. Our project seeks to support ongoing efforts around ACES within the HHSA. In August 2022, the county's public health education team began training all agency staff on ACEs and resilience content; staff will complete a post-test following the training.

Methods

We administered a survey (Table 1) to over 200 HHSA staff starting in June 2022. The survey was self-administered and had four questions to capture general knowledge on ACES, the negative impact of ACES, and tools for resilience. HHSA staff participated by completing the survey in Google Forms. They answered the following questions with Likert responses ranging from very poor to very good:

Table 1

1. My understanding of a shared language about the impacts of trauma is:	1 2 3 4 5 NA
2. My general understanding of Adverse Childhood Experiences (ACEs) is	1 2 3 4 5 NA
3. My understanding of the impact of ACEs on the people that I know and serve.	1 2 3 4 5 NA
4. My knowledge of the principles of trauma informed care is	1 2 3 4 5 NA
1= Poor 2= Fair 3= Good 4= Very Good 5= Excellent	

Findings

Over 61% of HHSA staff responded to the pre-training survey. Overall, HHSA staff report a good understanding about ACES, the impacts of trauma, and trauma-informed care. However, approximately 20% report poor knowledge of ACES in general, the impacts of trauma, and trauma-informed care (Figures 1-4).

Figure 1

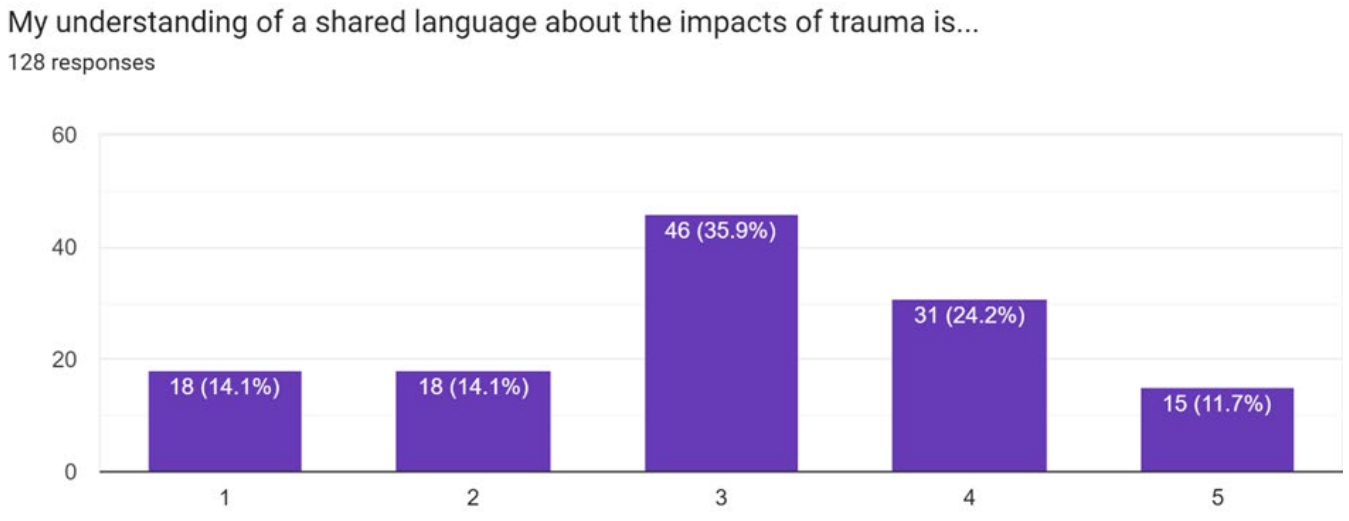


Figure 2

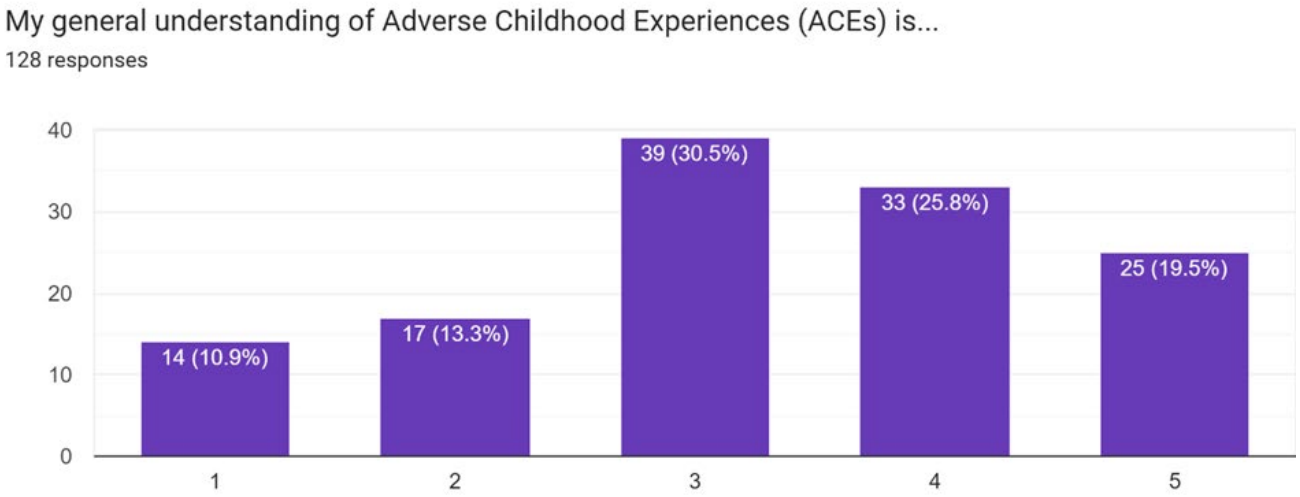


Figure 3

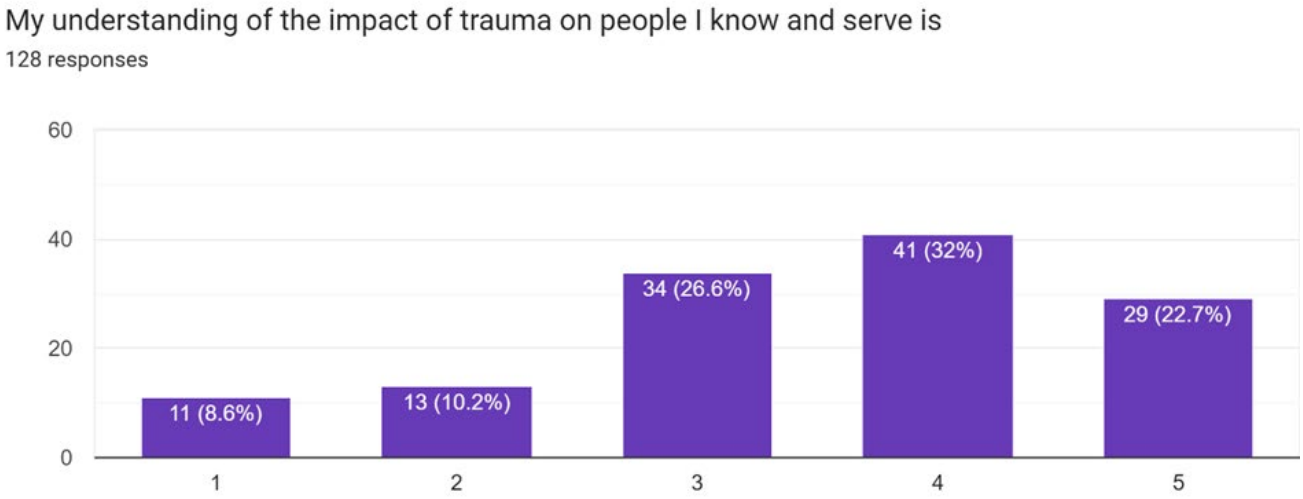
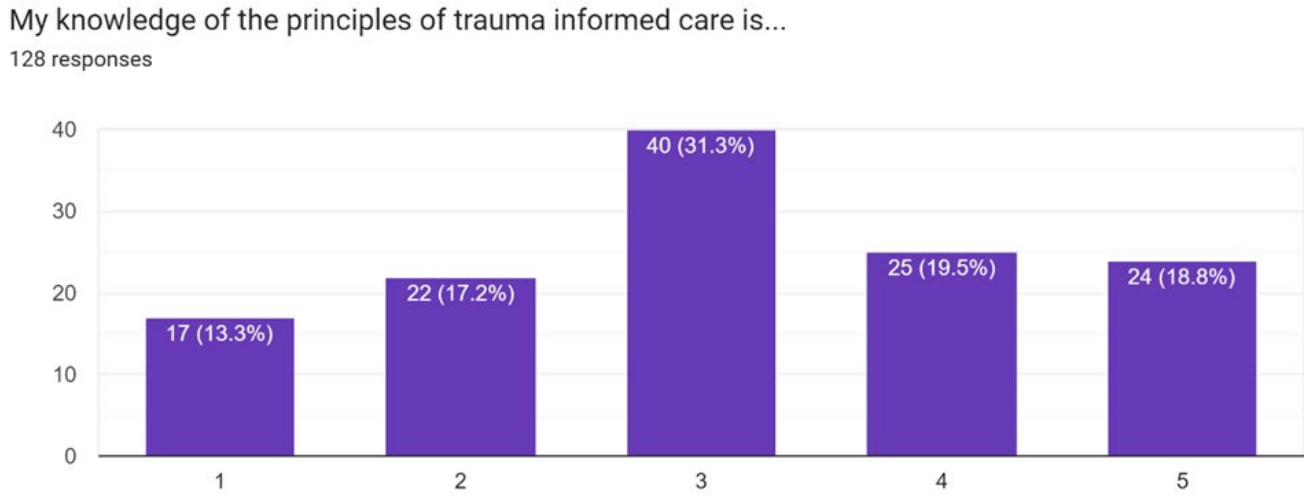


Figure 4



Discussion

Based on the results of the survey, we support ongoing efforts within HHSA to provide training to increase staff knowledge of ACES and the impacts of trauma. It is of critical importance that clinicians and social services staff utilize trauma-informed care (TIC) when serving their clients. TIC involves having the knowledge of the impacts of trauma, recognizing trauma in their clients and workplaces, incorporating their knowledge of trauma into the work that they do, and making efforts to not cause any additional trauma (Leitch, 2015). It is important for communities to be connected, collaborative, and intentional when working to prevent and treat ACES. Assuming the political will and funding exists, trauma-informed support services, such as counseling, should be readily available and easy to engage in. Clinicians and social services staff should refer for supportive services as needed in the populations that they serve. Finally, efforts to reduce the societal stigma associated with childhood trauma and receiving counseling should be prioritized. The goals of this intervention are to improve resilience, increase trust between support staff and clients, and reduce poor long-term health consequences.

Conclusion

ACES are responsible for significant physical, psychological, and social health issues across the life course. Clinicians and social services staff are critical to the mission of preventing and reversing the harmful effects of ACES in the populations that they serve. Our findings indicate that, while HHSA staff does have good knowledge of ACES, additional training is indicated to enhance their work on ACES. We recommend prompt training sessions to enhance HHSA staff knowledge.

