

**A Community Outreach and Program Evaluation of the Center for Population Health and
Cambria-Somerset COVID-19 Task Force**

by

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Rural areas experience a variety of health disparities and challenges, which community-based public health programs are uniquely positioned to address. Community outreach and stakeholder engagement are key components of public health program evaluation and iteration. This thesis presents a qualitative, formative program evaluation of a community health promotion initiative based in two rural southwestern Pennsylvania counties (Cambria and Somerset). The overall goal of this evaluation is to obtain community members' feedback on programs and public health outreach efforts in these counties, and to explore how community members' views contextualize a 2022 Community Health Needs Assessment (CHNA). The evaluator held six listening sessions with adults across Cambria and Somerset Counties, using human-centered design methods to facilitate the discussions. The evaluator used thematic analysis to analyze participant feedback. Comments contextualized the 2022 CHNA with greater detail and nuance, while generally aligning with the topics in the 2022 CHNA. Participants identified several themes that were not independently listed among the seven main priorities of the 2022 CHNA. Participants also identified a need for improved community outreach and help with navigating the health and human service system, a complex topic not prioritized in the 2022 CHNA. The evaluation's findings will inform future public health program planning and coalition-building and align public health programs with community priorities. The results will assist the Center for Population Health of Johnstown, PA as the organization improves public health outcomes, strives for rural health

equity, addresses social determinant of health needs, and responds to the disproportionate impact of COVID-19 in Cambria and Somerset Counties.

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Preface

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I credit Dr. Robert Coulter for inspiring the listening session chart design, via a lesson provided during a systems theory course at Pitt Public Health. Thank you to Dr. Mylynda Massart for her assistance in formulating the design of this thesis and gaining consensus among key stakeholders for support of this project. Thank you to my thesis advisor and committee chair, Dr. Elizabeth Felter, and to my committee, Dr. Mary Hawk, Dr. Mylynda Massart, and Jeannine McMillan.

1.0 Introduction

This thesis presents a qualitative, formative program evaluation of a community health promotion initiative based in two rural southwestern Pennsylvania counties (Cambria and Somerset). The independent nonprofit Center for Population Health (CPH), based in Johnstown, Pennsylvania, leads this initiative. CPH runs a food systems coordination program, a housing resource program, and community health worker resource referral programs. CPH also conducts community wellness and outreach events and coalition-building among health and human service agencies to address community health priorities. In addition, CPH facilitates meetings of the Cambria-Somerset COVID-19 Task Force. The Task Force is a volunteer coalition that includes healthcare providers, county representatives, community members, housing authority representatives, and community-based organizations. The Task Force addresses vaccination scheduling, mass vaccination site logistics, public communications, vaccine education, COVID-19 testing, and other related topics.

In 2022, CPH and their partner organizations conducted a Community Health Needs Assessment (CHNA) and collected input from community members via focus groups, interviews, and a survey. This thesis builds upon the 2022 CHNA by creating more opportunities for people in remote and underserved areas of the counties to participate in in-depth, group discussions about community health priorities, including those not highlighted in the 2022 CHNA. The overall goal of this evaluation is to obtain community members' feedback on programs and public health outreach in Cambria and Somerset Counties and to generate community-centered ideas for future iterations of CPH's programs. The evaluation's findings will inform CPH's and the Task Force's future public health program planning and coalition-building, which will align them with

community priorities, to address rural health equity and social determinant of health needs. This project also addresses health equity by focusing on participants who may have had difficulty participating in previous community health needs assessments due to health-related disparities. The evaluation will also address the disproportionate impact of COVID-19 in Cambria and Somerset Counties.

1.1 Evaluator Positionality Statement

I am a white, U.S. born, upper middle-class woman. I have a bachelor's degree, and I am pursuing a graduate degree. I have lived experience residing, working, and volunteering in the communities that are the focus of this thesis. Via my personal experience and my family connections, I am part of social networks throughout these communities. However, due to my privilege, identity, and background, I have not experienced some of the barriers, health disparities, oppression, and marginalization that affect some residents of Cambria and Somerset Counties. Due to these differences in experience, I approach this work with curiosity and humility, and I aim to dismantle my own implicit bias and reduce assumptions that I make about community health needs and priorities. However, my privilege may lead me to interpret results differently than how a community member with less privilege would, due to assumptions I may make about health resources and barriers in Cambria and Somerset Counties.

2.0 Literature Review

2.1 Rural U.S. and Pennsylvania Overview

The U.S. federal government uses 11 different definitions of “rural” (Krout & Hash, 2015). The U.S. Census Bureau defines urbanized areas “of 50,000 or more people” and urban clusters “of at least 2,500 and less than 50,000 people.” Any other area is considered rural (U.S. Department of Health & Human Services, 2020). Rural areas represent 20% of the U.S. population (U.S. Census Bureau, 2022) and 97% of the United States’ land mass (U.S. Census Bureau, 2021). The top four U.S. states with the largest percentage of rural population are Vermont (64.9%), Maine (61.4%), West Virginia (55.4%), and Mississippi (53.7%) (U.S. Census Bureau, 2023, Sep. 26).

The rural U.S. population is becoming more racially and ethnically diverse, although white residents represented 76% of the population in 2020 (Johnson & Lichter, 2022). In addition, the rural U.S. population is aging. In 2021, 20% of the rural population was age 65 or older, compared with 16% of the urban population (Davis et al., 2022).

People in the rural U.S. are largely affiliated with the Republican party, and the gap between the GOP vote share in rural and urban areas has been growing since the late 1990s (Mettler & Brown, 2022). In 2020, two-thirds of rural residents voted for Trump, compared with one-third of urban residents (Mettler & Brown, 2022). From 2017 to 2021, educational attainment among adults ages 25 and older differed between rural and urban areas, at the following levels: less than high school diploma or equivalent (13% rural vs 11% urban), high school diploma or equivalent (35% rural vs 25% urban), some college, no degree (21% rural vs 20% urban), associate’s degree

(10% rural vs 9% urban), and bachelor's degree or higher (21% rural vs 36% urban) (USDA Economic Research Service, 2023, Mar. 20).

As of 2020, Pennsylvania has the third largest rural population (3.1 million) among U.S. states and territories, behind Texas (4.7 million) and North Carolina (3.5 million) (U.S. Census Bureau, 2022). Rural Pennsylvania represents 23.5% of Pennsylvania residents (U.S. Census Bureau, 2023, Sep. 26). Based on population density, the Center for Rural Pennsylvania (2020) categorizes Cambria County, Somerset County, and 46 others of Pennsylvania's 67 counties as rural. Cambria County includes the Johnstown metropolitan area, which is surrounded by rural communities. Johnstown is the largest city in Cambria County, with an estimated 2022 population of 18,091 (U.S. Census Bureau, 2023, Jun. 13). The borough of Somerset is the county seat of Somerset County, with an estimated 2022 population of 5,959 (U.S. Census Bureau, 2023, Jun. 13).

Rural Pennsylvania has become more racially and ethnically diverse in recent years, with a seven-percentage-point increase in the proportion of the population who are non-white and/or Hispanic between 2000 and 2020 (Center for Rural Pennsylvania, n.d.b). The majority of rural Pennsylvania's population was white in 2020 (Center for Rural Pennsylvania, n.d.b). As of 2020, Cambria County's population was 91.3% white, not Hispanic or Latino, 4.4% Black or African American, 0.2% American Indian and Alaska Native, 0.5% Asian, 0.1% Native Hawaiian and Other Pacific Islander, 2.0% two or more races, and 2.0% Hispanic or Latino (U.S. Census Bureau, 2023a). In 2020, Somerset County's population was 94.5% white, not Hispanic or Latino, 2.6% Black or African American, 0.2% American Indian and Alaska Native, 0.5% Asian, 0.8% two or more races, and 1.6% Hispanic or Latino (U.S. Census Bureau, 2023b).

