

**The Impact of Food Insecurity: A Needs Assessment for the  
Wilksburg Community Ministry**

by

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University of Pittsburgh, 2023

## **Abstract**

Food insecurity is a worsening public health issue across the United States. Current estimates state that 10.2% of Americans experience food insecurity, and it disproportionately affects marginalized communities such as Black, Indigenous, and People of Color (BIPOC), low-income individuals, and folks with disabilities. Food insecurity is also associated with worsening physical and mental health issues, especially among women and children. In Allegheny County, the rate of food insecurity is 9.2%, however among Black individuals it is 24%. One organization that is working to address food insecurity is the Wilksburg Community Ministry (WCM), a non-profit that operates a store-front and mobile food pantry. They serve approximately 500-600 people per month and receive almost 41,000 pounds of food each month; they have also experienced a growth of 40.6% in the last six months. Due to this increase, WCM was interested in understanding their communities' needs. A needs assessment in the form of a survey was created, administered, and analyzed, and recommendations were made based on the results.

The survey contained eight questions that were categorized into two groups: (1) demographics of respondents and (2) feedback on the services that WCM offers or can expand to offer. Additionally, due to the demographics of WCM's clients, whom they refer to as neighbors, the survey was offered in four languages: English, Spanish, Russian, and Turkish. The data was then analyzed using descriptive statistics and chi-squared tests of independence to determine

associations between survey answer options, such as the time of extended hours or types of classes, and age or transportation type.

The survey was administered to 75 individuals, with an average age of  $51 \pm 15$  years, and 11 surveys were completed by non-English speakers. The survey found that many of WCM's neighbors demonstrate a need for extended pantry hours, are interested in educational classes, and would like to see more varieties of food offered at the pantry. Additionally, there were no statistically significant associations found between answer options and age or transportation type. Ultimately, this needs assessment provided WCM with insight regarding the services they can provide to address the changing needs of their community.

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## Preface

This body of work would not have been possible without the help of the Wilkinsburg Community Ministry. I would like to thank Dr. Ruth Kittner and Melissa Wilson for all their help throughout my practicum and their continued support with my essay. I learned so much during my time at WCM, and it reignited my passion to work to achieve health equity for marginalized communities. This experience has made me excited for the future possibilities to work in the non-profit space addressing issues, such as food insecurity, that are at the intersection of public health and social services. I cannot thank you both enough.

I would also like to thank Dr. Jaime Sidani and Dr. Julia Hudson Richards for being on my essay committee. Thank you both so much for your time and immense guidance on crafting this essay.

The road to completing this degree has been a journey with a lot of twists and turns. I started out in epidemiology and found that my passions lay in working with communities, or “in the trenches” as Dr. Nancy Glenn would say. I wanted to thank everyone who helped me along the way. Dr. Glenn, thank you for your help in switching from epidemiology to BCHS, and working with me to truly figure out what I wanted in a career. Dr. Matha Terry, thank you for your encouragement and infinite knowledge, it was your classes that made me realize that I was in the wrong department. And it was only with your guidance that I was able to work up the courage to make the change I truly wanted.

Finally, thank you so much to all my friends and family who have been with me through everything, I could not have done it without you.

## Positionality Statement

I identify as Arab American, the child of an immigrant, and a visibly Muslim woman who grew up in a post-9/11 America. I make this delineation to draw attention to the treatment and perception of Arabs and Muslim in today's socio-political climate and how that has shaped how many of us walk through this world. I grew up in the city of Pittsburgh in a middle/low-income household. My parents are college educated, and they always encouraged my siblings and I to pursue an education to better our lives. While we experienced financial hardships growing up, we had the privilege of always being able to afford food. It wasn't until I was an adult, and in graduate school that I experienced, and am still experiencing, food insecurity. I only accepted it had gotten to the point of food insecurity when a coworker pointed out that I often skip lunch. This moment was the turning point– I realized how often I would skip meals because I could not afford food. While this was not the first time I had experienced financial difficulties, it was the first time it had affected my ability to access food. It was then that I applied for the Supplemental Nutrition Assistance Program. Fortunately, this was not the only time I have gone through the extensive and confusing process to apply for a government assistance program.

These experiences have shaped who I am today and how I interact with the world around me. I also recognize that others have their own lived experience, and I acknowledge that I bring my own perspectives and biases into any work that I do. During my time at the Wilkinsburg Community Ministry, I believe that my identity and experiences aided me in building trust with the community and allowed me to come from a place of compassion and empathy. It has allowed me to strive for equity for all individuals regardless of identity or ideology.

Finally, I believe that we all have the right to affordable and accessible healthy food. It is imperative to recognize that food insecurity has historically been influenced and perpetuated by structural and systemic racism. Food insecurity is a multifaceted and intersectional issue that must be addressed through collaborative policy, structural, and environmental changes, and we must bring marginalized voices to the forefront of the conversation.

## 1.0 Introduction

This body of work focuses on the impact of food insecurity in the United States (US) and how a local organization is working to address it. The United States Department of Agriculture (USDA) defines food insecurity as “the limited or uncertain availability of nutritionally adequate and safe foods, or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (USDA, 2022c). Recent reports from the USDA (2022b) state that approximately 10.2% of American households suffer from food insecurity. To address food insecurity, food banks and food pantries have become a vital resource. In the US, food banks are large-scale warehouses and distribution centers where food is collected, stored, and distributed to other organizations across the region. Much of the food from the food bank is supplied through the USDA, local retailers, food manufacturers, local farms, and the hospitality industry such as local restaurants, casinos, and hotels. Food pantries are individual sites that receive food from the food bank and other donation sources, such as local retailers and community members, and distribute food directly to those in need.

Nationally, food pantry use is on the rise among food insecure households. The USDA found that from 2019 to 2020, food pantry use increased from 4.4% to 6.7% among all US households (Coleman-Jensen & Rabbitt, 2021). Among households that experience food insecurity, pantry use increased from approximately 27% in 2019 to 36.5% in 2020; and among households with very low food security, 45.5% of households utilized food pantries in 2020, compared to approximately 38% in 2019 (Coleman-Jensen & Rabbitt, 2021). These rates include all of 2020, indicating that the COVID-19 pandemic largely impacted food pantry use.

One organization working to address food insecurity in the Greater Pittsburgh region is the Wilkesburg Community Ministry (WCM). WCM is a non-profit organization established in 1968, that runs a store-front and mobile food pantry located in Wilkesburg, Pennsylvania, a borough located just outside the city of Pittsburgh. WCM is one of the largest food pantries in the Greater Pittsburgh region, serving individuals from Wilkesburg, Edgewood, Swissvale, East Pittsburgh, Homewood, Forest Hills, Braddock, and Churchill.

In the summer and fall of 2023, I completed a practicum at WCM. One project that I took on while there was to create and administer a needs assessment for the organization. Within the last two years, WCM has seen an increase in the number of individuals and households utilizing the pantry. Due to this, they are hoping to relocate into a larger space within the next year. WCM was interested to know how their communities' needs have changed over the last year, and what they could do to best address them, especially after they move to the new location. To accomplish this, I created a needs assessment, administered it to community members that utilize the pantry, analyzed the results, and made recommendations on how best to address their needs.

This essay will begin with a discussion about the public health significance of food insecurity, the effect it has on individuals, how it is being addressed on a national and community level, and the role of WCM in our community. It will then transition into the methods and results from the needs assessment, closing with a discussion about what these results mean and recommendations to the pantry on how best to move forward.

## 2.0 Background

Food insecurity is a growing concern for many Americans. In 2022, there were approximately 44 million people in the US, including 13 million children, experiencing food insecurity (Feeding America, 2023a). In 2019, among households with children, the national rate of food insecurity was 13.5%, compared to 10.5% of households without children (Harper et al., 2022). Additionally, food insecurity disproportionately affects Black, Indigenous, and People of Color (BIPOC) and low-income individuals. Healthy People 2030 reports that the prevalence of food insecurity among Black non-Hispanic and Hispanic households is 21.7% and 17.2%, respectively (Healthy People 2030, 2023). These rates are approximately two times the prevalence of food insecurity of their White counterparts. Further, Native Americans and Alaska Natives (NA/AN) also face disproportionately high rates of food insecurity at a rate of 18% (Maillacheruvu, 2022).

In addition to race and ethnicity, the age of individuals can impact their risk of experiencing food insecurity. Among children, Black and Latinx children face food insecurity at substantially higher rates of 22.8% and 19.5% respectively, compared to their White counterparts at 8.1% (Hales & Rabbitt, 2023). Adults aged 60 years and older experience food insecurity at a rate of 7.1%, which equates to approximately 5.5 million older adults (Feeding America, 2023c). Further, older adults with minoritized identities such as those that identify as Black, Latinx, or Indigenous and/or those with disabilities face food insecurity at higher rates compared to their White and/or able-bodied counterparts (Feeding America, 2023c). In 2021, the USDA reported that among disabled adults aged 65 and older, 9% faced low to very low food security (USDA, 2022a). This rate

worsens among disabled adults aged 18-64, with approximately 25% facing low to very low food security (USDA, 2022a).

Another risk factor in experiencing food insecurity is household composition. Among households with a female single parent, the rate of food insecurity in 2022 was 33% compared to 21% in households with a male single parent, and 11% among households composed of married couples with children (USDA, 2022a). There does not seem to be significant gender differences among household with men living alone compared to women living alone, as the rates of food insecurity are 14% and 15% respectively (USDA, 2022a). However, globally, there are significant gender differences in food insecurity, as women more often experience higher rates of food insecurity compared to men. An international study done by Broussard (2019) found that these global gender differences are due to the overall lower educational attainment and income of women, differences in social networks, and a lack of policies that address gender inequality. The data used in this study was collected by the Gallup World Poll which had a subsection dedicated to understanding the food insecurity experiences of individuals from 146 countries. Furthermore, a US-based study found that the gender wage gap significantly impacts rates of food insecurity (Osborne, 2012). This study showed that among men and women in the same occupation, women experienced higher rates of food insecurity and this result was significant even when controlling for income.

Rurality and geographic location can also affect a household's risk of experiencing food insecurity. According to Feeding America (2023a), in 2021, 11% of rural households were food insecure. They also found that rural counties make up approximately 87% of counties with the highest rates of food insecurity. This is particularly staggering, given that 67% of counties in the US are considered rural counties (Feeding America, 2023b). This also differs across regions of the

United States. Currently, the states with the highest rates of food insecurity are in the south, including Texas, Oklahoma, Arkansas, Louisiana, and Mississippi (USDA, 2022a). This is often due to state-level policies and economic conditions. Further, rural areas like the Mississippi Delta, Appalachia, the Black Belt in the American South, and Alaska have some of the highest food insecurity rates (Gundersen, 2021; Leonard et al., 2018).