References

ACES Too High (no date). Available from:

PACEs Science 101 « ACEs Too High

Center for the Developing Child (no date). Available from:

https://developingchild.harvard.edu/resources/aces-and-toxic-stress-frequently-asked-questions/

Centers for Disease Control and Prevention (2019). Available from:
https://www.cdc.gov/violenceprevention/pdf/preventingACES.pdf

Centers for Disease Control and Prevention (2021). Available from:

https://www.cdc.gov/violenceprevention/aces/fastfact.html

Leitch, L. Action steps using ACEs and trauma-informed care: a resilience model. *Health Justice* 5, 5 (2017). https://doi.org/10.1186/s40352-017-0050

Positive and Adverse Childhood Experiences Connection (2019). Available from:

https://www.pacesconnection.com/blog/aces-101-faqs

U.S. Census Bureau. (2021). ACS Demographic and Housing Estimates: 2019 ACS 5-Year Estimates. [Data tables]. Available from https://data.census.gov/

U.S. Census Bureau. (2021). Gross Rent as a Percentage of Household Income in the Past 12 Months: ACS 5-Year Estimates. [Data tables]. Available from http://census.data.gov

United States Census Bureau (2019). QuickFacts. Available from:
https://www.census.gov/quickfacts/fact/table/NC,haywoodcountynorthcarolina/PST045219

WNC Health Network-WNCHN (2018, 2021). Available from:

Haywood - WNC Health Network (wnchn.org)

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Investigating the Effects and Success Criteria of Implementing Oral Health Education in Pregnancy Centering Classes in North Carolina Local Public Health Departments

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Introduction

According to the World Health Organization, dental health is a major preventable health burden impacting nearly 3.5 billion people with oral health diseases. (World Health Organization, 2020). Oral health disease can cause death, discomfort, and a lifetime of pain (physically, mentally, and socially) if left untreated (World Health Organization, 2020). Treatment however for oral care can be expensive and is often not included in medical care unless for targeted populations (Tikkanen, 2019) like in the UK and the United States.

In many areas in North Carolina there are several factors that contribute to dental care. The first being access. Access can be contributed to dental insurance and location. Only 56.2% of adults have access to dental insurance (NC Oral Health Regional Snapshot State Totals, 2020) which leaves most dental care an out of pocket expense of North Carolinians. Access can also be implicated by location factors that are detrimental for North Carolinians. For example, there are three counties, Tyrell, Hyde, and Gates, which have no practicing dentists in their area (Green, 2020). Location also renders a significant influence on environmental factors.

Another factor is exposure to fluoride, which is a known prevention method of dental care (World Health Organization, 2020) but in many rural places fluoride in the water isn't an option due to infrastructure restraints. North Carolina has a 79.4% of population served by public water systems receiving fluoridated

[3] University of North Carolina at Greensboro
[4] Catawba County Public Health
[5] Durham County Department of Public Health

water (NC Oral Health Regional Snapshot State Totals, 2020). Another prevention that is effective for dental care is a diet low in sugars which can also be challenging for the 1.5 million North Carolinians who live within the 349 federally recognized food deserts (Mulligan, 2014). A food desert as defined by the USDA Economic Research Service is low income areas in which many residents do not have easy access to a grocery store or supermarkets (Wright, 2021). Eating habits can feel like a health behavior that can be preventable however North Carolina rates fifth in the nation for food insecurity (Healthy Food Access Opening Doors to Healthy Food in North Carolina, n.d.). Smoking is also a preventable behavior that impacts dental care. 18.5% of North Carolinians currently smoke cigarettes (NC Oral Health Regional Snapshot State Totals, 2020) which has been heavily advertised for years regarding the risks for cancers and fetal development in pregnant persons.

While there is a standard of treatment for dental care, North Carolina has 30.3% of pregnant persons with untreated tooth decay,45.5% of adults aged 18+ years have had permanent teeth extracted and 13.0% of adults last visited a dentist 5 or more years ago (*NC Oral Health Regional Snapshot State Totals,2020*). In North Carolina education for dental care is primarily focused on children. Provided that almost 80,000 children aged 6-14 years received sealants by Medicaid dental providers and 15.3% of kindergarten children have untreated tooth decay (*NC Oral Health Regional Snapshot State Totals,2020*) that isn't unjustified. However dental care in pregnant persons can contribute to pregnancy gingivitis and gum disease that can cause negative impacts on child development and the mother's health (Traci C. Johnson, MD, 2005). The approaches to maternal health have changed over the years, with Centering practices serving as a cost-effective approach to ensure better outcomes and improving health outcomes while placing pregnant persons at the center of support (Mildly Geeky, 2020). Centering practices include having a small group of mothers, typically between 8-10 persons, discuss different topics with health care professionals after a routine checkup (Mildly Geeky, 2020). In North Carolina, we wanted to investigate the intersection between Centering practices and oral health care provided there is no standard practice of oral health in routine medical visits for expecting persons.

Methods

To assess and analyze the effects of oral health education in existing pregnancy centering classes, we first designed a survey we could disseminate to CenteringPregnancy program managers or staff in North Carolina local health departments to answer. The survey included the following questions:

Are you currently doing centering classes?

1. Do you include oral health education in your centering classes?
2. If not, is that something you would consider?
3. What help and resources would you need to get that going?
4. What benefits have you observed from providing oral health education to pregnant women?
5. Did they often learn something new?
6. Who teaches the oral health portion? Dental staff or nurses?

7. What things do you all discuss about oral health in the classes? Do you include baby oral health in your discussions?
8. Do you feel that mothers learn something new from these sessions?

We then utilized the Centering Healthcare Institute website to locate CenteringPregnancy programs offered in North Carolina local health departments. According to the website, the local county health departments that offered CenteringPregnancy classes were Alamance, Durham, Granville-Vance, Guilford, Gaston, and Pitt County. We then reached out to the six health departments to seek out the program manager to ask the survey questions via email and phone.

Lastly, we analyzed our survey results and literature findings to assess the effects of oral health education in centering classes and identify success criteria for future implementation for other local health departments to implement this program.