Rural Pennsylvanians were older than urban Pennsylvanians in 2020 (20% were age 65 or older in rural PA vs. 18% in urban PA) (Center for Rural Pennsylvania, n.d.b). In 2020, 24% of the Somerset County population and 24.2% of the Cambria County population was age 65 or older (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b).

As of October 23, 2023, 46 out of 48 rural Pennsylvania counties have more Republican registered voters than Democratic registered voters, and 13 out of 19 urban Pennsylvania counties have more Democratic registered voters than Republican registered voters. (Center for Rural Pennsylvania, 2020; Pennsylvania Department of State, 2023). Cambria and Somerset Counties both have more Republican registered voters than Democratic registered voters (Pennsylvania Department of State, 2023).

Educational attainment among Pennsylvanians ages 25 and older by rurality is similar to national percentages: no high school diploma (10% rural vs 9% urban), high school diploma or equivalency (43% rural vs 32% urban), some college, no degree (16% rural vs 16% urban), associate's degree (9% rural vs 8% urban), and bachelor's degree or higher (22% rural vs 35% urban) (Center for Rural Pennsylvania, n.d.a). From 2017 to 2021, most adults aged 25 or older in Cambria and Somerset Counties had a high school diploma or higher (89.5% in Somerset County and 92.5% in Cambria County) (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b). In the same time period and age group, fewer people had a bachelor's degree or higher (16.9% in Somerset County and 22.4% in Cambria County) (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b).

2.2 Rural Health and Social Determinant Disparities Overview

Rural residents generally report a worse health status than residents of metropolitan statistical areas (CDC, 2018; Rural Health Information Hub, 2022). For overall health outcomes in 2023, Cambria County is ranked #64 and Somerset County is ranked #39 out of Pennsylvania's 67 counties (County Health Rankings & Roadmaps, 2023a; County Health Rankings & Roadmaps, 2023c). Life expectancy is shorter for rural residents than for urban residents (Abrams et al., 2021). In 2019, rural areas experienced higher age-adjusted death rates for the 10 leading causes of death, compared to urban and suburban populations (Curtin & Spencer, 2021). Compared to urban areas, rural areas also experience a slower decline in mortality rate, especially in remote and high-poverty areas (Cosby et al., 2019; Hash et al., 2023). Health disparities associated with socio-demographics may compound geographic health disparities. Social determinants of health exert a significant influence on rural health outcomes (Hood et al., 2016). Rural areas are diverse and do not experience health disparities equally, due to the heterogeneous distribution of resources and risk factors (Hash et al., 2023). Poverty, older age, gender identity, sexual identity, race/ethnicity, and disability intersect to influence rural health disparities and outcomes (Baah et al., 2019; Hash et al., 2023; Krout & Hash, 2015).

2.2.1 Poverty and Socioeconomics

In 2019, rural areas were more impoverished (15.4% overall rate) than urban areas (11.9% overall rate), across racial/ethnic groups (USDA Economic Research Service, 2021). Among rural people, Black/African American people had the highest poverty rate (30.7%), followed by American Indian/Alaskan Native people (29.6%), Hispanic people of any race (21.7%), and white,

non-Hispanic people (12.7%) (USDA Economic Research Service, 2021). In 2021, rural Pennsylvania's poverty rate (12.9%) was higher than urban Pennsylvania's poverty rate (11.8%) (USDA Economic Research Service, 2023, Oct. 25). In 2021, Cambria County and Somerset County matched the rural PA poverty rate (USDA Economic Research Service, 2023, Jun. 16). The 2021 median household income was \$52,400 for Cambria County, \$53,800 for Somerset County, and \$68,900 for Pennsylvania (County Health Rankings & Roadmaps, 2023b).

From 2001 to 2020, the highest growth industries in the rural U.S. were the high-skill professions of real estate, administration, education, professional services, health/social assistance, and finance/insurance (USDA Economic Research Service, 2023, Jan. 17). During this period, the following industries were the largest employers in rural areas: 1) health care and social assistance, 2) accommodation and food services, 3) government, 4) retail, 5) agriculture, and 6) manufacturing (USDA Economic Research Service, 2023, Jan. 17).

In Pennsylvania from 2008 to 2019, the top five highest-growth industries for employment were: 1) health care and social assistance, 2) accommodation and food services, 3) transportation and warehousing, 4) professional and technical services, and 5) administrative and waste services (Baker et al., 2021). The top five declining industries were 1) manufacturing, 2) information, 3) retail trade, 4) utilities, and 5) public administration (Baker et al., 2021).

Employment growth and decline varied by county. Overall, Cambria County grew in jobs between 2001-2008 and declined between 2008-2019 (Baker et al., 2021). Thirteen other counties followed the same pattern, and most of these are rural (Baker et al., 2021; Center for Rural Pennsylvania, 2020). Somerset County declined during both periods (Baker et al., 2021). Twenty-one other counties also declined during both periods, and most of these are rural (Baker et al., 2021; Center for Rural Pennsylvania, 2020).

For the highest-growth industries, changes in employment numbers varied by county from 2008-2019 (Baker et al., 2021). Urban areas often experienced the most growth, while Cambria and Somerset Counties mostly experienced losses in these industries. Cambria's losses were especially pronounced. In the fields of healthcare and social assistance, most employment growth occurred in Allegheny County, Philadelphia County, and their surrounding counties (Baker et al., 2021). Cambria lost between 500 and 700 healthcare and social assistance industry jobs, while most other rural counties experienced slight gains and losses (Baker et al., 2021; Center for Rural Pennsylvania, 2020). In accommodation and food services, Allegheny and Philadelphia Counties and their neighbors again experienced the greatest gains (Baker et al., 2021). Cambria, Somerset, and several other rural counties lost up to 350 jobs in these sectors, but most rural counties experienced slight gains for these sectors (Baker et al., 2021; Center for Rural Pennsylvania, 2020). In the transportation and warehousing industries during this time, most of the growth occurred in six urban counties of eastern Pennsylvania (Baker et al., 2021; Center for Rural Pennsylvania, 2020). While Somerset had slight gains in these sectors, Cambria and eight other rural counties experienced the greatest losses (between 100 and 350 jobs) (Baker et al., 2021; Center for Rural Pennsylvania, 2020).

Within the top declining industries, change in employment numbers also differed by county (Baker et al., 2021). While urban areas suffered the most, Cambria and Somerset Counties experienced industry decline comparable to that of other rural counties. Manufacturing jobs declined statewide from 2008-2019, most markedly in Philadelphia, York, Chester, and Montgomery Counties (Baker et al., 2021). Both Cambria and Somerset Counties lost between 500 and 999 manufacturing jobs, and other rural counties had similar or greater losses (Baker et al., 2021; Center for Rural Pennsylvania, 2020). Retail trade jobs declined in every county except

Philadelphia County, with Allegheny County leading the losses (between 4,000 and 6,000 jobs lost) (Baker et al., 2021). Cambria County lost between 1,000 and 1,999 retail trade jobs, and Somerset County lost between 200 and 499 retail trade jobs (Baker et al., 2021). Approximately half of the other rural counties had similar losses, while the other half lost slightly fewer jobs in these sectors (Baker et al., 2021; Center for Rural Pennsylvania, 2020). Wholesale industry jobs declined in most counties, with the greatest declines of up to 6,000 jobs in Allegheny County during this time (Baker et al., 2021). Cambria County lost between 200 and 499 jobs, and Somerset County lost up to 199 jobs in the wholesale industry (Baker et al., 2021). Most other rural counties generally had similar losses or lost slightly fewer wholesale industry jobs, while a few gained wholesale industry jobs (Baker et al., 2021; Center for Rural Pennsylvania, 2020).