Additionally, rural counties in North and South Dakota that include Native American Reservations experience rates of food insecurity at 24.1% (Gundersen, 2021). Many of these areas do not have any access to healthy foods and healthy foods are more expensive on Reservations compared to the US average. For example, the cost of bread, chicken, eggs, and milk are 85%, 71%, 45%, and 40% higher on Reservations compared to national prices (Maillacheruvu, 2022). Transportation also poses a significant issue to rural Indigenous folks that live on Reservations. One study found that in 2016, 31% of Indigenous households participating in a Food Distribution Program on Indian Reservations, lacked access to a vehicle (Maillacheruvu, 2022).

The US also saw dramatic impacts to food insecurity due to the COVID-19 pandemic. Due to the pandemic, the US experienced the first economic recession since 2007, which led to record unemployment rates of 14.8% in April 2020 (Niles et al., 2021). Unemployment is one factor that directly affects food insecurity rates, and at the onset of the pandemic, food insecurity rates significantly increased to 25-30% in March 2020, compared to 10% before the pandemic (Otten et al., 2022). Additionally, low-income households that participated in the Supplemental Nutrition Assistance Program (SNAP) were more likely to experience food insecurity during the pandemic than households that were not using SNAP (Harper et al., 2022).

To combat rising food insecurity rates during the pandemic, the federal government expanded SNAP benefits. The application process was easier, it expanded who was eligible for



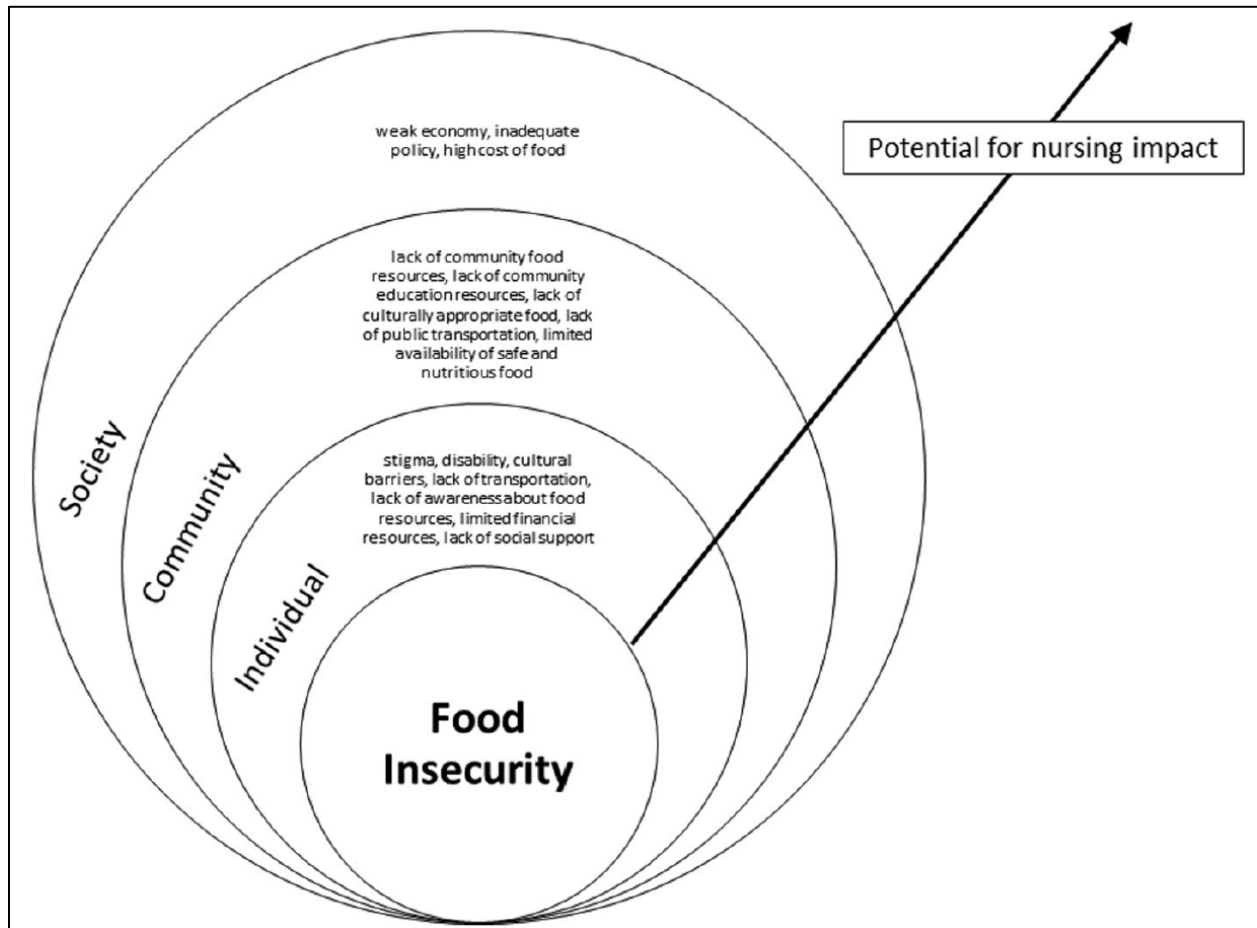
SNAP benefits, and increased SNAP benefit issuance by 15% (Headrick et al., 2022). This expansion of SNAP helped to alleviate the burden of food insecurity and unemployment felt by households during the pandemic. Unfortunately, while these changes were vital, we also saw the introduction of new barriers. Due to the influx of SNAP applications during the pandemic, it took much longer to process applications and left families unable to afford food in the meantime (Harper et al., 2022; Fang et al., 2022).

Due to these circumstances, food banks and pantries were a resource that many households needed. Food pantries across the US saw an increase in usage. One study reported that food pantry use increased 3.5% and 10.7% among SNAP-participating and non-SNAP users, respectively (Harper et al., 2022). Rates of pantry use have not slowed down since the end of the pandemic; as in February of 2023, the federal government cut the SNAP expansion, returning the pandemic-era emergency policies to those from before the pandemic. As these cuts are so recent, there have not been any academic studies done to assess the quantitative impact on household food insecurity rates.

## **2.1 Factors Associated with Food Insecurity – Social Ecological Model**

Food insecurity is a multifaceted issue that is affected by factors on various levels of the social ecological model (SEM). Several studies have worked to develop frameworks to describe the factors associated with food insecurity, however for this study the most applicable one was demonstrated by Schroeder & Smaldone (2015). They originally developed their theoretical model

based on the SEM to discuss the implications of food insecurity on nursing practice, research, and health promotion (Figure 1).



**Figure 1. Food Insecurity within a Nursing Paradigm (Schroeder & Smaldone, 2015).**

At the individual level, we see factors that are often associated with health disparities such as income and socioeconomic status, education, and lack of stable transportation (Schroeder & Smaldone, 2015). However, one factor that has become apparent in recent years is the importance of being able to access culturally relevant foods. For many communities' food has cultural and even religious significance and meaning (Briones Alonso et al., 2018). This study found that in the

United States food security interventions have failed due to not taking cultural settings into account. For example, culturally significant foods could be Kosher or Halal foods. These are foods that adhere to religious qualifications that some foods such as meat and dairy must meet for Jewish and Muslim individuals (Texas A&M University, 2023). In addition to religious requirements, many individuals have dietary restrictions and/or considerations. Some folks follow a gluten free, lactose free, vegetarian, or vegan diet, while others must follow a strict diet to manage diabetes or heart disease. Often foods that follow strict dietary restrictions are more expensive than other foods, which poses an additional hardship on individuals that need these types of foods. Therefore, it is vital to take culture into consideration when creating interventions to address food insecurity as it can be a major barrier that individuals face.

At the community level, food insecurity is heavily impacted by a community's built environment. These factors include limited access to healthy foods, an increase in fast-food restaurants in a given area, and lack of access to public transportation. Most notably, food deserts and food swamps heavily impact communities across the United States. According to the USDA, food deserts are defined as "low-income census tracts with a substantial number or share of residents with low levels of access to retail outlets selling healthy and affordable foods" (Ver Ploeg et al., 2011). The measure of low levels of access is defined as "at least 500 persons and/or at least 33 percent of the population lives more than 1 mile from a supermarket or large grocery store" (Ver Ploeg et al., 2011). However, this definition is specific to urban areas. In rural areas, the distance to a supermarket or grocery store is 10 miles, rather than 1 mile (Ver Ploeg et al., 2011). According to the USDA, in 2019 approximately 6% of the US population live in areas deemed "food deserts" (Johnson & Stewart, 2021). This equates to approximately 19 million people across the United States.

More recently there has been discussion about how the term “deserts” implies that this is a natural phenomenon (Gripper et al., 2022). Many argue that the creation of a food desert is not natural, but rather man-made. Specifically, use of this term ignores the impact of systemic and institutional racism, and how these systems have led to inequitable and unjust food environments, particularly for BIPOC and low-income individuals (Gripper et al., 2022). One of the largest systems of oppression that contributes to food insecurity is the historical practice of redlining. Redlining was first practiced in the 1930s, when the Home Owner’s Loan Corporation graded and color-coded neighborhoods from “Best” to “Hazardous” or “Risky” (Linde et al., 2023). Historically, this meant that neighborhoods that were predominately Black and low-income were deemed “risky,” and were denied home loans and mortgages (Linde et al., 2023). These inherently racist and discriminatory processes further exacerbated generations of residential segregation, economic inequity, and health disparities for BIPOC folks and low-income individuals. Further, redlined communities face reduced access to reliable transportation and a lack of access to healthy foods. Linde et al. (2022) found that historically redlined communities faced significantly higher rates of food insecurity and home evictions compared to neighborhoods that were not redlined.

Therefore, to acknowledge the implications of structural racism, many people have instead begun to use the term “food apartheid.” The use of the term food apartheid also allows for more honest discussions about how to best address food insecurity on a community and societal level, rather than the individual level (Gripper et al., 2022). For this reason, in the remainder of this body of work, I will be referring to areas with low level of access to healthy and affordable foods as a food apartheid.