Results

Alamance

Alamance County Department of Public Health is a provider of Centering Pregnancy sessions. However, upon further review, we learned they have halted their CenteringPregnancy sessions since the start of the COVID-19 pandemic in 2020 due to lack of staff and the reallocation of space. They are currently not participating in the CenteringPregnancy program and have plans to relaunch the sessions starting in the new year.

Durham

We were able to speak with one of the centering program staff at the Durham County Department of Public Health over the phone. The CenteringPregnancy classes at the Durham County Department of Public Health paused meetings with the start of the COVID-19 pandemic but plans to resume in August 2022. According to the staff member, the Durham County Health Department includes a brief oral health section in its CenteringPregnancy program. Before the pandemic, staff from the dental division (hygienists and dental assistants) would provide the oral health education most of the time. If dental staff were not available, a staff member from the maternal health clinic would guide the oral health sessions. The staff members from the maternal health clinic that would deliver the educational information would be a nurse, midwife, volunteers, or medical students. When a maternal health clinic team member would lead the session, the CenteringPregnancy manual would be used to instruct the group. The interviewed staff member described the oral health section of the manual as small and brief. It provides a brief section about taking care of one's teeth, gums, and mouth during pregnancy and encourages participants to see a dentist regularly. Additionally, the manual provides information about signs of gum disease, educates about the importance of a healthy diet during pregnancy, discourages tobacco use during pregnancy, and explains how it relates to overall health. If a member of the dental division delivered the educational information and led the discussion, oral health education was expanded using educational material, such as a mouth prop, showing how to brush and floss properly. The dental staff would also provide information about oral health regarding infants, which the manual does not discuss. Additionally, the dental staff

would provide a bag that included a toothbrush, floss, and toothpaste for participants. The Durham County Health Department serves a large Hispanic population. The dental staff can provide an English and Spanish session using a team member fluent in Spanish. The maternal health clinic often had to use an interpreter to translate throughout the session, which affected the intimacy and flow of the session. When asked if session participants learned something new from these sessions, the staff member did express that participants did learn new information, such as how soon mothers can take their babies to the dentist, that it is safe to visit a dentist during pregnancy, and the adverse effects of neglecting dental care when pregnant. The interviewed staff member felt it was far more beneficial when the dental team led the session as they could provide further education and answer questions regarding oral health. Furthermore, she states the newborn oral health education was valuable as it encouraged expectant mothers to make dental visits earlier for their children and receive oral health education focused on infants. In response to what benefits come from an oral health session, the staff member stated it gets participants thinking and encourages mothers to make appointments with the dental clinic as they learn how important it is to have regular dental visits for their overall health and their baby's health. During the session, maternal health clinicians provide clearance letters and referrals to the dental clinic so expectant mothers can receive dental care during their pregnancy. Receiving clearance letters and referrals during their PregnancyCentering classes allows easy access for patients to be seen in the dental clinic. Receiving the referral and becoming established at the dental clinic, also allows expectant mothers to be aware of where they can take their children in the future for dental care. When asked what resources or improvements could be made to the program, the staff member stated she feels it would be beneficial to have some sort of activity during the oral health education portion for better delivery of the material. Additionally, she feels an information sheet that participants could take home to have the educational information with them would be beneficial. Furthermore, she felt the oral health portion could be expanded with more information in the manual, especially regarding newborn and infant oral health education.

Granville-Vance

A questionnaire was developed and emailed to Granville-Vance County per their request. Granville-Vance County responded that the county does offer CenteringPregnancy classes that include oral health education. Abigail Kenney, FNP-C stated that "many pregnant women do not realize that oral health is safe during pregnancy." By providing oral health education and a dental referral to the on-site dentist, Granville-Vance County allows for pregnant patients to receive the dental care they need. A dental hygienist from the dental clinic joins in person groups. If a Zoom meeting needs to be conducted instead of in person groups, either a provider or the Centering facilitator will provide oral health education. During the centering classes, an emphasis is placed on the fact that oral care is safe during pregnancy. Information about the Granville-Vance County dental office and the services they provide are explained to the prenatal patients. Infant oral health is not specifically included in the CenteringPregnancy classes, but mothers are encouraged to begin their child's dental care early. The CenteringPregnancy classes are available to all types of mothers: brand new mothers and mothers of multiple children. Ms. Kenney, FNP-C states that the patients 'enjoy coming to centering and learning each visit."

Guilford

Since 2013, Guilford County offers Centering sessions for mothers as advertised on their website (www. Guilfordcountync.gov) In the organization of their sessions, they offer an oral health topic once amongst their almost ten sessions. In past years, this has changed to a virtual option rather than in person which has adjusted the deliverables including eliminating guest speakers for many topics. In previous years, in person sessions were a great resource for local dentists to attend the sessions with free screenings and dental care products, but they're hopeful that with the reduction in covid cases they can create a hybrid option. In addition to the screenings and dental care support the classes offer a group of expecting mothers with similar due dates an opportunity to bond and often create lasting friendships throughout the group. The group creates a family-like atmosphere among the women to learn and engage in real conversations about their pregnancies. Specifically for oral health, they often share tips and tricks for teeth cleanings and learn via coordinators from approved activities for engagement. Evaluations are conducted every 2-3 sessions but historically participants have enjoyed and learned to provide specific dental care throughout pregnancy.

Gaston

After reaching out to Gaston County on multiple occasions, no feedback was provided.

Pitt

While the Centering Healthcare Institute website has listed the Pitt County Department of Public Health as a provider of Centering Pregnancy classes, when the Pitt County Department of Public Health was contacted, we learned they have halted their CenteringPregnancy classes since the start of the COVID-19 pandemic in 2020 due to lack of staff. They are currently not participating in the CenteringPregnancy program and do not have any plans to continue the program. Therefore, we have chosen to eliminate Pitt County from our research.