2.2.2 Transportation

Rural and urban transportation use differs. Rural people rely more on automobiles, rural workers use public transportation infrequently (0.5% rural vs. 5.9% urban for work travel), and most rural households have access to a vehicle (Mattson & Mistry, 2022). Rural residents make fewer daily trips but travel a greater average distance (14,061 annual vehicle miles traveled per rural person vs. 8,854 for urban) (Mattson & Mistry, 2022). Between 2001 and 2017, travel time and distance for medical and dental trips increased in rural areas but did not increase in urban areas (Akinlotan et al., 2023). Rural transit services may be inadequate due to limited funding, ineffective service design, inaccessibility for people with disabilities, and increased travel time/distance due to hospital closures (National Academy of Sciences, 2021). Impact of transportation barriers can include missed clinic appointments and decreased pharmacy/medication access (Syed et al., 2013). States may implement transit programs

differently, which may unevenly create disparities among rural areas (Henning-Smith et al., 2017). In 2020, 30 of Pennsylvania's 67 counties offered federally supported transit service (Mattson & Mistry, 2022).

Socio-demographics also influence transportation disparities. People with disabilities, older adults, and people living in low-income households have greater transit needs and constitute a greater percentage of rural populations, compared to urban populations (Mattson & Mistry, 2022). People with lower income experience more transportation barriers to healthcare (Syed et al., 2013); the higher rural poverty rate may compound this disparity (USDA Economic Research Service, 2021). National survey data shows a higher but decreasing travel time burden among Black rural and urban residents, compared to white residents (Akinlotan et al., 2023).

2.2.3 Access to Healthcare

Healthcare access is a complex concept. Current literature suggests that both urban and rural areas experience healthcare access barriers, such as lack of available/appropriate services, transportation barriers, lack of community engagement/outreach, high cost of care, poor patient engagement, and barriers related to navigating the healthcare system (Cyr et al., 2019). However, some rural areas may experience these barriers and challenges to a greater extent. Lack of services/physicians, transportation, and Internet access may further decrease rural healthcare access (Douthit et al., 2015).

From 2010 to 2019, rural areas had fewer primary care physicians than urban areas, and the rural-urban difference in primary care physicians significantly widened (Liu & Wadhera, 2022). In rural Pennsylvania, Cambria County is a Health Professional Shortage Area (HPSA) for primary care, and Somerset County includes two HPSA towns (Health Research & Services

Administration, 2023). Rural hospital closures may exacerbate geographic healthcare access disparities. In the U.S., community hospital closures during 2015-2019 were disproportionately rural (American Hospital Association, 2022). Rural hospital mergers may also decrease access to obstetric care and surgical inpatient services (Henke et al., 2021). A study on rural hospital closures observed decreasing numbers of general surgeons (up to 8.3% annually leading up to a closure) and primary care physicians (average of 8.2% per year after a closure) in the area near the hospital (Germack et al., 2019). Across the U.S., federally qualified health centers (FQHCs) expanded by 82.7% between 2007 and 2014, but new FQHCs were less likely to be in rural or high-poverty areas (Chang et al., 2019). Based on data from 2005-2020, areas with a closed rural hospital were more likely to have FQHC services nearby in the years post-closure, but gaps in care may persist (Miller et al., 2021).

Compared to urban residents, rural residents may experience more problems with paying medical bills, but other sociodemographic characteristics (such as insurance type, age, income to poverty ratio, and race/ethnicity) may explain why healthcare is more affordable for some rural residents (MacDougall et al., 2023). Women in rural areas experience disparities in accessing critical care obstetrics due to lack of proximity (Kroelinger et al., 2021), and rural women with disabilities experience cervical cancer screening disparities (Horner-Johnson et al., 2015). Rural people with intellectual and developmental disabilities experience decreased healthcare access, use preventive healthcare less, and have poorer health status (Fortney & Tassé, 2021). Rural and urban primary care delivery to Medicare beneficiaries is comparable, but disparities exist (including fewer recommended mammograms, higher readmissions, and more beneficiaries per practice in rural areas) (Fraze et al., 2022).

In a study of Medicare beneficiaries with chronic conditions, rurality was associated with higher preventable hospitalizations and higher mortality; differences in access to specialist care partially explained these disparities (Johnston et al., 2019). Many articles recommend telehealth services to increase access to rural specialist care (Brown & DeNicola, 2020; Butzner & Cuffee, 2021; Elder et al., 2023; Fortney et al., 2021; Patel et al., 2019; Shalowitz & Moore, 2020; Weigel et al., 2021). Telehealth services rapidly increased prior to the COVID-19 pandemic (Kichloo et al., 2020), but geographic disparities existed. Among hospitals who completed the 2018 American Hospital Association Annual Survey, rural hospitals were less likely to have telehealth access (54% of rural vs. 75% of metropolitan hospitals) (Chen et al., 2021). Despite increases in telehealth during the COVID-19 pandemic (Koonin et al., 2020), geographic disparities persist. From December 2020 to February 2021, fewer rural adults reported having telehealth access (38.6%) compared to urban adults (44.6%) (Ko et al., 2023). More rural adults were unsure if they had telehealth access (44.6% rural vs 39.7% urban), indicating a need for promotion/advertising of existing telehealth services as well as increased availability of rural telehealth services (Ko et al., 2023).

2.2.4 Food Access

Food insecurity may disproportionately affect rural areas with higher poverty levels and greater distance to stores (Byker Shanks et al., 2022; Darmon & Drewnowski, 2015; Evans et al., 2015; Grimm et al., 2013; Ohri-Vachaspati et al., 2019). Food insecurity may differ by geographic area and by sociodemographic/household characteristics (Giroux et al., 2022; Lenardson et al., 2015). In 2021, food insecurity was higher overall among urban households than rural households, but food insecurity among households with no children, women living alone, and elderly people

significantly increased from 2020 to 2021 (Coleman-Jensen et al., 2022). Varying food store types in rural vs. urban areas may affect availability of healthy food (Feng et al., 2023; Pinard et al., 2016). In 2020, food insecurity rates were 13% for Cambria County, 11% for Somerset County, and 9% for Pennsylvania (County Health Rankings & Roadmaps, 2023b). From 2015-2019, food insecurity rates were 11.82% for rural Pennsylvania counties and 10.76% for urban Pennsylvania counties (Mckie et al., 2022). National data on rural food insecurity by race/ethnicity is limited.

2.2.5 Mental Health

Suicide and self-harm disproportionately affect rural areas of the U.S. From 2000 to 2020, rural suicide rates increased by 46%, compared to a 27.3% increase in urban areas (CDC, 2023, Apr. 21). In 2018, the national rural rate of ER visits for non-fatal self-harm was 1.5 times that of urban areas (Wang et al., 2022). Factors related to elevated rural suicide risk include firearm access, substance use, economic stress, and behavioral health care utilization (Mohatt et al., 2021). Similar geographic disparities exist in Pennsylvania. Rural Pennsylvania counties had a 25% higher suicide rate in 2018, compared with urban counties (Mallinson et al., 2021).

Geographic disparities in mental healthcare access exist, due to lack of specialists, trained providers, and care coordination (Andrilla et al., 2018; Kopley & Streeter, 2018; Morales et al., 2020). From 2005 to 2018, rural people with employer-sponsored health insurance were less likely to use outpatient mental health services for depression, compared to urban people (Chen et al., 2022). Rural patients relied more on primary care providers for mental health services (Chen et al., 2022). Rural and low-income counties also experience child psychiatry telehealth access disparities (McBain et al., 2022). Among older adults with mood and/or anxiety disorders in 2014,

16.1% of rural patients saw behavioral health specialists compared with 34.3% of urban patients, and rural patients travelled twice as far for care (Andrilla et al., 2021).

Related mental healthcare access disparities and barriers affect rural Pennsylvania. A 2022 mixed methods study found that the most common barriers to accessing rural Pennsylvania mental health services, especially for the elderly and youth, related to transportation challenges, lack of health insurance, stigma, distance/travel time, family engagement, and problems with telehealth/internet/technology (Svistova et al., 2022). Somerset County and Cambria County are HPSAs for mental health services (Health Research & Services Administration, 2023).