In addition to regions of food apartheid, food swamps are areas that have a high density of convenience stores and fast-food restaurants (Goodman et al., 2020). Food swamps are often

located in predominately BIPOC and low-income neighborhoods, and they have been shown to provide communities with high-calorie and energy dense foods which contributes to an increased caloric intake, lower intake of fruits and vegetables, and an increased risk of obesity (Goodman et al., 2020).

Across the United States, there has been an increasing number of convenience stores compared to grocery stores. From 1990 to 2015, the number of grocery stores in the US has been declining, while the number of supercenters and dollar stores have begun to rise (Stevens et al., 2021). This is true in both rural areas and urban centers (Feng et al., 2023; Gripper et al., 2022; Goodman et al., 2020). Dollar stores and convenience stores traditionally sell shelf-stable or prepared foods, higher calorie foods, and foods lower in nutritional value (Feng et al., 2023; Larson et al., 2009). Additionally, staple foods sold in dollar stores and convenience stores have been shown to be 10-54% more expensive than those same foods in traditional food retailers such as grocery stores and supermarkets (Caspi et al., 2017). More recently, there are some reports that dollar stores such as Dollar General have started selling fresh fruits and vegetables. Currently, Dollar General offers fresh foods in 300 of their stores, with the goal of adding an additional 2,000 stores by the end of 2023 (Totty, 2023). Studies have shown that adults and adolescents who have better access to supermarkets and full-service grocery stores have healthier food intake and a reduced risk of chronic diseases (Larson et al., 2009). A study done by Morland et al. (2002) demonstrated that there was an association between meeting federal nutrition guidelines of fruit and vegetable intakes and the presence of supermarkets per census tract. They found that for each additional supermarket, there was a 32% and 11% increase in meeting federal nutrition guidelines for Black and White individuals, respectively (Morland et al., 2002).

While this is a promising result, studies have shown that individuals that live in rural areas, are low-income, and/or are marginalized often have poor access to supermarkets, grocery stores, and other healthy food supplies (Larson et al., 2009). This is further exacerbated by the fact that dollar stores are the fastest-growing food supply in rural areas (Feng et al., 2023), and they have 14% fewer chain supermarkets than urban areas (Larson et al., 2009).

At the highest level of the SEM, often called the policy level, Schroeder & Smaldone (2015) refer to this as the society level. In this section there are factors such as policies and laws that affect food insecurity, poverty, and the state of the economy. Currently, the federally funded government assistance program, SNAP, is the most effective anti-poverty program in the US, especially during times of economic downturn (Jones Cox, 2023). However, qualifications for SNAP and other social safety net programs can be difficult to meet, there a few considerations outside of gross monthly income for SNAP benefits, and these programs often leave gaps for individuals that are just above the poverty guidelines but do not make enough to support their household on their own (Center on Budget and Policy Priorities, 2023). Additionally, the state of the economy heavily impacts food insecurity rates as seen during the pandemic and the recession in 2008. As unemployment rates rise, we also see a rise of food insecurity rates, especially among those most impacted by economic downturn such as low-income folks and people of color (Niles et al., 2021; Otten et al., 2022). In response to the economic hardships caused by the pandemic, the federal government passed a relief program that was an expansion of the existing Child Tax Credit (CTC). This allowed for monthly payments to households with children, and studies found that the CTC caused a significant reduction in food insecurity among households with children (Bovell-Ammon et al., 2022). However, in January of 2022 the CTC ended and the same study

showed that with the expiration of benefits, households with children experienced a 25% increase in food insecurity by July of 2022 (Bovell-Ammon et al., 2022).

In addition to a weak economy and the effects of the pandemic, inflation and increasing cost of food dramatically effects rates of household food insecurity. Between 2021 and 2022, food prices increased by 11.4% nationwide, this was three-times the rate of increase in 2021 (Sweitzer & MacLachlan, 2023). These rates are staggering and affected the most used household foods such as eggs, fats and oils, poultry, and fresh fruits and vegetables. The increase in price for each of these foods were 32.2%, 18.5%, 14.6%, 7.9%, and 7.0%, respectively (Sweitzer & MacLachlan, 2023). Due to these increasing food prices, many Americans turned to fast-food and restaurants, labeled “food-away-from-home,” as these food prices only saw a 7.7% increase in 2022, compared to 11.4% (USDA, 2023c). Further, these conditions have been heavily impacted by the COVID-19 pandemic, as worldwide, there were disruptions in the food supply chain (U.S. Government Accountability Office, 2023). Fortunately, inflation has slowed since 2022, and we have not seen such dramatic increases in food prices between 2022 and 2023. One report from the USDA (2023c) found that between September 2022 and September 2023, inflation and food prices have both increased by 3.7%. Ultimately, many Americans have struggled to afford healthy foods due to these economic conditions and the cost of food, which highlights the importance of federally funded safety net programs.

## 2.2 Health Implications of Food Insecurity

Studies show that food insecurity is associated with poor mental and physical health outcomes. Most notably, food insecurity is linked to poor nutrition and increased rates of chronic diseases. A study by Kirkpatrick & Tarasuk (2008) showed that adults that experience food insecurity consume fewer fruits, vegetables, and milk products compared to adults that are food secure. They also found that food insecure adults and adolescents had insufficient amounts of vital vitamins and nutrients often acquired from diets, such as vitamin A, riboflavin, vitamin B-6, magnesium, iron, and others (Kirkpatrick & Tarasuk, 2008). The lack of these essential nutrients has been linked to the development of chronic diseases such as diabetes, hypertension, and hyperlipidemia (Seligman et al., 2010). This study found that adults from food insecure households had a 21% and 50% higher risk of developing hypertension and diabetes, respectively compared to adults from food secure households.

Among pregnant individuals, food insecurity has been linked to several poor health outcomes. One study found that experiencing food insecurity is associated with poorer dietary quality, increased risk of birth defects like spina bifida, and an increase in the likelihood of delivering a low birthweight infant (Carmichael et al., 2007; Borders et al., 2007). Borders et al. (2007) found that among pregnant women on various government assistance programs, those who experienced food insecurity had 3.4-times the odds of giving birth to an infant with a low birthweight, compared to women who did not experience food insecurity. Additionally, among a sample of 135 low-income pregnant female-identifying Latinx individuals, those who were food insecure has 2.59-times the odds of experiencing elevated levels of prenatal depressive symptoms, compared to those who were not food insecure (Hromi-Fiedler et al., 2011).



Further, food insecurity is associated with worse mental health rates among adults. Feng et al. (2021) showed that during the COVID-19 pandemic among a sample of 2714 low-income individuals, food insecurity was associated with a 257% higher risk of anxiety and 253% higher risk of depression. While these rates are likely exacerbated by other major stressors caused by the pandemic, other studies have corroborated that among adults, and especially in those that live in households with children, food insecurity is associated with higher rates of anxiety and depression, and that there is a bidirectional relationship between food insecurity and poor mental health outcomes (Huddleston-Casas et al., 2008; Whitaker et al., 2006).

Worsening oral health has also been shown to be associated with food insecurity. A study by Muirhead et al. (2009) found that low-income Canadians that were food insecure were two times more likely to report having a toothache in the past month, compared to food secure individuals. Those that experienced food insecurity were also significantly more likely to wear dentures, experience more tooth pain, and have trouble sleeping and chewing due to discomfort and/or pain (Muirhead et al., 2009). These findings have been reinforced by US-based studies that have shown food insecurity is a significant risk factor for worsening oral health among pregnant individuals and children (Testa et al., 2022; Jackson & Testa, 2020).

Among children and adolescents that live in food insecure households, studies have shown poor physical and mental health outcomes. One study by Eicher-Miller et al. (2009) showed that among children aged 12-15 years old that live in food insecure households, the odds of iron deficiency anemia were 2.95-times that of children that do not live in food insecure households. The same study also found that children in food insecure household were at significantly more likely to have a BMI classified as “at risk of overweight” and “overweight.” Further, youth that live in food insecure households are at a higher risk of having a behavioral problem compared to

those that do not experience food insecurity (Whitaker et al., 2006). This study found that among households classified as food insecure, 36.7% of youth aged 3 years old had at least one behavioral problem compared to 22.7% of youth in food secure households.

In addition to poor health outcomes, compounding chronic diseases, and other unmet social needs, individuals that experience food insecurity have some of the highest healthcare costs and many of these individuals utilize Medicaid and Medicare (Dillman et al., 2023). According to Dillman et al. (2023), dual-eligible folks make up 17% of Medicare and 14% of Medicaid enrollees, however, they incur 33% and 32% of traditional Medicare and Medicaid spending, respectively. Another study demonstrated that food insecurity is associated with increased odds of being in the top 10% of healthcare expenditures (Berkowitz et al., 2018). Conversely, SNAP enrollment has been shown to reduce health care costs for both the individual and the overall healthcare system. One study found that SNAP enrollment was associated with savings of \$2,360 in Medicaid payments per person per year among dual-eligible individuals (Berkowitz et al., 2021). Additionally, SNAP enrollees had 16% and 20% lower total health care and pharmacy costs, respectively (Dillman et al., 2023). By addressing food insecurity as a social determinant of health, we can reduce poor physical and mental health outcomes for individuals and related health care costs.

### **2.3 Addressing Food Insecurity**

There are several types of interventions that have been used to address food insecurity. Interventions at the individual level frequently focus on specific health outcomes and are used

more in hospital and clinic settings. The aim of many of these interventions is to improve the patient-physician relationship or to provide patients with food boxes that contain medically tailored dietician designed meals. These interventions often have drawbacks such as cost and reach, therefore, they need to be supplemented through community level interventions. This includes food banks and food pantries and community kitchens and gardens. Finally, other interventions focus on targeting upstream causes of food insecurity such as government assistance programs like the Supplement Nutrition Assistance Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the National School Lunch Program (NSLP).

At the individual level, food insecurity interventions can take place in a healthcare setting as there is a growing awareness of food insecurity in healthcare and providers in the US are beginning to ask their patients about their household food security (De Marchis et al., 2019). This allows providers to offer their patients educational materials or referrals to community services. Additionally, there are a few studies that have collaborated with dieticians to create specialized food boxes for patients with chronic conditions such as diabetes and HIV (Oronce et al., 2021). This study was able to reduce food insecurity of patients receiving medically tailored meals by approximately 15% (Oronce et al., 2021). However, interventions that supply tailored meals can be very costly.