Discussion

Based on our research of peer-reviewed articles regarding oral health of expectant mothers and children, our findings showed that the issues faced by this population in North Carolina were aligned with our conclusions. The results of our study show that education regarding oral health care for expecting mothers needs to increase for better health outcomes. Additionally, staff observations confirm accessibility to dental health providers and appointments has resulted in more significant health outcomes for our studied population. Our results show that expectant mothers learn new oral health information from centering classes as there is not an extensive oral health care education provided during routine prenatal visits.

The success criteria we have observed include having a dental professional lead the oral health section in CenteringPregnancy classes. Dental professionals can include dental staff working in the health department or having outside dental clinicians lead the class. Additionally, having the dental staff provide

screenings and oral health care items such as toothbrushes and toothpaste has been favorable. Further, having dental personnel who speak Spanish and teach the Spanish groups in some health departments allows for better flow, intimacy, and connection. Another success criterion includes providing clearance letters and referrals in centering classes to allow accessibility to the dental clinic located within the health department. As noted previously, accessibility to dental care is a significant issue in North Carolina; therefore, it is imperative to have access to oral health services. Additionally, having an infant oral health education as part of the class has allowed mothers to have increased knowledge on how to take care of their baby's oral health needs and exercise lifelong prevention methods for their children. Lastly, the adaptability of moving centering classes to zoom meetings was a positive action taken to continue the essential classes when meeting in person was not an option during the COVID-19 pandemic.

Improvements that could be made are adding a further detailed oral health section in the CenteringPregnancy manual, specifically to include information on infant oral health. We have found through our interviews that many women were unaware of how early infant oral health care should be started and what important prevention methods can be utilized to prevent poor oral health outcomes in children. In addition, the effect oral health has on overall health shows it should be addressed in CenteringPregnancy classes and during routine prenatal visits, if possible.

Challenges we faced during our project included difficulties reaching and obtaining responses from several health departments we studied. Without survey results from all local health departments studied, we were limited with the data we were able to collect and missing success criteria from half of the health departments in NC participating in CenteringPregnancy classes that may differ from those we were able to interview and receive information from.

In the future, we hope to see relaunching of existing programs and more local health departments implementing centering classes to allow underserved populations access to education that provides increased health education. We also hope to see a more significant portion of oral health education in centering classes and have dental staff or outside professionals leading the oral health discussion. Local health departments that already have dental clinics established would be a great place to start, as expectant mothers and children can have easier accessibility to dental health services directly from where their centering classes take place. Additionally, we hope to see more research on the benefits of oral health in centering classes, specifically, and evidence of the benefits to health outcomes. Finally, we would also like to see evidence of the benefits CenteringPregnancy has on infants' oral health and long-term health benefits. As we know, early dental intervention provides more outstanding health outcomes.

Conclusion

In conclusion, our goal of this study was to assist and encourage other health departments to implement CenteringPregnancy classes in their own departments by providing success criteria of existing programs and showing the valuable benefits of centering classes. Additionally, we hope this allows existing programs to make improvements, if needed, based on success criteria of other departments.

Through the completion of our project, we discovered that there remains a substantial need for oral health education in North Carolina based CenteringPregnancy classes. Our project was based on surveying seven North Carolina counties to see if oral health education is offered to prenatal patients, within CenteringPregnancy classes. Most of the counties we interviewed have included oral health education in their centering classes. However, our research team was hoping to see that all the counties interviewed included oral health in their CenteringPregnancy classes. Appropriate dental care plays an important role in successful prenatal outcomes and overall health of the infant, thus reducing the chance for caries. Improving the oral health behaviors of pregnant women/young mothers can positively influence the oral health of children and reduce their caries risk (BMC Oral Health, 2019).

Oral health and pregnancy go hand in hand, meaning pregnancy can affect one's oral health and oral health can affect one's pregnancy. The North Carolina counties that promote oral health education in their CenteringPregnancy classes are providing their patients with invaluable information that can sustain or improve oral health with both the mother and child. Exposing pregnant mothers to oral health education can also lead to better oral care habits for their children in the future.

References

Green, C. (2020, October 24). *Few providers mean dental deserts across NC - NC Health News*. North Carolina Health News. https://www.northcarolinahealthnews.org/2020/10/24/dental-deserts-inadequate-oral-health-care-nc/

Guilford County website: https://www.guilfordcountync.gov/our-county/human-services/health-department/adult-health-services/centeringpregnancy. Mildly Geeky, I. (2020, January 1). CenteringPregnancy. Retrieved from Centering Healthcare Institute website: https://www.centeringhealthcare.org/what-we-do/centering-pregnancy

Mulligan, T. (2014, February 18). *Food Deserts and Development Finance Options in North Carolina | Community and Economic Development - Blog by UNC School of Government*. Ced.sog.unc.edu. https://ced.sog.unc.edu/2014/02/food-deserts-and-development-finance-options-in-north-carolina/

HEALTHY FOOD ACCESS Opening doors to healthy food in North Carolina. (n.d.). The Center for Health Law and Policy Innovation. https://chlpi.org/wp-content/uploads/2013/12/PATHS_NC_Healthy-Food-Access-Fact-Sheet-Final.pdf

NC Oral Health Regional Snapshot State Totals. (2020). https://www.dph.ncdhhs.gov/oralhealth/docs/OralHealthSnapshots_12.22.20-NC.pdf

Tikkanen, R. (2019, March 22). *Variations on a Theme: A Look at Universal Health Coverage in Eight Countries*. Www.commonwealthfund.org; The Commonwealth Fund. https://www.commonwealthfund.org/blog/2019/universal-health-coverage-eight-countries#:~:text=Most%20countries%20with%20universal%20coverage

Traci C. Johnson, MD. (2005, July 8). Dental Care and Pregnancy. Retrieved March 5, 2020, from WebMD website: https://www.webmd.com/oral-health/dental-care-pregnancy