2.2.6 Substance Use

The rural U.S. overdose death rate increased by 325% from 1999-2015; urban and rural rates were comparable, with rural rates growing slightly higher by 2015 (Mack et al., 2017). From 2016-2019, national urban overdose rates were higher than rural rates (Hedegaard & Spencer, 2021). However, in five states (California, Connecticut, North Carolina, Vermont, and Virginia), overdose death rates were higher in rural counties compared to urban counties (Hedegaard & Spencer, 2021). In 2020, the rural U.S. drug overdose rate (26.2 per 100,000) was only slightly lower than the urban drug overdose rate (28.6 per 100,000) (Spencer et al., 2022).

In rural Pennsylvania, the number of reported overdoses and overdose deaths decreased from 2021 to 2022, but rural Pennsylvania reported a higher overdose rate (42.3 per 100,000) compared to urban Pennsylvania (34.0 per 100,000) (Center for Rural Pennsylvania, 2023). Fewer rural people who overdosed received naloxone (59%) than urban people who overdosed (66%) (Center for Rural Pennsylvania, 2023). From 2018-2020, the Cambria County drug poisoning death rate was 50 per 100,000 population, the Somerset County rate was 24 per 100,000, and the

Pennsylvania rate was 36 per 100,000 (County Health Rankings & Roadmaps, 2023b). In 2022, Cambria County had the fourth highest reported overdose rate (115.4 per 100,000) of all Pennsylvania counties (Center for Rural Pennsylvania, 2023).

The geographic burden of substance use differs by drug type. Opioid use has disproportionately affected the rural U.S., compared to urban/metro areas (Keyes et al., 2014; Palombi et al., 2018). In 2020, the urban and rural death rates for overdoses involving synthetic opioids other than methadone were highest compared to other drug types (18.3 and 14.3 per 100,000, respectively) (Spencer et al., 2022). In 2021, rural people ages 12 and up used smokeless tobacco, cigarettes, and methamphetamine more than people in metro areas (Rural Health Information Hub, 2023, Jun. 28). Risky alcohol consumption is higher among male farmers with lower socioeconomic status and a history of mental health problems (Watanabe-Galloway et al., 2022).

Urban and rural overdose rates differ by socio-demographics. In 2020, the male drug overdose death rate was higher in urban counties, and the female rate was higher in rural counties (Spencer et al., 2022). Across races/ethnicities, 2020 urban drug overdose death rates were higher than rural rates (Spencer et al., 2022). Non-Hispanic American Indian or Alaska Native people had the highest rates in both urban (44.3 per 100,000) and rural (39.8 per 100,000) counties, while non-Hispanic Black people had the second-highest rate in urban areas (37.4), and non-Hispanic white people had the second-highest rate in rural areas (28.8) (Spencer et al., 2022). Drug use especially affects rural Appalachia (Buchanich et al., 2016; Rossen et al., 2014; Rudd et al., 2016; Schalkoff et al., 2020). In rural Appalachia, young, white men who have mental health problems, low education, and low employment levels are at highest risk of substance use and overdose (Schalkoff et al., 2020). Polysubstance toxicity was often reported as the cause of death from overdose

(Schalkoff et al., 2020). Other populations, including adolescents, women, and people within the criminal justice system, experience unique risk factors and behaviors related to drug use and overdose in rural areas (Schalkoff et al., 2020).

Treatment access and quality also differ geographically. Compared to urban substance use treatment centers, some rural centers offer fewer and lower quality services (Bond Edmond et al., 2015). Rural counties are also less likely to have medication treatment available for opioid use disorder (Bommersbach et al., 2023; Corry et al., 2022). Rural barriers to opioid use disorder treatment include lack of clinics and resources, provider attitudes toward treatment, travel, cost, and time constraints (Lister et al., 2020).

2.2.7 Child and Adolescent Health

About 20% of children in the U.S. live in a rural area (Bettenhausen et al., 2021). All-cause childhood mortality rates are about 25% higher in rural vs urban areas (Bettenhausen et al., 2021; Probst et al., 2019). Childhood death due to unintentional injury is more common in rural areas than in urban areas and is nearly double the national rate (Bettenhausen et al., 2021; Probst et al., 2018). Rural children are also more likely to be obese, which likely stems from rural food insecurity (Probst et al., 2018). Poverty in rural areas affects rural children (22.4%) to a greater extent than non-rural children (18.4%) (Bettenhausen et al., 2021).

Rural children experience behavioral and mental health disparities. Health risk behaviors are more likely to occur among rural children (Probst et al., 2018). Youth suicide rates are higher in rural areas vs urban areas (Fontanella et al., 2015), and the suicide death rate among rural adolescents ages 15-19 increased by 10% each year from 2014-2017 (Miron et al., 2019). Suicides among rural adolescents involved a firearm 2.5 times more often than suicides among nonrural

adolescents (Bettenhausen et al., 2021; Fontanella et al., 2015; Nance et al., 2010). From 2017-2018, rural children and adolescents experienced a higher prevalence of depression, anxiety, and behavioral disorders than urban children and adolescents (Health Research & Services Administration, 2020). As of 2022, 35% of children in rural Pennsylvania had previously been diagnosed with a mental health disorder, 45% had a history of mental health treatment, and 46% saw a mental health professional within the last year, as parents reported in a survey (Svistova et al., 2022).

Nationally, the percentage of reported adolescent substance use declined in 2021, and 2022 rates were similar (National Institute on Drug Abuse, 2021; National Institute on Drug Abuse, 2022). However, child and adolescent substance use rates remain marked and increase by age group (National Institute on Drug Abuse, 2022). The most commonly reported drug use categories in 2022 were alcohol, nicotine vaping, and cannabis (National Institute on Drug Abuse, 2022). In 2021, the rate of alcohol use among youth aged 12-20 was slightly higher in non-metro areas (29.8%) compared to metro areas (28.5% small metro, 28.1% large metro) (Rural Health Information Hub, 2023, Jun. 28). While recent data on youth tobacco use by geographic region is limited, pre-pandemic data indicates greater use among rural high school students (Wiggins et al., 2019). Rates of alcohol and marijuana use were similar among rural and urban youth in 2015 and 2016 (Lenardson et al., 2020).

Pennsylvania's lifetime youth alcohol use rate exceeded national rates for eighth graders, tenth graders, and twelfth graders as of 2019 (The Pennsylvania State University, 2019c). State rates of lifetime smokeless tobacco use and of prescription pain reliever use among twelfth graders exceeded national rates (The Pennsylvania State University, 2019c). Recent research comparing rural and urban youth substance use in Pennsylvania is limited, but a 2018 analysis of the

Pennsylvania Youth Survey found little difference in alcohol use and illicit drug use between rural and urban areas (Murphy, 2018). In Somerset County, adolescent-reported lifetime usage rates of alcohol (42.3%), cigarettes (16.2%), and prescription pain relievers (4.5%) were higher than state levels in 2019 (The Pennsylvania State University, 2019b) In Cambria County, the adolescent-reported lifetime usage rate of alcohol (44.8%) was higher than state levels in 2019 (The Pennsylvania State University, 2019a).

Access to healthcare is a major challenge for rural children. The majority (82%) of U.S. counties lacking a pediatrician are rural (Bettenhausen et al., 2021). There are far fewer rural primary care pediatricians than urban primary care pediatricians (23.1 providers per 100,000 population in urban areas vs. 4.9 providers per 100,000 population in rural areas, as of 2019) (Larson et al., 2020). Rural areas also have fewer youth mental health facilities and fewer suicide prevention services compared to urban areas (Graves et al., 2020). The six core challenges in rural Pennsylvania mental health service access (transportation, health insurance, stigma, distance/travel time, family engagement, and Internet/technology access) especially affect youth (Svistova et al., 2022).