In addition to healthcare-based initiatives, there are other interventions such as Meals on Wheels (MOW) that provide hot meals to older adults over the age of 60. MOW serves 2.2 million older adults and 251 million meals, each year (Meals on Wheels, 2023). Studies have shown that seniors that receive food from MOW have an increased nutrient intake and are better able to maintain a healthy weight. Further, they experience a reduction in loneliness, isolation, and

depressive symptoms (MOW, 2023; Dickinson & Wills, 2022). MOW has also been associated with preventing admission to residential care by supporting independent living.

During the COVID-19 pandemic, a study by Haney et al. (2023) implemented grocery delivery to older adults and people with chronic illnesses facing food insecurity in Austin, Texas. They delivered fresh fruits and vegetables, and pantry staples to each household, once a week. Through this program, they served over 26,000 individuals and 3,570 unique households, and the demographics of their participants were 55% Latinx and 21% Black. While this study was successful in reducing food insecurity in their targeted population, there were significant drawbacks. The largest one is that the cost of this program was immense at almost \$400,000, and it was staffed by an extensive volunteer force. Overall, individualized interventions to address food insecurity can be effective. However, they are often specialized to certain demographics or populations and have large monetary costs. Therefore, it is necessary to have further reaching interventions that could impact more people at once.

At the community level, interventions often aim to either improve food access in a community or to teach community members skills and knowledge regarding health and nutritious food. Community kitchens are one form of intervention that has been implemented to address education on healthy foods, learning cooking skills, and sometimes even financial management and budgeting (Loopstra, 2018). Studies have shown that community kitchens are associated with an increase in reported intake of nutritious foods and healthy food access, and increased skills and confidence in cooking (Loopstra, 2018). However, drawbacks of community kitchens include funding constraints and lack of available staff.

One of the largest interventions at the community level are food banks and food pantries. Food banks and food pantries have often been labeled as “emergency food systems” intended for

short-term use. This is because many food banks and pantries are only open once a week or have specific days of the month that they distribute food, such as the second and fourth Thursday of each month. There are food pantries that can have more regular hours, though they can be difficult to come by and are often only open during business hours. However, this can be a barrier to access for working families and individuals. Recent studies have shown that many people are beginning to rely on food banks and food pantries as their only source of food (Bazerghi et al., 2016). A systematic review done by Bazerghi et al. (2016) found that food banks and pantries are often not able to meet nutritional requirements needed, and there are mixed results on whether the presence of food banks and pantries are able to improve food insecurity rates among pantry users. This finding was also confirmed by a review done by Loopstra (2018). Both articles state that rather, the role of food banks and pantries are to help reduce the impact of food insecurity that individuals and households are facing. This review ultimately found three reasons that food banks are currently struggling: (1) food banks and pantries are facing a dramatic increase in the number of individuals using their services; (2) food banks, in turn, are not able to keep up with the increasing food demand; and (3) these organizations often heavily rely on the work of volunteers rather than staff due to funding constraints, and therefore, are not trained to provide nutrition education (Bazerghi et al., 2016). Ultimately, food banks and food pantries are becoming a vital resource for households experiencing food insecurity, however there are a lot of challenges that come with this growth.

Community food gardens have also become a tool to address a community's access to fresh fruits and vegetables. Community gardens are often found in locations deemed to be areas of food apartheid, where there is little access to healthy food through traditional retail options. One study reported that in the city of Philadelphia, over 81% of food stores available offered mostly unhealthy food choices (Gripper et al., 2022). Community gardens are most often used in neighborhoods

with higher populations of Black individuals and neighborhoods with lower average household incomes (Gripper et al., 2022). Additionally, participation in community gardens has been linked to lower rates of depression and anxiety, and overall better health outcomes (Gripper et al., 2022). A study done by Barnidge et al. (2013) also found that community garden participation was significantly associated with an increase in fruit and vegetable consumption. Further, participation in gardening has previously been shown to be beneficial to older adults who live with cognitive diseases such as Alzheimer's and dementia (Strout et al., 2017). However, among community food gardens few studies have evaluated its effect on the health of older adults. One study found that among their 10 participating older adults, there was a significant increase in consumption of more servings of fruits and vegetables, and they demonstrated an increase in their global cognition (Strout et al., 2017). However, they had a small sample size, and more studies are needed to corroborate the effects of community food gardens for older adults. While there are clear benefits to community gardens, there are also several limitations including potential loss of land due to policy changes and development, lack of sufficient resources to upkeep the garden such as soil, compost, fertilizer, and even water access, and lack of continual funding (Diaz et al., 2018).

At the policy level, programs like SNAP, WIC, and NSLP address food insecurity by providing food or monetary assistance for purchasing food. The National School Lunch Program is a federally assisted meal program that provides free and reduced lunches to children in public and private schools. Children qualify for this program if they receive other federal assistance or based on their household income and family size. In 2022, 30.1 million children participated in the NSLP (USDA, 2023a). However, the drawback of NSLP is that it is only available during the school year. This means that millions of children may not have access to adequate meals during their summer break (USDA, 2023d). To account for this, the USDA has a supplemental program

called the Summer Food Service Program (SFSP). However, the SFSP only serves a fraction of the children that participate in NSLP. Current estimates from the USDA state that 2.7 million children participated in SFSP in 2022 (USDA, 2023d). This rate is vastly different from the 30 million children that are served with NSLP.

WIC is also a federally funded social safety net program that aids low-income women, infants, and children up to the age of five. WIC provides food to supplement specific diets, nutritional education, and referrals to healthcare and other services (USDA, 2022d). In 2020, over 7 million women, infants, and children participated in the WIC program, and 90% of participants came from households at or below 185% of the Federal Poverty Guidelines (USDA 2022e).

SNAP is the last and largest of the federal safety net programs aimed at reducing food insecurity across the United States. SNAP provides monthly monetary assistance via an Electronic Benefits Transfer (EBT) card, which can be used at authorized retail stores to purchase food (USDA, 2021). In 2020, there were 18.6 million SNAP participants nationwide (USDA, 2019). Previous studies have shown that SNAP expansions can reduce food insecurity rates by 6-19% among SNAP participants (Mabli & Ohls, 2015). Federally funded government assistance programs are one of the most effective tools at combating rising food insecurity rates.

While effective, social safety net programs are widely politicized in the United States, and funding changes from year to year. A 2019 study from the Pew Research Center, found that 49% of Americans believe the government should be doing more to help those in need through safety net programs, while 48% of Americans believe that the government cannot afford to do more to help those in need because of rising national debt (Pew Research Center, 2019). Additionally, these programs are all income-based, which means if a household earns an increase in income one month, the next month they may experience a reduction or cut in their benefits. One study showed

that a reduction or cut of SNAP benefits was associated with 1.42-times greater odds in experiencing household food insecurity, and 1.42-times greater odds in experiencing child food insecurity (Ettinger de Cuba et al., 2019).

Unfortunately, these interventions are not effective enough alone and are needed in tandem. Many folks that utilize SNAP and WIC programming also regularly visit food pantries. We must acknowledge the intersectional nature of food insecurity, and therefore, to address it there needs to be widescale collaboration from the federal and state governments, nonprofit and community organizations, and the healthcare industry.

## **2.4 Food Apartheid in Allegheny County and the City of Pittsburgh**

According to Feeding America (2021), the rate of food insecurity in Allegheny County is 9.2%, compared to 10.2% nationally, which equates to 158,369 individuals (DHS, 2022). In Allegheny County, Black individuals are also disproportionately impacted by food insecurity at a rate of 24%, compared to White individuals at 7% (Feeding America, 2021). Further, Black individuals only make up 13.5% of the county population (United States Census Bureau, 2022).

Historically, Pittsburgh has seen extensive redlining of Black and low-income communities (Schuyler & Wenzel, 2022; Figure 2). The effects of this redlining have had lasting effects on Pittsburgh communities, including creating several areas of food apartheid. A study done by Schuyler & Wenzel (2022) found that Pittsburgh communities that have been redlined face higher rates of poor health outcomes and worse environmental conditions, which has led to increased rates of asthma and other lung conditions.



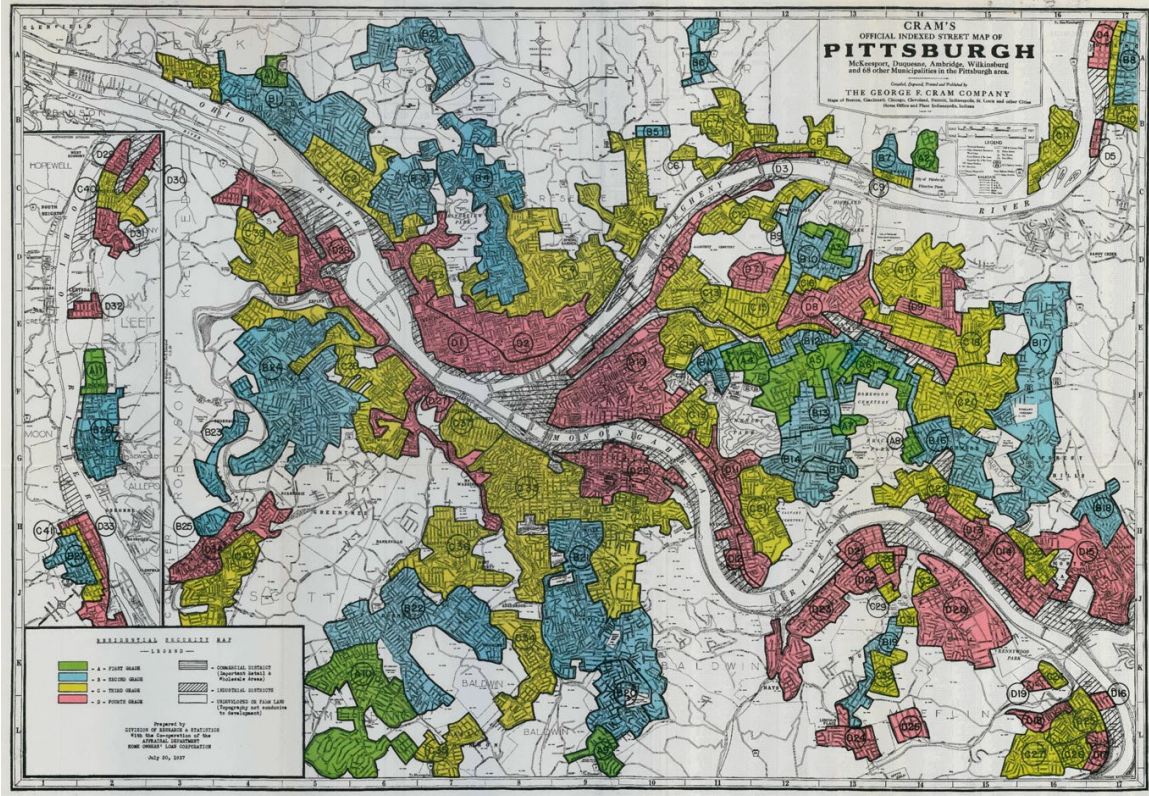


Figure 2. Redlining Map of Pittsburgh (Schuyler & Wenzel, 2022).