World Health Organization. (2020, March 25). *Oral health*. Who.int; World Health Organization: WHO. https://www.who.int/news-room/fact-sheets/detail/oral-health

https://www.centeringhealthcare.org/what-we-do/centering-pregnancy

World Health Organization. (2020, March 25). *Oral health*. Who.int; World Health Organization: WHO. https://www.who.int/news-room/fact-sheets/detail/oral-health

Wright, A. (2021, April 30). Interactive Web Tool Maps Food Deserts, Provides Key Data. Retrieved from Usda.gov website: https://www.usda.gov/media/blog/2011/05/03/interactive-web-tool-maps-food-deserts-provides-key-data

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Exploration of Food Insecurity in Urban vs. Rural Counties in NC

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Introduction

Food security is defined as "physical, social, and economic access to sufficient, safe, and nutritious foods that meet dietary needs and food preferences for an active and healthy lifestyle (Paul, Paul, & Anderson, 2019)." It can be further broken down into four pillars of availability, access, utilization, and stability. According to NCjustice.org, the state of NC ranks 10th in the United States regarding the ongoing food crisis in America. Roughly 600,000 household families live each day without the proper foods to keep a nutritionally balanced diet. Roughly 1.5 million people struggle with hunger in North Carolina (Paul, Paul, & Anderson, 2019). Rural households are more likely than urban households to be food insecure in the United States (Paul, Paul, & Anderson, 2019).

Compounding the issue of food insecurity is that in North Carolina, most of these geographic areas with limited access to nutritious food, otherwise known as food deserts, occur in poor and low-income areas. Low-income groups face many barriers that contribute to poor dietary and health consequences that can lead to many challenging illness or disease. People in low-income areas are at higher risk for obesity and other chronic illnesses because of limited resources to purchase healthy, affordable foods; they further have limited opportunities for physical activity, suffer higher stress levels due to hunger being linked to higher levels of mental and behavioral health problems, and have limited access to healthcare. Households must allocate where to spend their money each month, and sometimes unfortunately food will not be a priority due to other commitments or responsibilities such as housing. According to the National Alliance to End Hunger, "you are what you eat" and consuming the right foods are important; therefore, good health and food consumption is the level of hunger (Hunger is a U.S Health Issue, 2014).

[6] Rockingham County Department of Health & Human Services
[7] Forsyth County Department of Public Health
[8] MTW District Health Department
[9] Cumberland County Health Department

Purpose

In this paper, we aim to compare food insecurity in rural vs urban counties by comparing our counties of residence and work. The areas we will focus on include Martin, Tyrrell, Washington, Cumberland, Forsyth, and Rockingham counties. Martin, Tyrrell, and Washington counties are three rural counties in North Carolina who belong to the same health district. According to the North Carolina Institute of Medicine, in Martin County in 2019, 20.6% of the population was living in poverty, 26.8% were obese, and 16.7% were food insecure. This same year in Tyrrell County it was seen that 25.4% of the population was living in poverty, 18.8% were obese, and 20.3% were food insecure. Lastly, Washington County had 21.3% of the population living in poverty, 19.1% were obese, and 19.5% were food insecure. These numbers can be compared to the state of North Carolina as a whole. In 2019, 13.6% of NC residents were living in poverty, 32.8% were obese, and 14% of the population was food insecure.

Geography plays a major part in the outcomes of the pillars because rural households are more likely to be food insecure than urban households. Urban households have an issue with cost as it applies to food insecurity, but for many rural households, the issue is the availability and access of food. This concern of food availability is due to many food deserts across rural areas of North Carolina, which stems from the lack of grocery stores. Individuals and families in the urban community often lack the means of transportation for a run to the Super Center or grocery store for food. There are homes that individuals must travel miles from before the first available grocery store or food market is reached and even then, there is still no guarantee that quality nutritional food will be available. The low to no access tracks to food of any sort can oftentimes be worse for families and individuals battling the same situations in rural areas. We know that with the barriers of transportation or access to public transportation alongside having limited access to foods that support healthy eating patterns, it leads to a more detrimental crisis such as diabetes, heart issues, tooth decay and other health problems.

Methods

Food Insecurity in Cumberland County NC

According to North Carolina Community Action Association (NCCAA), the pandemic has caused food insecurity to increase with approximately 17% to 19% of the region's adults facing food insecurity, compared to the state average of 14%. In Cumberland County, approximately 1 in every 4 children is living in a "food insecure" environment (NCCAA, 2021). In 2019, Cumberland County community health assessment revealed the top five health priorities which were Access to Health Services; Economy (employment, housing, food security, and living below poverty); Exercise, weight, and nutrition; Public Safety, and Substance Abuse. All the health concerns listed above were to be addressed and strategic plans were put in place to address each concern.

This section of the paper will focus on Cumberland County's efforts to address the need for more nutritional, healthy food items. Cumberland County Department of Public Health received a two-year grant from the Aetna Foundation for $100,000 to address food insecurity in Cumberland County. (Cumberland

County NC Government, 2019). The grant would support the completion of a food environment assessment of Cumberland County and the creation of a food policy council that would work to change policy and upscale food insecurity efforts across the county.

Joint Fort Bragg & Cumberland County Food Policy Council

Food insecurity in Cumberland County is an issue that the county is aiming to combat by establishing the first joint county- military food policy council. On June 21, 2021, the Cumberland County Board of Commissioners approved a resolution creating the Joint Fort Bragg and Cumberland County Food Policy Council. The fifteen appointed members will serve one-year terms and work to change policy around food security in the county. The council includes members from various backgrounds with a common interest in reducing food insecurity in Cumberland County. The members represent local government, farming and agriculture, local education, healthcare, public health, food insecurity or food access, or child and adult care (Bymer, 2021).