2.2.8 Older Adult Health Outcomes and Care

A review by Cohen & Greany (2023) identified several health disparities that affect rural older adults. These include low rural walkability as an obesity and cardiovascular disease risk factor (Lang et al., 2022; Watson et al., 2020), worse health outcomes among rural residents with Alzheimer's disease and related dementias (Rahman et al., 2020), more frequent falls and higher related mortality (Burns & Kakara, 2018; Moreland et al., 2020), and higher rates of hospitalization from cardiovascular disease and stroke among rural older adults (Loccoch et al., 2022; Singh et al.,

2019). In Pennsylvania, older residents have more mental health needs in rural areas compared to older adults in urban areas (Svistova et al., 2022).

Geographic differences in loneliness and isolation among older adults are complex. Lynch et al. (2021) identified similar isolation rates among rural and urban older adults, using data collected prior to the COVID-19 pandemic. Henning-Smith et al. (2019) also compared rural, micropolitan rural, and metropolitan counties for isolation, social relationships, and perceived loneliness. While rural older adults reported lower isolation and more social relationships than metropolitan adults, perceived loneliness was similar among rural and metropolitan residents. There were racial disparities within rural areas, with non-Hispanic Black residents reporting higher perceived loneliness than non-Hispanic white residents (Henning-Smith et al., 2019). During the first stage of the COVID-19 pandemic, when many governments issued stay-at-home orders, rural and urban older adults reported similar levels of loneliness and social isolation (Henning-Smith et al., 2023). Barriers related to transportation, lack of walkability, poverty, lack of Internet access, and limited healthcare access may exacerbate loneliness among rural older adults (Henning-Smith, 2020; Henning-Smith et al., 2019).

Long-term care for older adults in various settings differs by geography, in several aspects. Despite increased focus on offering home and community-based services for older adults nationwide, disparities in accessibility, quality, and outcomes related to home-based services persist (Cohen & Greany, 2023; Fong et al., 2023; Quigley et al., 2022; Rural Health Information Hub, 2023, Jun. 20). Nursing home access is a national challenge, as the supply of nursing home beds decreased in 86.4% of U.S. counties between 2011 and 2019 (Miller et al., 2023). Rural residents experience nonmedical barriers to accessing nursing homes, including “financial issues, transportation, nursing home availability and infrastructure, and timeliness” (Henning-Smith et al.,

2018). As of 2020, 27% of skilled nursing facilities were in rural areas (Medpac, 2023). Among Medicaid beneficiaries, rural residents used nursing facilities more often than urban residents (48% rural vs 38% urban) (Coburn et al., 2016). In addition, rural skilled nursing facility patients had lower odds of successful discharge and lower rates of discharge, compared with urban patients (Anderson et al., 2021). Potentially, disparities in availability of home-based care services (Cohen & Greany, 2023; Fong et al., 2023; Rural Health Information Hub, 2023, Jun. 20) may drive greater use of nursing facilities in rural areas (Coburn et al., 2016). When combined with lower skilled nursing facility discharge rates (Anderson et al., 2021), this could drive longer wait times and lack of access to nursing home beds in rural areas.

Nursing home quality is another national issue, with rural and urban areas similarly affected. In 2019, 46.2% of rural nursing homes and 45.1% of metropolitan nursing homes received a 4- or 5-star rating (Rural Policy Research Institute, 2022), indicating that the majority of nursing homes nationwide received a 3-star rating or below.

2.2.9 COVID-19

The COVID-19 pandemic disproportionately affected the rural U.S., exacerbating pre-existing disparities (Tan et al., 2020). In Pennsylvania, Cambria County was particularly affected. Cambria County's 2020 age-adjusted COVID-19 death rate was 121.8 per 100,000, the seventh highest among Pennsylvania counties; this was significantly higher than the Pennsylvania rate of 91.5 (Pennsylvania Department of Health, 2023). In early 2020, COVID-19 mortality rates were higher in rural counties with a larger proportion of Black and Hispanic people (Cheng et al., 2020). People with COVID-19 in the rural U.S. had higher hospitalization and mortality rates from January 2020 to June 2021 (Anzalone et al., 2022), and this persisted through spring 2022.

The most influential predictors of the rural COVID-19 mortality disparity were Trump vote share, percentage of the population age 50 and older, poverty rate, pre-pandemic all-cause mortality rate, education level, followed by vaccination rate (Jones et al., 2023). Pre-existing vulnerabilities, including lack of healthcare access and higher proportions of older residents and people with underlying health conditions, also contributed (Peters, 2020). Rural residents may be less concerned about COVID-19 and may be less likely to adopt preventive behaviors (Callaghan et al., 2021). This may result from a combination of factors, including lower educational attainment and lower income (Wachira et al., 2023), Republican/conservative affiliation (Bruine de Bruin et al., 2020; Gadarian et al., 2021; Pickup et al., 2020; Stecula & Pickup, 2021), lack of trust in COVID-19 information sources and COVID-19 conspiracy beliefs (Austin et al., 2021; Čavojová et al., 2020; Enders et al., 2022; Kricorian et al., 2022; Marinthe et al., 2020; Simione et al., 2021; Šuriņa et al., 2021). In some rural areas, a lack of individuals associating mask-wearing with positive outcomes, a lack of high self-efficacy, and a lack of mask-wearing as a social norm may also contribute to COVID-19 outcome disparities (Maciejko et al., 2023). Rural COVID-19 vaccine uptake was lower (58.5% received first dose in rural areas vs. 75.4% received first dose in urban areas), with disparities increasing 2x since April 2021 (Saelee et al., 2022). Barriers to accessing COVID-19 vaccines in rural settings (Kuehn et al., 2022) may have contributed to geographic disparities in vaccination rates.

2.3 Theoretical Framework

2.3.1 Program Evaluation and Stakeholder Engagement

The purpose of evaluation, as defined by the U.S. Centers for Disease Control and Prevention, is “to determine effectiveness of a specific program or model and understand why a program may or may not be working,” with a goal of program improvement (CDC, 2023, Aug. 23). This evaluation is considered formative because its purpose is to facilitate the improvement of current CPH community outreach programs and their adaptation and application to other populations and health topics (Chatterjee, 2017; Thompson & Kegler, 2015).

The CDC evaluation framework consists of a cyclical, iterative set of steps: 1) engage stakeholders, 2) describe the program, 3) focus evaluation design, 4) gather credible evidence, 5) justify conclusions, and 6) ensure use and share lessons (CDC, 2023, Aug. 23). Stakeholder engagement is a key, initial component of the CDC public health program evaluation framework. This evaluation begins and operates with an emphasis on engaging community members who may use or be eligible for CPH’s and the Task Force’s services. This evaluation expands upon the 2022 CHNA by reaching community members who may not have been included in the 2022 CHNA.

2.3.1.1 Conducting Program Evaluation With Human-Centered Design

Human centered design is “the discipline of developing solutions in the service of people” (LUMA Institute, 2012). When applied to public health challenges, including those related to health programs and services, human-centered design involves gathering information from a group of people about their health needs, and engaging people in the design and iteration of the programs and services they will use (Melles et al., 2021). Human-centered design integrates a systems

approach “by systematically addressing interactions between the micro-, meso-, and macro-levels of sociotechnical care systems” (Melles et al., 2021). In public health contexts, human-centered design can address health equity in specific geographic areas and “create innovative programs that address complex challenges” (Vechakul et al., 2015).

In published literature, application of human-centered design and related user-centered design methods can vary; for this reason, aligning methods, strategy, and outcomes is important (Göttgens & Oertelt-Prigione, 2021; Wallisch et al., 2019). The rationale for using human-centered design in this evaluation is comprised of the following points: 1) Human-centered design methods can facilitate organized discussion among community members about community health priorities and needs in Cambria and Somerset Counties; 2) Human centered design methods can encourage community members and agency leadership of Cambria and Somerset Counties to co-develop solutions to local health challenges; 3) Human-centered design methods can generate a rich, qualitative dataset on community perceptions of current public health program offerings in Cambria and Somerset Counties, with potential for application of systems theory and thematic analysis; and 4) Local public health program designers can apply the findings of these human-centered design activities to improve local health promotion programs, with potential for development/iteration of multilevel interventions that address social determinants of health. This application of human-centered design methods dovetails with the CDC program evaluation framework and complements its cyclical, iterative nature (CDC, 2023, Aug. 23).