Further, the COVID-19 pandemic disproportionately affected the food security of Black individuals in Pittsburgh. One study done by Dubowitz et al. (2021) found that during the pandemic, participating Black folks experienced increased food insecurity rates at 36.9%, compared to 17.7% nationally. However, they did not find any change in SNAP enrollment or food pantry usage among this population, which differed from national trends (Harper et al., 2022). Overall, structural racism and redlining has led to worsening food security and poor health outcomes.

There are several organizations in the Greater Pittsburgh region that are working to address these issues. The largest organization that is working to address food insecurity in the county and surrounding areas is the Greater Pittsburgh Community Food Bank (GPCFB). Currently, the

GPCFB serves 11 counties in the Western Pennsylvania region, and they partner with over 1,000 agencies and programs. Of those 1,000 partners, there are approximately 80 food pantries across the 11 counties (GPCFB, 2023). The GPCFB also has several programs working directly with communities such as summer meals for kids, drive-up distribution meals, and food boxes for older adults.

Other organizations that are addressing food insecurity in the Greater Pittsburgh region are 412 Food Rescue and Just Harvest. 412 Food Rescue is a non-profit organization that works to recover and redistribute food that would otherwise be thrown away. According to the USDA, the US wastes 30-40% of the food supply each year (USDA, 2023b). Food waste is often due to spoiling food at all stages of food production and the supply chain; additionally, at the retail level food waste is due to over-ordering, equipment malfunctions, and culling blemished produce (USDA, 2023b). Therefore, 412 Food Rescue works to redirect food to mitigate the amount of food wasted. They often receive food donations from grocery stores, wholesalers, and caterers, and then this food is distributed to food pantries, housing authorities, daycare centers, churches, and community centers (412 Food Rescue, 2023). 412 Food Rescue also creates and distributes meals from the surplus food donated and hosts classes that teach food education and cooking skills.

Just Harvest is grassroots organizing non-profit that works to reduce food insecurity and hunger through long-term approaches. Just Harvest has what they call a four-pronged approach to hunger (Just Harvest, 2023). The first is individual empowerment to help low-income individuals access government programs such as SNAP and welfare and aid them in filing taxes. The second is neighborhood development to increase access to fresh foods in communities. This is accomplished through two programs, (1) allowing SNAP benefits to be used at local farmers markets, and (2) partnering with local farmers to supply fresh foods to community corner stores.

The third approach is government advocacy in which they work to lobby for better public policies and organize communities to take action. Finally, the last tier of their approach is public education designed to deepen understanding of food insecurity, food apartheid, and the effect it has on our communities (Just Harvest, 2023).

In addition to community-based initiatives, the City of Pittsburgh recently established a Food Justice Fund. The Food Justice Fund seeks to address systemic issues by investing in grassroots, community-led projects to address food insecurity and food apartheid in the City of Pittsburgh (Pittsburgh Food Policy Council, 2023a). This is a new fund that has not started distributing funding to organizations, however they received \$10 million over a four-year period from the City of Pittsburgh. The aim is to support projects that focus on reducing food waste, contributing to the development of community markets, supporting urban farming, and more (Pittsburgh Food Policy Council, 2023b). Unfortunately, the one drawback to the Food Justice Fund is that it can only be used within the limits of the City of Pittsburgh, therefore excluding many individuals and groups that could have benefited from this program. In the coming years, it will be vital to evaluate the impact of the Food Justice Fund and work to implement a county wide program.

## **2.5 Wilkesburg Borough and the Wilkesburg Community Ministry**

Wilkesburg lies outside of Pittsburgh's city limits and is an autonomous community within Allegheny County. Historically, Wilkesburg has a large population of people of color. Current estimates from the Allegheny County Health Department (ACHD) state that Wilkesburg

has a population that is 53.4% Black and 35.4% White (ACHD, 2023). Additionally, Wilkinsburg has a higher proportion of its residents that are over the age of 65, at 22.5% compared to 18.9% at the county level (ACHD, 2023). Further, Wilkinsburg has a disproportionately high population of individuals living with disability with 31% of adults with at least one disability and living in poverty, compared to 26% at the county level. Among those not living in poverty, 20.1% and 11.6% of adults and children in Wilkinsburg are living with at least one disability, respectively (ACDH, 2023). These rates are also much higher than the county wide rates at 13.5% and 5.6% for adults and children, respectively.

To combat food insecurity in this community, the Wilkinsburg Community Ministry (WCM) runs a store-front and mobile food pantry. The pantry is open to anybody that needs food; there are no income or location-based restrictions to use the pantry. The store-front pantry is open Monday through Friday, from 9am to 1pm, while the mobile food truck has a rotating schedule of locations in Allegheny County all during evening hours or on the weekend. The mobile food truck has two locations in Wilkinsburg, one in Sharpsburg, and one in East Liberty. WCM also houses a community garden that supplies food to the pantry and is an educational space for local youth groups and schools around Wilkinsburg. Previously, WCM referred to all individuals utilizing the pantry as clients. However, more recently they have shifted to referring to everyone as neighbors to humanize and dignify those using the pantry. Too often people experiencing food insecurity can have their choices taken away from them by organizations and people that believe they know how to best help the community, without experiencing or understanding that community. This change in rhetoric aims to remind everyone that WCM is a part of the community and has been for the last 55 years.

WCM's store-front pantry serves 500-600 households per month, seeing an average of 65 individuals in one day. The mobile food truck serves approximately 200-300 unique households per month. To support everyone that comes through the pantry, WCM acquires most of their food from the GPCFB. In addition to the GPCFB, WCM also works closely with 412 Food Rescue to receive sizeable donations each week from Giant Eagle, Trader Joes, Whole Foods, and Costco; and they partner with a local Bloomfield grocery store to purchase fresh produce every week. They also receive small amounts of non-food donations. These are often personal hygiene items, pet food, and children's books. In the month of September 2023, WCM's store-front pantry received a total of 40,500 pounds of food. To further break it down, they received 24,700 pounds of food from the GPCFB, 15,000 pounds from food donations, and approximately 800 pounds from the local Bloomfield grocery store. They also received close to 1,000 pounds of non-food donations. For the mobile food truck, WCM brought in 10,500 pounds of food, most of which comes from the GPCFB, and approximately 500 pounds of non-food.

WCM has seen substantial growth in the number of individuals utilizing the pantry and the amount of food they are bringing into the space. Just in the last six months, WCM has seen a 40.6% increase in the number of individuals utilizing the pantry per month. This growth is likely because of the residual effect that the COVID-19 pandemic has had on food insecurity in the US. This growth mirrors the trends seen nationally, with increasing rates of food insecurity and increasing usage of food pantries.

Given the growth that this community is experiencing, the needs of the community are also expanding and changing. Therefore, to evaluate these changes, we completed a needs assessment. The following sections of this body of work will outline the needs assessment survey, how the survey was administered, and the results and conclusions drawn from the assessment.

## **3.0 Methods**

### **3.1 Creation and Administering Needs Assessment**

A needs assessment was created to evaluate the changing needs of the Wilkinsburg community. The IRB determined that this was exempt from review because it did not meet the criteria for human subjects' research and no identifying information was collected about the respondents. The survey contained eight questions that were categorized into two groups: (1) demographics of respondents and (2) feedback on the services that WCM offers or can expand to offer. Questions included the age of respondents, type of transportation they use, how long they have been utilizing the pantry and/or mobile food truck, and how they heard about WCM. Additionally, respondents were asked if they would be interested in some form of communication from WCM, opinion about the hours of operation, what foods they want to see more of, and types of educational classes they would be interested in (Table 1). The survey was multiple choice for all questions, with the option to write in other answers.

These questions were chosen to reflect the information the pantry was interested in; they were particularly interested in the services, and things to take into consideration when looking for a new location for the food pantry. Race and ethnicity were omitted from the survey because it was not pertinent to this assessment. Unfortunately, WCM does not have an up-to-date demographics breakdown for their neighbors, though they did not want to use this survey to analyze that data.

Due to the diversity of neighbors that WCM serves, the survey was offered in four languages: English, Spanish, Turkish, and Russian. These languages were chosen because the pantry has recently seen an increase in specific immigrant populations that speak these languages. The survey was first developed in English and then translated with the use of Google Translate. Therefore, it was likely a rough translation as Google Translate often has difficulty with grammar tenses. For this reason, any neighbors taking the survey in another language was first asked to take it using Google Translate's "Conversation" feature, and it was explicitly stated that we would answer any questions they had. The non-English surveys did have one difference compared to the English surveys. Question 3 asked about the types of classes in which neighbors may be interested, and the non-English language surveys were given the option of choosing the answer "English Language Classes." The goal was to elucidate if there was a need or want for English language classes among the new immigrant populations. All surveys can be seen in their original format, in each language, in Appendix A.