One of the goals of the food policy council is to Implement at least two policies, systems, or environmental priorities identified by the Food Policy Council. This will create policy change and find ways to better serve the community who may face barriers or challenges that prevent them from having access to healthy nutritious food. The council is currently working in three ad-hoc committees to address the barriers of transportation, Women, Infants and Children (WIC) services and communications around food insecurity. There are approximately 56,000 residents in Cumberland County who are food insecure (Bymer, 2021) and the work of the council will assist in creating ways to build a healthier community.

Cumberland County has a few food pantries which are becoming more common due to a strong need in our communities, to include higher education institutions and among non-profit organizations. The food policy council has toured a few of the food pantries and have found that the need is great and goes beyond food to include personal hygiene and toiletry items.

Fayetteville State University (FSU), an HBCU located in Cumberland County NC is attacking food insecurity by partnering with Food Lion to provide the additional food resource for students. Food Lion provided $10,000 worth of products to FSU students who now have access to an on-campus food pantry to help offset a student meal plan and to provide the additional food resources that many students need. Food Lion's Director of Operations expressed gratitude for the food pantry for they believe "no one should have to choose between dinner and receiving an education." Food insecurity is such a huge problem that many students are unable to focus on learning due to stress in not knowing where their daily meals will come from. Staff of FSU strive to set their students up for success and nourish them at the same time (FSU, 2019). Chancellor James Anderson shared that the university had been trying to address the issue of food insecurity for many years and now that the funding had been received the university is now able to provide fresh food and nonperishable food items. Food Lion will stock the pantry twice a year and the university will also get support from the Second Harvest Food Bank (Riley, 2019). According to Riley, since 2015, Food Lion has provided pantries to Winston Salem State University, Johnson C. Smith University in Charlotte, Livingstone College in Salisbury and Virginia State University in Petersburg, Virginia (Riley, 2019). Regardless of what county it is there are families and individuals suffering from lack of healthy nutritional foods from

children to college students to the adults and elderly. Its efforts such as this one that will bring the community together for a collaborative cause to support the community hopefully for years to come.

Fayetteville Technical Community College (FTCC) is another institution in Cumberland County addressing the issue of food insecurity. FTCC food pantry was established to support students while keeping them in school and on track, and to make sure no one goes hungry. This food pantry contains nonperishable food items and personal care items that will benefit the students and aid in missing resources very much needed. FTCC employees and students, local supermarkets and businesses, civic groups, and members of the community contribute to the food pantry making it a success (Pritchard, 2020). More initiatives like this are needed in Cumberland County and other communities around the state and beyond to address the challenges of food insecurity.

Results from a web-based anonymous survey revealed that nearly 3 in 4 college students (72.9%) from four historically Black colleges and universities (HBCU) in the Southeastern states reported some level of food insecurity in the past year. The survey revealed that even students who participated in meal plan, faced food insecurity (Duke et al., 2021). Food insecurity issues go beyond NC and data has shown that states across the U.S have concerns about access and availability. In 2017, an online survey was distributed to students at university in New Jersey in which 2,055 responded showing that 48% of students were food insecure. This was especially true for women, African Americans, Hispanics, commuters, students receiving financial assistance and those with partial or no meal plan (Robert R. Weaver, Nicole A. Vaughn, Sean P. Hendricks, Penny E. McPherson-Myers, Qian Jia, Shari L. Willis & Kevin P. Rescigno, 2020). Food insecurity doesn't have a true face, for many are dealing with the fact that the resources they need they just don't have. Some suggest that institutions considering food pantries as a strategy to address food insecurity would benefit from university financial support based on student-relevant data, dedicated staff, students, and faculty, and collaboration with local organizations (Ullevig et al.,2021).

Urban vs rural implementation of mobile food market, how we will partner with existing organizations

Mobile food markets travel to numerous neighborhoods to sell fresh fruits and vegetables, functioning on an established schedule so residents know when they can shop. Mobile markets can be fashioned from buses, trucks, vans, carts, etc. to display produce. They often travel to areas lacking easy access to supermarkets or grocery stores (i.e., food deserts).

There is some evidence that mobile produce markets increase consumption of fresh fruits and vegetables and improve access to fresh fruits and vegetables in food deserts and neighborhoods that have been structurally disadvantaged and under-resourced (CHR, 2020). A North Carolina-based study suggests mobile produce markets that sell locally grown produce at reduced prices, with nutrition and cooking education components, can increase produce consumption as well as self-efficacy and confidence in preparing whatever produce is on hand for meals and snacks (CHR, 2020).

Mobile markets need to be competitive with national chain grocery stores who promote bargains, promotions, and coupons due to limited budgets. They can do this by providing specials and discounts, especially at the end of the month. Policy makers can facilitate greater purchase of healthier foods by

permitting farmers' market food assistance (WIC Farmers' Market and Senior Farmers' Market vouchers) to be redeemed at all mobile markets (Zepeda, et al., 2013).

Availability is a key component to ensure individuals have access to the mobile market. While mobile markets are seen as convenient, adding stops on the weekend would allow more people to shop there. Funding programs to operate on weekends and to expand products sold at mobile markets, especially local value-added products (e.g., baked goods and dairy products), can enhance both convenience and the perception that the market is attuned to customer preference (Zepeda, et al., 2013).

Solution: Mobile food markets (equity and access)

Mobile produce markets, mobile farmers markets, or fresh food carts travel to multiple neighborhoods to sell fresh fruits and vegetables, operating on a set schedule so residents know when they can shop. According to the County Health Rankings, there is some evidence that mobile produce markets increase consumption of fresh fruits and vegetables and improve access to fresh fruits and vegetables in food deserts and neighborhoods that have been structurally disadvantaged and under-resourced.