2.3.1.2 Socio-Ecological Framework and Systems Thinking for Evaluation

This evaluation applies the Socio-Ecological Framework and systems thinking to categorize qualitative data about various, interconnected community health topics. The Socio-Ecological Framework is an ecological model that can guide interventions at the interpersonal,

organizational, community, and public policy levels of an individual’s environment, with a goal of health promotion (McLeroy et al., 1988). Systems thinking informs this evaluation’s application of the Socio-Ecological Framework. Systems thinking approaches to health behavior change value complexity, nonlinearity, and interdependence of health factors (Finegood et al., 2017; Palma & Lounsbury, 2017). Finegood et al. (2017) list participatory evaluation, which this evaluation employs, as a method to evaluate complex interventions within complex systems. Given the evaluator’s involvement in CPH’s programs prior to and throughout the evaluation process, this evaluation is also an example of developmental evaluation, in which “the evaluator is embedded in the intervention in order to lend evaluative thinking as the intervention is developed and evolves” (Finegood et al., 2017; Patton, 2011). In addition, this evaluation is a realistic evaluation, “a sociologically grounded approach by which the evaluator attempts to account for the complex social reality in which interventions are embedded” (Finegood et al., 2017; Pawson & Tilley, 1997), due to its use of the Socio-Ecological Framework, value of stakeholders as experts of their community’s experiences, and broad scope of health topics discussed.

2.4 CPH and Task Force Backgrounds

2.4.1 Center for Population Health

The Center for Population Health (CPH) is an independent nonprofit based in Johnstown, Pennsylvania that serves Cambria and Somerset Counties. CPH’s mission is “improving health and wellness by building resilient communities through collaboration, research, and education” (Center for Population Health, n.d.). The organization’s vision is “to serve as an innovative leader

in a collaborative approach to improving the health of rural populations,” and they “strive to build community partnerships aimed at meeting health goals” (Center for Population health, n.d.). CPH officially launched their Community Care HUB on September 1, 2020. The Community Care HUB is focused on improving the health outcomes of vulnerable populations in Cambria and Somerset Counties. The HUB engages Care Coordination Agencies that hire and train Community Health Workers (CHWs) to conduct community outreach. The HUB coordinates community resources to which CHWs refer clients (1889 Jefferson Center for Population Health, 2021). As of summer 2023, HUB-eligible populations include pregnant people eligible for Medical Assistance or diagnosed with gestational diabetes. Families of Greater Johnstown Elementary School students who face school attendance challenges or have poor grades are also eligible. CPH also partners with Highmark insurance to provide a CHW program for people with diabetes who have Highmark Wholecare health insurance. Separately, CPH runs programs on referrals for food access and housing resources.

2.4.2 Cambria-Somerset COVID-19 Task Force

The Cambria-Somerset COVID-19 Task Force is a volunteer coalition that CPH helped to found in February 2021. Task Force members include healthcare providers, county representatives, community members, housing authority representatives, and community-based organizations. The Task Force’s work has included vaccination scheduling, mass vaccination site logistics, public communications, vaccine education, organizing and promoting COVID-19 testing, and other related topics in Cambria and Somerset Counties. CPH facilitates the Task Force’s work and provides leadership. See Figure 1 for a logic model of the Cambria-Somerset COVID-19 Task Force’s programs.

The evaluator has been involved with the Task Force since its inception and serves on the Task Force executive committee and marketing/education/outreach subcommittee. The evaluator created this logic model for the purpose of this thesis, with review from CPH/Task Force leadership. The information in this logic model comes from grant reporting to the Health Initiative for Rural Pennsylvania, the Task Force’s grant funder. A logic model for CPH’s community health outreach programs does not exist.

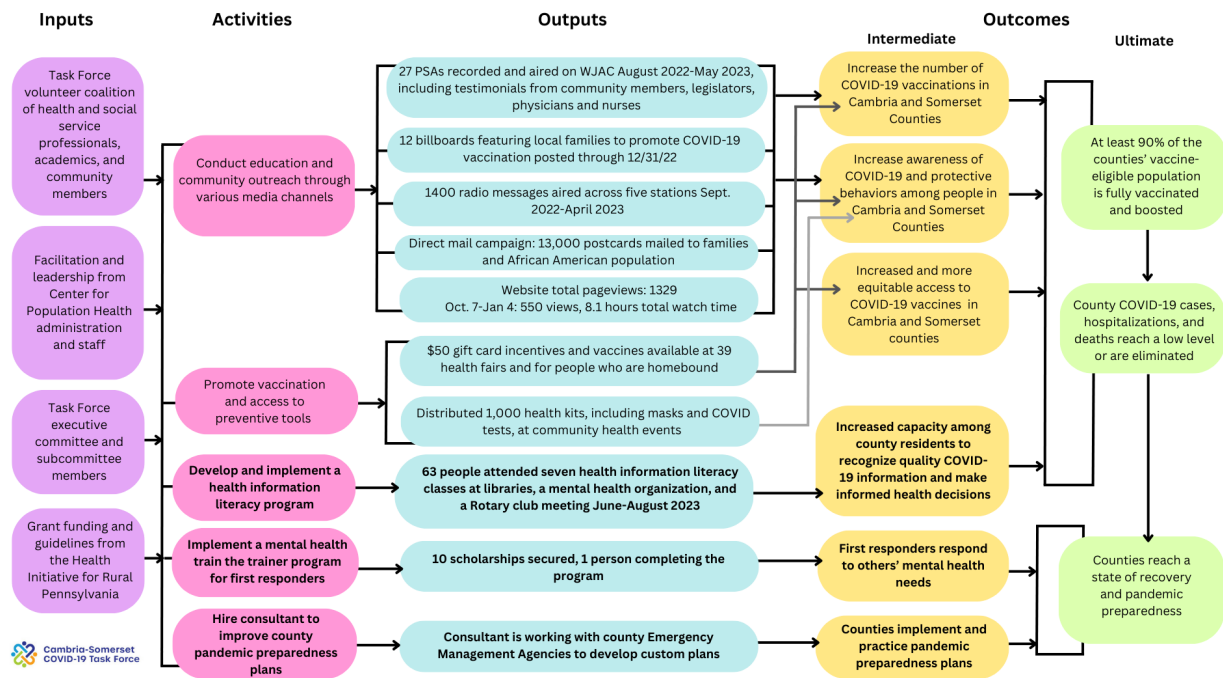


Figure 1 Logic Model for the Cambria-Somerset COVID-19 Task Force. Note: Arrows between Outputs and Intermediate Outcomes are differently colored to differentiate pathways between components. Components in bold text (health literacy program, mental health program, and consultant pandemic preparedness planning) occurred during program evaluation data collection period and are not included in this program evaluation

2.5 2022 Community Health Needs Assessment Background

From April to August 2022, the Center for Population Health (previously known as the 1889 Jefferson Center for Population Health) conducted a Community Health Needs Assessment (CHNA) along with Conemaugh Health System, the 1889 Foundation, and the United Way of the Laurel Highlands. Stratasan, a healthcare analytics and services company based in Nashville, Tennessee, collected and analyzed community health data and facilitated a summit to conclude the assessment process. The 2022 CHNA’s goal was to assess the health and needs of Cambria and Somerset Counties and to set priorities for implementation plans. The final report document states that the authors publicly shared the report “in hopes of attracting more advocates and volunteers to improve the health of our communities” (Center for Population Health et al., 2022). The 2022 CHNA used secondary public health data and conducted interviews, focus groups, and surveys. The assessment team also held a Community Health Summit. Focus groups and informational interviews occurred on June 9, 2022. Community members completed an online and paper survey from May 1 to July 11, 2022. Conemaugh Health System employees/community providers and community-based organizations completed surveys as well. The assessment team also hosted a Community Health Summit on August 9, 2022, with community stakeholders (healthcare providers, business leaders, government representatives, schools, not-for-profit organizations, and other community members). The 2022 CHNA report is publicly available on the Center for Population Health website (Center for Population Health et al., 2022).