**Table 1. Survey Questions and Possible Answers.**

<b>Question Number</b>	<b>Format of Question Asked</b>	<b>Possible Answers</b>
<b>1</b>	Age	Write in
<b>2</b>	Would it be helpful to have extended hours? Select all that apply:	<input type="checkbox"/> Weekday evening hours <input type="checkbox"/> Saturday morning <input type="checkbox"/> Saturday afternoon <input type="checkbox"/> Saturday evening <input type="checkbox"/> Sunday afternoon <input type="checkbox"/> Sunday evening
<b>3</b>	What food do you want to see more of? Select all that apply:	<input type="checkbox"/> Fresh vegetables <input type="checkbox"/> Fresh fruit <input type="checkbox"/> Canned goods <input type="checkbox"/> Protein (i.e., red meat, poultry, fish) <input type="checkbox"/> Vegetarian or vegan options <input type="checkbox"/> Gluten free options <input type="checkbox"/> Kosher or Halal options <input type="checkbox"/> Prepared or ready-to-eat foods <input type="checkbox"/> Other (please specify): _____
<b>4</b>	Would you be interested in any of the following classes? Select all that apply:	<input type="checkbox"/> Cooking classes or demonstrations <input type="checkbox"/> Financial management and budgeting <input type="checkbox"/> Technology (i.e., computer use) <input type="checkbox"/> Resume writing and job search <input type="checkbox"/> Other (please specify): _____  Note: option only available on non-English Surveys <input type="checkbox"/> English language classes
<b>5</b>	What kind of transportation do you use to get to WCM? Select all that apply:	<input type="checkbox"/> Car <input type="checkbox"/> Public transportation (i.e., bus) <input type="checkbox"/> Walk <input type="checkbox"/> Carpooling <input type="checkbox"/> Car shares (i.e., jitney, uber) <input type="checkbox"/> Other (please specify): _____
<b>6</b>	Do you utilize the store-front pantry and the mobile food truck?	<input type="checkbox"/> Store-front pantry only <input type="checkbox"/> Mobile food truck only <input type="checkbox"/> Both



Question Number	Format of Question Asked	Possible Answers
7	How long have you been coming to WCM?	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-2 years <input type="checkbox"/> 3-5 years <input type="checkbox"/> More than 5 years
8	How did you hear about WCM?	<input type="checkbox"/> Friend or family member <input type="checkbox"/> Web search <input type="checkbox"/> Social media <input type="checkbox"/> Blog or article <input type="checkbox"/> Referral from other organization <input type="checkbox"/> Other (please specify): _____
9	Would you be interested in a regular email or text update?	<input type="checkbox"/> Email <input type="checkbox"/> Text <input type="checkbox"/> Either/both <input type="checkbox"/> Neither

The survey was administered over a four-week period, and was only administered by myself and the Pantry Coordinator, Melissa Wilson. The aim was to gather as many responses as possible, so every neighbor that entered the pantry was asked if they would like to complete a survey. All neighbors could refuse if they did not feel comfortable taking the survey, and they could also leave any answers blank that they did not want to answer or did not have an answer for. The surveys were taken via pen and paper, therefore, to assist neighbors that had vision impairments or poor literacy, the survey questions and all answer options were read out loud to them. Once the surveys were completed, I entered all responses into Excel.

### 3.2 Statistical Analysis

All data was analyzed using Microsoft Excel and SPSS. Values were coded using one and zero, with one being a positive response and zero being a negative response (i.e., yes, and no). It is important to note that for questions 2 through 5, the participants could select more than one answer, however, all answer options within questions are mutually exclusive of each other.

Age was transformed into a categorical variable with two groups: (1) individuals 59 and younger, and (2) individuals 60 and over. Among reports of food insecurity, older adults can be defined as older than 60 or older than 65 (Feeding America, 2023c). For this study we decided to define older adults at age 60, as many of WCM's neighbors, while not of retiring age, are unemployed due to disabilities. Additionally, many variables were transformed by combining answer options to allow for ease of analysis and to assure that all cells had a count higher than 5. All variables that were transformed and collapsed are discussed below.

Chi-squared tests of independence were used to evaluate the associations between variables. The variables that were analyzed were: (1) age and extended hours, (2) age and interest in types of classes, (3) transportation type and extended hours, and (4) age and food preferences. Significance was set at  $p = .05$  for all tests. These associations were chosen as WCM was interested in understanding the relationship between the age of WCM neighbors and the services they can offer or change. Particularly, they wanted to assure that the needs of their older neighbors were met in terms of extended hours and food preferences, and that neighbors with differing transportation needs can utilize the pantry during hours that work for them.

To analyze the association between age and extended hours, the answer options were transformed into three groups: weekday evening, all Saturday hours, and all weekend hours. We

were interested in determining if there was an association between the age of the respondent and if they selected that weekday evening hours would be more beneficial for them compared to selecting Saturday hours, and then compared to all weekend hours. The hypothesis was that younger respondents would be more likely to select weekday evening hours because they are more likely to work during regular business hours.

Additionally, we analyzed the association between the age of respondents and the types of classes they are interested in. Our hypothesis was that the younger respondents would be associated with budgeting/financial management and resume writing/job searching classes. This is because the younger populations would still be of traditional working age. The next association that was analyzed was the types of transportation and need for extended hours (again weekday evening hours, Saturday hours, and weekend hours). For this association, the transportation variable was transformed to combine all other transportation options except the use of a car, therefore dichotomizing use of a car and other transportation types. This is because our hypothesis was that those with stable transportation (i.e., those with access to a car) may have different needs for extended hours compared to those that do not have stable transportation and rely on public transportation or walk to the pantry. Finally, we analyzed the association between the age of respondents and their food preferences. This hypothesis was that there may be different preferences for fresh foods compared to prepared foods by age of respondents. A fresh foods variable was created by combining the answer options of fresh fruits and fresh vegetables. A second part of the hypothesis was that there may be different preferences for specific food diets (i.e., gluten free, vegetarian, Kosher/Halal) and age of respondents). Again, another variable was created to include all three of these answer options.

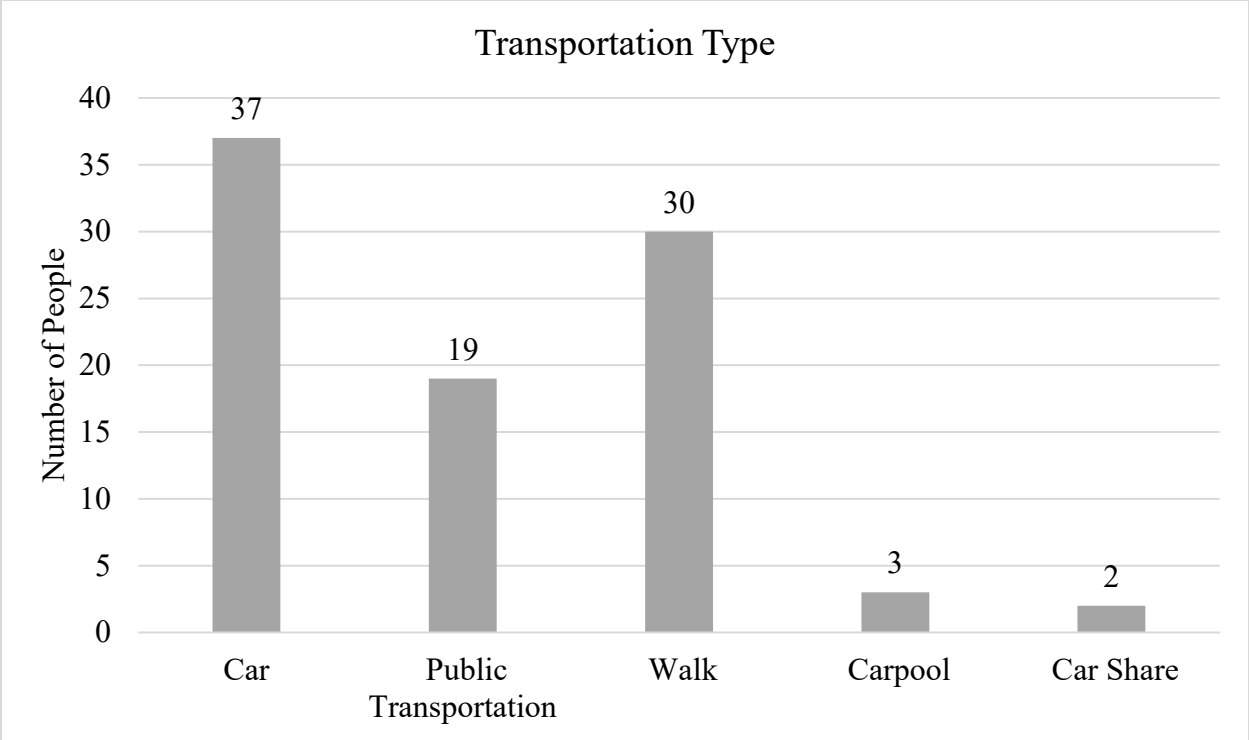
## **4.0 Results**

The results are separated into three sections. The first discusses the demographics of respondents and questions related to their pantry use (questions 1, 5-8). The second section discusses the needs of the community and how the pantry could address them (questions 2-4, 9). Finally, the last section reviews the analyzed association between variables.

### **4.1 Demographics**

There were 75 respondents to the survey. Of individuals asked to take the survey only two people refused. Of the 75 completed surveys, five were in Spanish, two in Turkish, and four in Russian, with a total of 11 surveys completed by neighbors who did not speak English as a primary language. The average age of respondents was  $51 \pm 15$  years, however 12 individuals did not report their age.

We found that 49% (n=37) of respondents utilized a car to access the pantry, 40% (n=30) walk, and 25% (n=19) use public transportation (Figure 3). The survey also found that many of WCM's neighbors are new to the pantry. Of the 75 individuals surveyed, 48% (n=36) of participants have only been utilizing the pantry for the last year, and 28% (n=21) have been utilizing the pantry for 1-2 years.