A North Carolina-based study suggests mobile markets that sell locally grown produce at reduced prices, with nutrition and cooking education components, can increase produce consumption as well as self-efficacy and confidence in preparing whatever produce is on hand for meals and snacks. Another study suggests mobile markets can increase schoolchildren's access to and consumption of fruits and vegetables. Mobile produce markets appear to improve all dimensions of access to fresh produce, especially among older adults and those with low incomes; improved access includes increased produce availability, affordability, quality, and acceptability; market accessibility and safety; and accommodations such as electronic benefit transfer (EBT) acceptance.

Implementing mobile markets in neighborhoods with high concentrations of food insecure households may reduce food insecurity. A New York City-based study of Green Carts suggests increasing EBT acceptance at mobile produce carts may increase purchases of fruits and vegetables from these vendors. One rural mobile produce market implementation report suggests social marketing plans, community involvement in decision making, and careful operational decisions regarding mobile market design, distribution plan, and site and produce selection, may improve intervention success in rural food deserts.

Conclusion

A growing body of literature suggests that food insecurity may magnify the existing socioeconomic disparities within populations which in turn may increase the risk of those who are vulnerable and influence their mental wellbeing (Srivastava, et al., 2022). Whether rural or urban, creating more equitable access for all individuals to have the opportunity to obtain healthy food options has the potential to support not only healthy eating habits, but improving health outcomes as well. Food insecurity is a key social determinant of health and a driver of health inequalities (NCCAA, 2021). By being aware of the inequalities

experienced in both the urban and rural setting, initiatives can be sharpened to not only elevate programs and/or policies already in place, but to design projects to better serve the individuals within the community.

References

"Access to Foods That Support Healthy Eating Patterns." *Access to Foods That Support Healthy Eating Patterns | Healthy People 2020*, https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/access-to-foods-that-support-healthy-eating-patterns.

Bymer, L. (2021, June 24). *First Joint County-Military Food Policy Council Established*

Retrieved from https://www.cumberlandcountync.gov/home/2021/06/23/first-joint-county-military-food-policy-council-established

Cumberland County NC Government (2019). Cumberland County 2019 Community Health Needs Assessment. Retrieved from https://www.cumberlandcountync.gov/docs/default-source/health-documents/reports/community-health-assessments/community_health_assessment-2019.pdf?sfvrsn=25042201_3

Economy that works for all: Make sure north carolinians have access to food. (2018, December 10). Retrieved March 14, 2022, from https://www.ncjustice.org/publications/make-sure-north-carolinians-have-access-to-food/

Emilie Adamovic, BA Peter Newton, PhD &Veronica House, PhD (2020, March 9). *Food insecurity on a college campus: Prevalence, determinants, and solutions.* Retrieved from https://pubmed.ncbi.nlm.nih.gov/32149582/

Fayetteville State University (2019, February 15). *Fayetteville State University and Food Lion to Hold Grand Opening for Food Pantry* Retrieved from https://www.uncfsu.edu/food-pantry-by-food-lion-at-fsu

"Hunger Facts: Move for Hunger." *Move for Hunger: Everyone Can Fight Hunger*, https://moveforhunger.org/hunger-facts

"Hunger Is a U.S Health Issue." *The Alliance to End Hunger*, The Alliance to End Hunger, 2 May 2014, https://alliancetoendhunger.org/wp-content/uploads/2014/04/3-Hunger-is-a-Health-Issue.pdf

Naomi N. Duke, Santiba D. Campbell, Derrick L. Sauls, Robyn Stout, Mary T. Story, Tomia Austin, Hayden B. Bosworth, Asheley C. Skinner & Helene Vilme (2021) Prevalence of food insecurity among students attending four Historically Black Colleges and Universities, Journal of American College Health, DOI: 10.1080/07448481.2021.1877144

North Carolina Community Action Association (2021, March 26). *The COVID-19 Pandemic Has Created More Hungry Families in North Carolina*

Retrieved from https://www.nccaa.net/post/the-covid-19-pandemic-has-created-more-hungry-families-in-north-carolina#:~:text=As%20the%20pandemic's%20impact%20continues,a%20%E2%80%9Cfood%20insecure%E2%80%9D%20environment.

Pritchard, C. (2020, November 18). *FTCC Opens Food Pantry to Help Needy Students*

Retrieved from https://www.faytechcc.edu/blog/ftcc-opens-food-pantry-to-help-needy-students/

Riley, R. (2019, February 19). *Fayetteville State reveals new campus food pantry*https://www.fayobserver.com/story/news/2019/02/19/fayetteville-state-reveals-new-campus-food-pantry/5916833007/

Robert R. Weaver, Nicole A. Vaughn, Sean P. Hendricks, Penny E. McPherson-Myers, Qian Jia, Shari L. Willis & Kevin P. Rescigno (2020) University student food insecurity and academic performance, Journal of American College Health, 68:7, 727-733, DOI: 10.1080/07448481.2019.1600522

Sarah L. Ullevig, Liset L. Vasquez, Lindsay G. Ratcliffe, Sara B. Oswalt, Nikki Lee & C. Austin Lobitz (2021) Establishing a campus garden and food pantry to address food insecurity: lessons learned, Journal of American College Health, 69:6, 684-688, DOI: 10.1080/07448481.2019.1705830

"State of Homelessness: 2021 Edition." *National Alliance to End Homelessness*, 16 Aug. 2021, https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness-2021/.

Paul, C. J., Paul, J. E., & Anderson, R. S. (2019). The Local Food Environment and Food Security: The Health Behavior Role of Social Capital. *International journal of environmental research and public health*, *16*(24), 5045. https://doi.org/10.3390/ijerph16245045

Srivastava, S., Muhammad, T. Rural-urban differences in food insecurity and associated cognitive impairment among older adults: findings from a nationally representative survey. *BMC Geriatr* 22, 287 (2022). https://doi.org/10.1186/s12877-022-02984-x