The 2022 CHNA report says that the team collected “input of medically underserved, low-income and minority populations” through interviews, focus groups, surveys, and the Community Health Summit (Center for Population Health et al., 2022). The 2022 CHNA document lists organizations that sent a representative to participate in a focus group. The document does not

report focus group or interview participant demographics, nor does it report the number of participants who were from marginalized populations but were not agency representatives. Focus groups and interviews asked 11 questions about participants' perspectives on community health challenges, priorities, and solutions. Some questions asked about community health priorities facing specific marginalized populations. The report combines focus group and interview results and summarizes them as brief, bulleted lists of paraphrased responses. It is unclear which responses came from agency representatives and which responses came from marginalized populations who do not represent agencies.

Community Health Summit participants used the list of previous CHNA priorities, secondary data, focus groups, and surveys to select significant health needs to be the focus of the community over the next three years: 1) mental/behavioral health, 2) access to social determinant of health needs/healthcare, 3) obesity/healthy living, 4) substance use, 5) socioeconomics/job training, 6) early childhood, and 7) violence/abuse/safety. Summit participants also brainstormed strategies/solutions related to these priorities. Agencies serving medically underserved, low-income, and minority populations attended the Summit, but the proportion of people who are members of marginalized populations who participated in the focus groups, interviews, and the Summit is unclear. It is also unclear to what degree these marginalized populations' views (separate from the views of possibly more privileged agency representatives) directly informed the 2022 CHNA findings and the Summit results.

3.0 Methods

This program evaluation aims to assist the Center for Population Health of Johnstown, PA, as they improve their existing community health outreach programs and develop/adapt programs for new populations and purposes, within Cambria and Somerset Counties. Adults in Cambria and Somerset Counties shared their perspectives on community health topics and priorities. The University of Pittsburgh Institutional Review Board (IRB) declined to review.

The evaluator used human-centered design methods to facilitate a community-based co-development process for improving CPH's health promotion programs. The evaluator conducted a practical application of human-centered design methods analogous to that of community-based participatory research methods, both of which uphold principles of ethical engagement and community empowerment (DiClemente et al., 2015). This application of human-centered design methods adopts an emic approach via a structured, rigorous process anchored in grounded theory (Salazar et al., 2015; Strauss & Corbin, 1994).

3.1 Objective

The evaluation questions are as follows:

- 1) How do the views expressed by adult residents of Cambria and Somerset Counties about community health issues contextualize the 2022 CHNA findings?
- 2) How do residents of Cambria and Somerset Counties perceive current public health program offerings as addressing community health priorities?

3) How do current residents of Cambria and Somerset counties perceive COVID-19 among county health priorities?

3.2 Recruitment

Recruitment focused on populations that reside within or receive services at several community organizations in Cambria and Somerset Counties. These include Johnstown Housing Authority residential apartment complexes, a Somerset County residential apartment complex, and Somerset County senior centers. The evaluator and CPH chose these sites based on CPH's and the Task Force's service area, knowledge of the populations that currently engage with CPH's programs, and recommendations from CPH partner agencies.

The evaluator worked with agency staff to schedule one in-person session per location. Scheduling was dependent on space availability, dates/times that best served the community as per agency staff knowledge, and evaluator availability. Once a session was scheduled, the evaluator designed a flyer specific to that location and sent a digital copy of the flyer to agency staff. Agency staff posted flyers onsite, and on private social media for one location. Each flyer included the evaluator's direct phone number and email address, as well as eligibility criteria and compensation information. Potential participants contacted the evaluator directly. Participants were eligible if they: 1) were 18 years of age or older and 2) resided in Cambria or Somerset County. Not all participants registered beforehand; at least one participant per session was a walk-in. The number of participants per session was limited to 12.

Each participant received a \$25 Giant Eagle gift card and a health kit as compensation for attending one session. Funding for these items came from a grant that the Health Initiative for

Rural Pennsylvania (HIRP) awarded to the Cambria-Somerset COVID-19 Task Force. The HIRP is an initiative of the Pennsylvania Office of Rural Health at Penn State University. The HIRP is funded by the U.S. Centers for Disease Control and Prevention and the Pennsylvania Department of Health. As per CPH policy, each participant also completed a participation consent form (Appendix A).

3.3 Data Collection

The evaluator conducted six in-person listening sessions with 5-12 participants per session. These sessions were voluntary participatory workshops that created opportunities for community members to share their thoughts about community health. These sessions took place in the community rooms of six sites in Cambria County and Somerset County. These sites included three Johnstown Housing Authority residential apartment complexes, one Somerset County residential apartment complex, and two Somerset County senior centers. A staff member of the Johnstown Housing Authority assisted during the Johnstown Housing Authority sessions with notetaking. After obtaining oral consent from all participants, the evaluator recorded the discussions using an audio app on a smartphone. The evaluator uploaded these to a secure cloud-based network. The evaluator used Otter.AI to transcribe three recordings and checked the transcriptions for quality. The evaluator manually transcribed the other three recordings, which had poorer audio quality. The evaluator then anonymized the transcriptions.

In each session, the facilitator adapted human-centered design methods from the LUMA System of Innovation for a group discussion about community health in Cambria and Somerset Counties (LUMA Institute, 2023). Each group chose their discussion topic(s) from a list of the

2022 CHNA seven community health priorities (1. mental health/behavioral health, 2. access to social determinant of health needs/healthcare, 3. obesity/healthy living, 4. substance use, 5. socioeconomics/job training, 6. early childhood, and 7. violence/abuse/safety).

3.3.1 Rose, Bud, Thorn

In the first activity, participants responded to the list of seven 2022 CHNA community health priorities. The facilitator asked each listening session group to choose one or two priorities to focus on for the listening session. Participants chose their discussion topic(s) by voting for a topic from the CHNA list, with the option to propose a topic not on the list. The evaluator identified the topic(s) that received the most votes, checked for group consensus, and proceeded with the discussion. The facilitator asked groups to brainstorm roses (positive factors), thorns (negative factors), and buds (factors having potential for growth) that they associate with each chosen community health topic. The facilitator wrote these factors on colored post-it notes and displayed them on a poster in the listening session space during the discussion.

3.3.2 Affinity Clustering

The second activity organized the roses, thorns, and buds according to levels of the Socio-Ecological Framework (McLeroy et al., 1988). The facilitator provided a summary of the Socio-Ecological Framework (SEF) to the group and placed the post-it notes on the SEF diagram on the poster. The facilitator allowed feedback from the participants but did not require it, to reduce cognitive load. Then, the facilitator asked participants to discuss how COVID-19 affects/does not

affect the factors listed on the diagram for the two counties overall. The facilitator added these COVID-19 related factors to the SEF diagram.

3.3.3 Visualize the Vote

In the third and final activity, each participant identified their top short-term opportunity and their top long-term opportunity for community health promotion. Participants voted using small post-it notes that they placed on the displayed poster or on which they wrote their two priorities and gave to the facilitator to place on the poster.