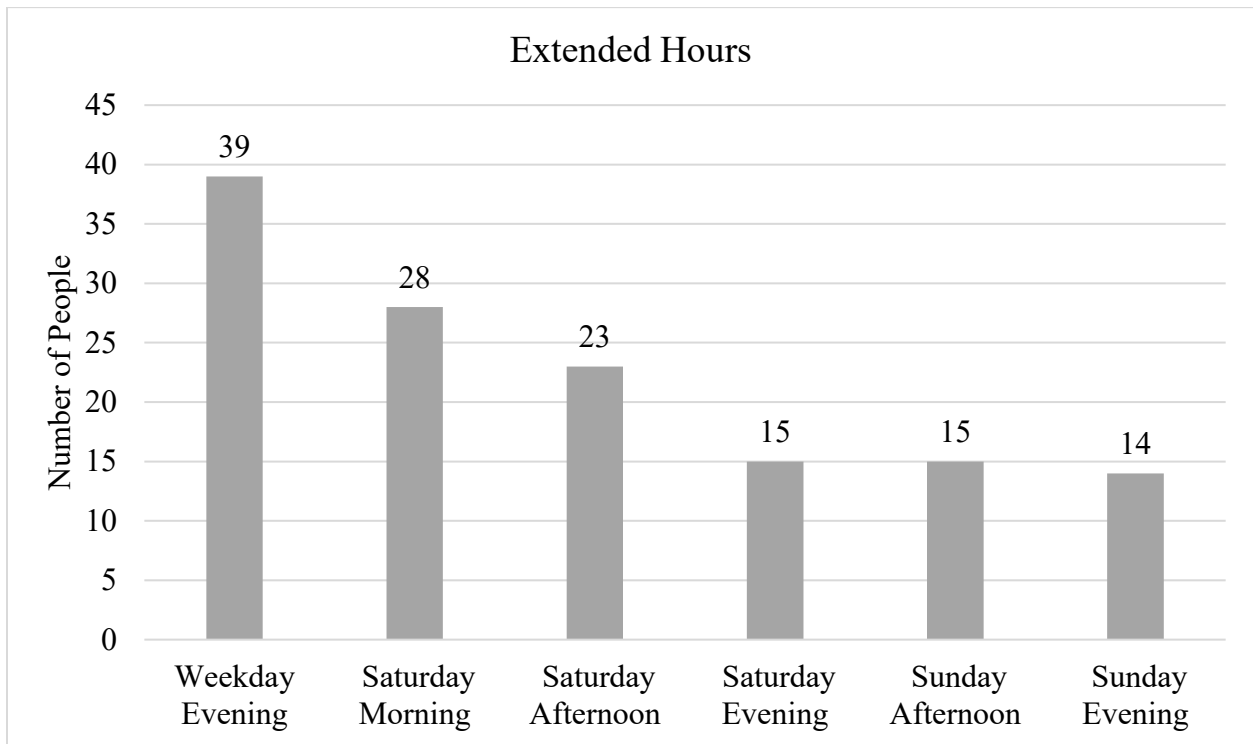


**Figure 3. Types of Transportation Used by WCM Neighbors.**

Among respondents, 59% (n=44) learned about WCM through word of mouth from a family member or friend. We also found that 16% (n=12) of participants were referred from other organizations (such as social workers or the office of immigration), and 11% (n=8) were walk-ins. Finally, we found that 56% (n=42) of individuals surveyed would be interested in some kind of regular communication, whether that be via email or text message, whereas 33% (n=25) of individuals surveyed said that they would not want regular updates.

## 4.2 Feedback on Services

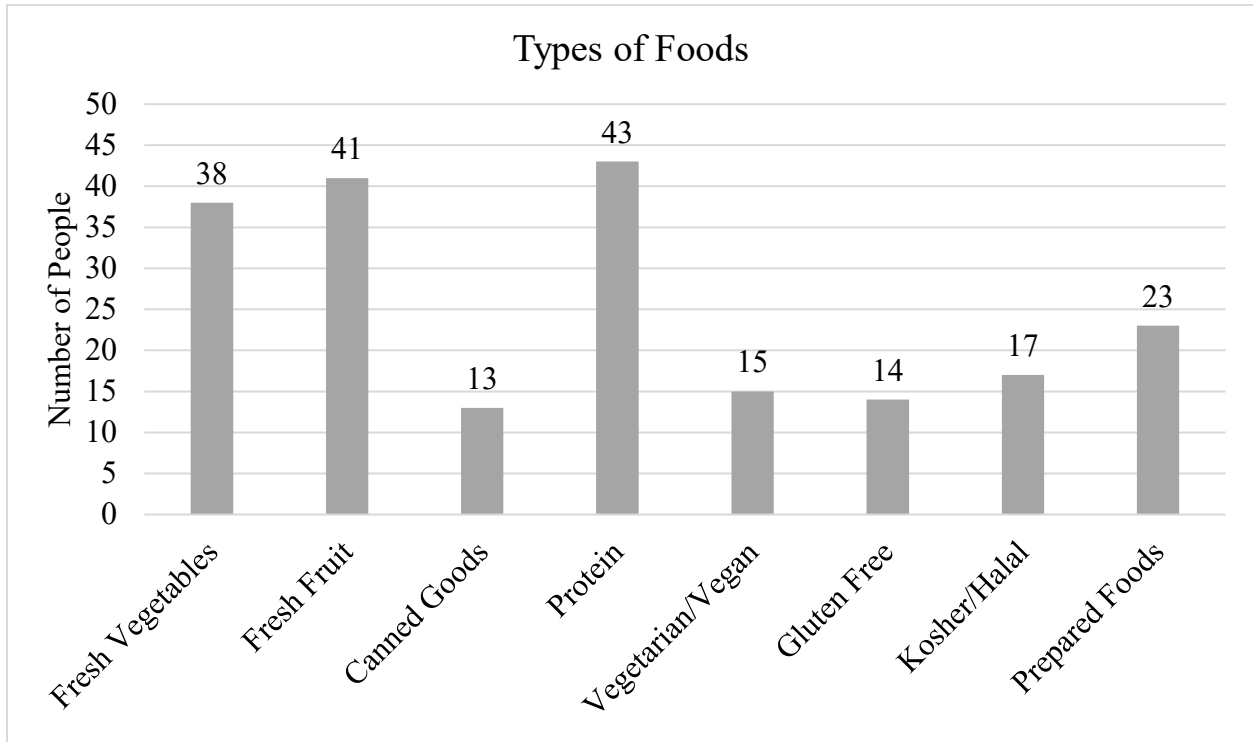
In terms of adapting WCM's services to the needs of the community, one of the most relevant questions in the survey was about extending pantry hours. We found that 39, or 52%, of survey respondents stated that they would benefit from weekday evening hours. Additionally, people stated that Saturday mornings and afternoons would be helpful, at 37% (n=28) and 21% (n=23) respectively (Figure 4).



**Figure 4. WCM Neighbors' Need for Extended Pantry Hours.**

In relation to the types of food our neighbors would like to see more of, most people responded saying that they would like more fresh fruits (55%, n=41), vegetables (51%, n=38), and

more varieties of protein (58%, n=43). However, we found that 23% (n=17) of respondents would like to see more Kosher/Halal foods, and 31% (n=23) of respondents would like to see more prepared or ready-to-eat foods (Figure 5). All respondents that took the survey in Turkish and Russian stated that they would also like to see more access to Kosher/Halal foods.



**Figure 5. Types of Foods WCM Neighbors Would Like.**

Finally, we found that our neighbors are interested in various educational classes. Of the 75 participants, 33% (n=26) stated that they would be interesting in financial management and budgeting classes, 31% (n=23) were interested in cooking classes, 26% (n=19) were interested in technology classes, and 26% (n=19) were interested in resume/job searching classes. Of the 11

respondents that took the survey in another language, 72% (n=8) stated that they would be interested in English Language classes (Figure 6).

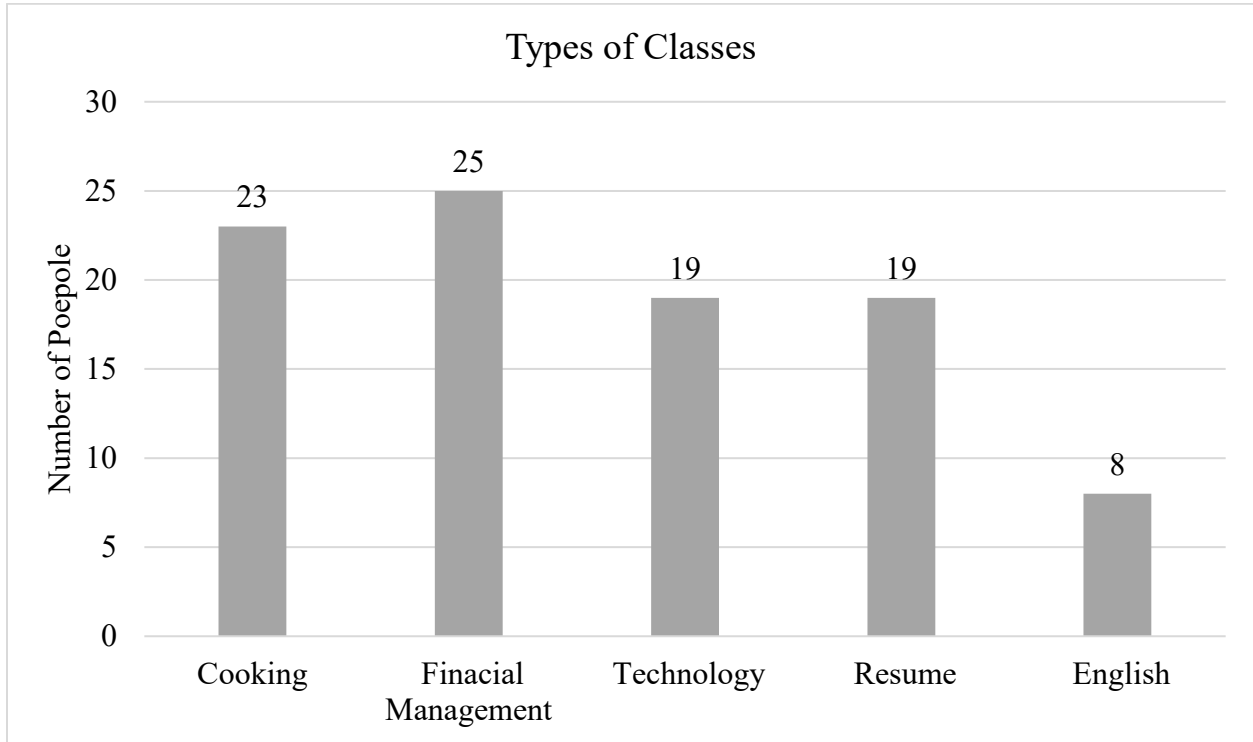


Figure 6. WCM Neighbors' Interest in Types of Classes.

### 4.3 Statistical Associations

The first association that was analyzed compared the age of respondents and their choice of extended hours. All Saturday hours included the options for Saturday mornings, Saturday afternoons, and Saturday evenings. Based on a chi-squared test of independence,  $X^2(2) = 1.588$ ,  $p = .452$ , there was no association between the age of respondent and if they selected weekday



evening hours compared to Saturday hours (Table 2). These results reject our hypothesis that there may be a difference between the hours selected depending on the age of respondents.

**Table 2. Preference of Hours (Weekday Evening vs Saturday) by Age.**

Age	Extended Hours	
	Weekday Evening (N, Row %)	Saturday (N, Row %)
≤ 59 years old	20 (60.6%)	42 (72.7%)
≥ 60 years old	14 (60.9%)	13 (56.5%)

We also checked to see if there was an association between age and weekday evening hours compared to all weekend hours. Weekend hours included Saturday morning, Saturday afternoon, Saturday evening, Sunday afternoon, and Sunday evening. We did not find an association between age and weekday evening compared to weekend hours,  $X^2(2) = 2.638$ ,  $p = .267$  (Table 3).

**Table 3. Preference of Hours (Weekday Evening vs Weekend) by Age.**

Age	Extended Hours	
	Weekday Evening (N, Row %)	Weekend (N, Row %)
≤ 59 years old	20 (55.6%)	28 (77.8%)
≥ 60 years old	14 (58.3%)	14 (58.3%)

The next association that was analyzed was between the age of respondents and the type of classes they were interested in. For this, the English language classes were removed from the group because this was only an option on the non-English surveys. The chi-square test of independence,  $X^2(4) = 9.089$ ,  $p = .059$ , showed that there was not an association between the age of respondents and types of classes (Table 4).

**Table 4. Preference in Type of Classes by Age.**

Age	Types of Classes			
	Cooking (N, Row %)	Financial Management (N, Row %)	Technology (N, Row %)	Resume/Job Searching (N, Row %)
≤ 59 years old	9 (37.5%)	14 (58.3%)	10 (41.7%)	12 (50.0%)
≥ 60 years old	11 (57.9%)	6 (31.6%)	6 (31.6%)	4 (21.1%)

Due to this association having a p-value that is approaching significance, we looked at the association between age and each of the types of classes individually. There was no association found for any of the class types and age. These results reject our hypothesis.

Following this, we analyzed the data to determine if there was an association between the type of transportation participants utilize and their choice for extended hours. This compared stable transportation (i.e., having a car) and unstable transportation (i.e., public transportation, walking, carpooling, and car shares). We did not find an association between the type of transportation and if they choose weekday evening hours, Saturday hours, or any weekend hours. The chi-square tests values were  $X^2(4) = 4.895$ ,  $p = .298$  and  $X^2(4) = 2.491$ ,  $p = .646$ , respectively (Tables 5 and 6). These results reject our hypothesis.

**Table 5. Preference of Hours (Weekday Evening vs Saturday) by Transportation Type.**

Transportation Type	Extended Hours	
	Weekday Evening (N, Row %)	Saturday (N, Row %)
Stable	21 (67.7%)	18 (58.1%)
Unstable	22 (53.7%)	28 (68.3%)

**Table 6. Preference of Hours (Weekday Evening vs Weekend) by Transportation Type.**

Transportation Type	Extended Hours	
	Weekday Evening (N, Row %)	Weekend (N, Row %)
Stable	21 (60.0%)	22 (62.9%)
Unstable	22 (52.4%)	30 (71.4%)

The last association that was analyzed was between age of respondent and their food preferences. We looked at prepared foods compared to fresh foods (fruits and vegetables), and dietary considerations (gluten free, vegetarian, Kosher/Halal). There was no association found between age and prepared foods vs fresh foods,  $X^2(2) = 1.139$ ,  $p = .566$  (Table 7). There was also no association between age and dietary restrictions, were  $X^2(2) = 0.048$ ,  $p = .827$  (Table 8.) Once again, these results reject our hypotheses.

**Table 7. Food Preferences by Age.**

Age	Food Types	
	Fresh Fruits and Vegetables (N, Row %)	Prepared & Ready-to-Eat Foods (N, Row %)
≤ 59 years old	21 (53.8%)	22 (56.4%)
≥ 60 years old	22 (44.9%)	30 (61.2%)

**Table 8. Dietary Restrictions by Age.**

Age	Dietary Restrictions	
	No (N, Row %)	Yes (N, Row %)
≤ 59 years old	19 (52.8%)	17 (47.2%)
≥ 60 years old	15 (55.6%)	12 (44.4%)

## 5.0 Discussion

These results provide insight into the changing needs of the WCM community and how we can best address them. The results indicate that in the last year, WCM has had an increase in new neighbors utilizing the pantry. This increase is likely due to the COVID-19 pandemic, and the effect it has had on food access and the cost of food in the last few years. As previously stated, the pandemic has had lasting effects on the food insecurity rates in the US and unfortunately, there is not much data to demonstrate the change in food insecurity rates among American households after the reduction of SNAP benefits.

In terms of the types of food WCM neighbors would like to see more of, the most chosen options were for fresh fruits, vegetables, and more varieties of proteins. While unsurprising, the current limitation to this is space; WCM does not have the physical space to stock more food than they already do. However, interestingly there was a demonstrated want for Kosher/Halal foods and prepared or ready-to-eat foods. Historically, Wilkinsburg has large population of Black Muslims which exhibits a need for Halal options. This need has shown a marked increase as the rates of Muslim immigrants to Wilkinsburg has increased. Additionally, the current limitation to serving prepared foods is that WCM does not have a dedicated kitchen space and they are not certified to serve these types of food through the Allegheny County Health Department. However, we did not find an association between dietary restrictions and age, this is likely because the age of older Black Muslim neighbors' offsets that of the younger immigrant neighbors.

When analyzing the types of transportation that most neighbors use, it is important to know that of the individuals surveyed, approximately 50% of them stated they use a car. WCM is looking

to move into a bigger facility within the next two years. The current location does not have a parking lot which leaves most neighbors to find street parking or park in nearby lots and walk in. Many of our neighbors are older adults and some with limited mobility, the accessibility of a parking lot on the premises may be vital when looking at new locations. We did not find an association between the type of transportation participants use and their need for extended hours.

Additionally, these results demonstrate that there is a significant need for extended hours. Currently, the store-front pantry is open Monday through Friday, from 9am to 1pm. To address the need for extended hours, our recommendation would be to close the pantry during regular hours every Tuesday, and instead be open from 2pm-7pm. Tuesdays are often a busy day in the pantry, as every other week we received a large delivery from the GPCFB. It can be quite difficult to bring in and sort the delivery while still having neighbors walk through the pantry. This is particularly vital as there is not a back route to bring food into the pantry; everything must come through the front door. This would require two teams of staff and volunteers to be available on Tuesday; the first would be present in the mornings to receive and sort the delivery, while the second would open the pantry for neighbors in the afternoon/evening. While this may be different to what is currently being done, this would help fulfill the need for evening hours while also allowing staff and volunteers to handle deliveries from the GPCFB more effectively and efficiently. Another solution that would address the need for Saturday hours would be to better advertise the mobile food pantry. Every Saturday, from 11am-2pm, the mobile food truck is located at Covenant Fellowship Church in Wilkinsburg. By better advertising the availability of the food truck, neighbors that require Saturday hours could be better serviced without further adjusting the hours of the store-front pantry. Additionally, there was no association between age and weekday or Saturday hours. However, from analyzing the data visually, younger individuals

seemed to prefer Saturday, which could indicate that working hours may affect when these individuals can utilize the pantry. Conversely, older individuals often did not prefer specific extended hours, as they were evenly split.

We also found that many neighbors expressed an interest in classes. Of the classes options included in the survey, cooking classes are the most related to the service WCM provides and should be the place to start. WCM recently took on a University of Pittsburgh Medical Student, and one of her aims while there is to put together a cooking class for neighbors. While this is a pilot program, this could be something to consider when looking for a new location for WCM. If this is a direction WCM would like to expand upon, they would need a dedicated classroom space. Although no association between types of classes and age was found, visually the data shows that older individuals seemed to more often want cooking classes compared to younger individuals. This association was also approaching significance.

Finally, these results showed that our neighbors would like regular contact from WCM. A newsletter could be used as a resource that provides information to other local services that would be helpful to our neighbors. Examples of this could be information regarding local classes available to community members, advertising for the mobile food pantry, and local housing initiatives.

## 5.1 Limitations

There are a few limitations to this study. The first is that the survey was only collected on Tuesdays and Thursdays, as those were the days that I was present at the pantry and could administered the survey myself. There were a few surveys that were administered by Melissa done on other days of the week, however most of them were done on Tuesdays and Thursdays. This could have biased our results, because we could be missing other individuals who are not able to visit the pantry on those days. It would have been beneficial to conduct surveys throughout the week. Additionally, the survey was only administered at the store-front pantry and not at the mobile food truck. Therefore, these results are not generalizable to the households and individuals that utilize the mobile food truck as their main, or only, source of food. The mobile food pantry only operates on weeknights and Saturday mornings, so it is likely that the mobile pantry serves a different population given the hours of operation and various locations. These folks may also have different needs compared to those that only utilize the store-front pantry. These two limitations may also affect the analyzed associations. If we were to administer the assessment again to the mobile food truck and on different days at the store-front pantry, we would be able to collect a larger sample size and potentially survey people that have different needs.

Another limitation of the needs assessment was the small sample size of non-English speaking participants. There was a total of 11 surveys done by individuals in which English is not their primary language. It would have been beneficial to collect more surveys from these individuals to be able to evaluate if there are differences between the needs of the immigrant populations compared to those that grew up in the United States.

There are also a few limitations in terms of the data and data entry. As I was the only one who did the data entry, I did not do an extensive review of data to ensure that there were no mistakes. For the future, I will be sure to do quality checks on the data entry. Additionally, after analyzing the results, it was noted that it would have been helpful to change the categories for question 7 (how long individuals have been coming to WCM). The options were in units of years, however given the number of individuals that started utilizing WCM within the last year it would have been beneficial to break down time periods within a year. An example of this would be options such as: (1) less than a month, (2) 1 to 3 months, (3) 3 to 6 months, (4) 6 months to 1 year, (5) 1 to 2 years, (6) 3 or more years.



## 6.0 Conclusion

Overall, food insecurity is a worsening problem nationwide, with disproportionate impacts among women, children, BIPOC communities, and individuals with disabilities. Additionally, food insecurity is linked to worse physical and mental health outcomes for both adults and children. While there are interventions that are working to address food insecurity, many Americans are still struggling. Food banks and food pantries have become an essential resource for many households, and for some acting as their sole source of food. The Wilksburg Community Ministry is actively working to address food insecurity in the Greater Pittsburgh region by supplying healthy and accessible food to folks that need it. WCM has experienced major growth within the last few years, and this needs assessment allows them to understand what their community is asking for and how best to address those needs. While they are looking for a new space, WCM can implement extended hours and work to expand their food offerings for their neighbors. There is also the possibility to begin a monthly newsletter to effectively communicate with their neighbors and inform them of other services in the community. Finally, the work WCM does is vital for this community and surrounding areas. During my time with them, I came to feel as though I was also part of the community, and I am greatly appreciative of the experience I gained there.

## **Appendix A Original Needs Assessment Surveys**

Please follow this [link](#) to access the needs assessment surveys in their original format in all offered languages (i.e., English, Spanish, Russian, and Turkish).

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