3.4 Practical Thematic Analysis of Qualitative Data

This program evaluation uses practical thematic analysis. Saunders et al. (2023) developed this methodology based on Braun and Clarke's (2006) reflexive thematic analysis. Thematic analysis is flexible and accessible to people outside of academia, which are valuable characteristics for a practical approach to data analysis within program evaluation (Braun & Clarke, 2006; Braun & Clarke, 2014), and practical thematic analysis was designed with consideration of a multidisciplinary context and application (Saunders et al., 2023). This evaluation conducts analysis with an inductive and interpretivist approach, although the evaluation design includes positivist elements, due to the systematic gathering of data via human-centered design methods (Salazar et al., 2015). Practical thematic analysis consists of three steps: reading, coding, and theming, and health practitioners and interdisciplinary teams may use its results, even with little to no thematic analysis experience (Saunders et al., 2023).

In this evaluation, thematic analysis serves to identify and describe connections and common themes among the roses, buds, and thorns that emerged from the discussions. The evaluator used a combined inductive and deductive approach to this analysis. Prior to beginning thematic analysis, the evaluator created a few codes based on prior knowledge of common community health issues of interest to both the evaluator and to CPH staff, such as transportation barriers and health communication. The evaluator then completed the codebook during an initial read of the data, based on new themes and nuances that emerged.

4.0 Results

Forty-six adults in Cambria and Somerset Counties participated in the program evaluation. At the start of each session, the facilitator administered an optional, anonymous demographic survey (Appendix B). Participants completed the paper written surveys before the start of each session. See Table 1 for a summary of demographics. Most participants identified as white women 60 years of age or older. The percentage of white participants (93.3%) is consistent with the percentage of white people in Cambria County (92.8%) and Somerset County (95.8%) (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b). The percentage of Black participants (4.4%) is consistent with the percentage of Black people in Cambria County (4.4%) and in Somerset County (2.6%) (U.S. Census Bureau, 2023a; U.S. Census Bureau, 2023b). The percentage of participants over age 60 (76.2%) is inconsistent with the percentage of people 65 years and over in Cambria County (24.2%) and in Somerset County (24.0%) (U.S. Census Bureau, 2023a; U.S. Census Bureau 2023c). Most people heard about the participation opportunity via flyers posted in the community and/or word of mouth.

Table 1 Participant Demographics (n = 46)

Demographic	n	%
Race/Ethnicity (self-described)		
White	42	93.3%
Black or African-American	2	4.4%
Some other race	1	2.2%
Missing	1	2.2%
Gender (self-described)		
Female	36	80%
Male	9	20%
Missing	1	2.2%
Age (self-described)		
30-39	1	2.4%
40-49	4	9.5%
50-59	5	11.9%
60 or older	32	76.2%
Missing	0	0%
How the participant heard about the session†		
Flyer	11	26.2%
Word of mouth	22	52.4%
Other	7	16.7%
Missing	4	9.5%

†Participants could select more than one answer for this question.

4.1 Community Health Topics Chosen for Discussion

Below are the topics that each group chose for discussion. Some groups' voting was split, so those groups' discussions covered multiple topics to ensure everyone's thoughts were heard. The topics chosen during the listening sessions covered mental health (5/6 sessions), obesity and healthy living (4/6 sessions), substance use (3/6 sessions), and access to resources and healthcare (3/6 sessions). No group chose a topic outside of the 2022 CHNA list. No group chose to discuss early childhood, socioeconomics and job training, or violence, abuse, and safety as main topics.

Table 2 Discussion Topics by Session

<u>Session #</u>	<u>County</u>	<u>Discussion topic(s)</u>
Session 1	Cambria	Substance use, mental health, and access to resources and healthcare
Session 2	Cambria	Substance use, mental health, and obesity and healthy living
Session 3	Cambria	Obesity and healthy living
Session 4	Somerset	Access to resources and healthcare, obesity and healthy living, and mental health
Session 5	Somerset	Substance use, mental health, and obesity and healthy living
Session 6	Somerset	Mental health and access to resources and healthcare

4.1.1 Roses, Buds, and Thorns

Each group identified at least one asset (rose) that currently supports community health. Each group also generated ideas for new programs and opportunities for growth (buds), as well as community health challenges, barriers, or gaps (thorns). Session 1 (Cambria County)'s comments were mostly thorns and buds, and they identified only one rose. Session 2 (Cambria County)'s comments were mostly roses and thorns. Session 3 (Cambria County)'s comments were mostly thorns. Comments of Session 4 (Somerset County) were mostly roses and thorns. Comments of Session 5 (Somerset County) were mostly roses and thorns. Comments of Session 6 (Somerset County) were mostly roses and thorns.

Table 3 Roses, Buds, and Thorns by Session

<u>Session #</u>	<u>County</u>	<u>Types of Comments</u>
Session 1	Cambria	Mostly thorns and buds
Session 2	Cambria	Mostly roses and thorns
Session 3	Cambria	Mostly thorns
Session 4	Somerset	Mostly roses and thorns
Session 5	Somerset	Mostly roses and thorns
Session 6	Somerset	Mostly roses and thorns

4.2 Affinity Clustering: Socio-Ecological Framework

Most sessions' comments generally related to organizational-level factors, with additional discussion of factors at the individual, interpersonal, and community levels of the Socio-Ecological Framework. Overall, comments of Session 1 (Cambria County) were mostly focused on the individual, interpersonal, and organizational levels, and this session's comments gave greater attention to the individual and interpersonal levels, unlike the other sessions. Session 2 (Cambria County)'s comments were mostly organizational-level factors. Session 3 (Cambria County)'s comments were mostly organizational- and individual-level factors. Session 4 (Somerset County)'s comments were mostly organizational- and individual-level factors. Session 5 (Somerset County)'s comments were mostly organizational-, individual-, and community-level factors. Session 6 (Somerset County)'s comments were mostly organizational-level factors.

Table 4 SEF Levels of Comments by Session

<u>Session #</u>	<u>County</u>	<u>SEF Level(s) of Comments</u>
Session 1	Cambria	Mostly Individual, Interpersonal, Organizational
Session 2	Cambria	Mostly Organizational
Session 3	Cambria	Mostly Individual and Organizational
Session 4	Somerset	Mostly Individual and Organizational
Session 5	Somerset	Mostly Individual, Community, and Organizational
Session 6	Somerset	Mostly Organizational

4.3 Thematic Analysis: Rose, Bud, and Thorn Themes Across Sessions

4.3.1 Transportation for Health-Related Trips

Participants in all sessions identified positives, barriers, and challenges with accessing transportation for health-related trips in both Cambria and Somerset Counties. Participants raised the topic of transportation within discussions about roses and thorns related to obesity and healthy living, access to resources/healthcare, substance use, and mental health. For this reason, participants discussed transportation intermittently in most sessions.

In Session 1, participants discussed challenges with accessing transportation to Alcoholics Anonymous and Narcotics Anonymous meetings, as a thorn related to substance use:

S1P10: Sometimes transportation isn't, you know—

S1P7: All the AAs, she's got a good point. All the AA and NA in town, after the epidemic started, they all closed down and shut down. Now you gotta go close to places. Well, that's hard on me, you know, cause I don't have—

S1P10: Transportation is a big...

S1P7: It's a big issue.

In Session 2, participants discussed barriers of public transportation to community pools, as a thorn related to healthy living:

S2P3: Is there a swimming pool around here?

S2P2: Windber.

S2P4: Oh yeah, Windber rec.

Notetaker: But that's hard to get to, so I think buses run up there.

S2P2: Two a day or something.

Notetaker: Something ridiculous, which like you don't want to be up there all day.

S2P4: If they miss the bus, like, then you have to wait.

S2P3: Like Ebensburg has a pool, but even to travel there.

S2P4: Well, Ebensburg bus only run like what, every hour and a half or something like that.

*Participant 2 of Session 2 also noted that transportation to gyms is lacking.

S2P3 also noted that rural communities experience geographic public transportation disparities, as a thorn related to healthy living:

Even for, like, people in the rural community, transportation's an issue... so there's only like a bus that comes maybe once an hour, and even to get to the bus stop is the issue, you know. (S2P3)

Another participant described barriers related to lack of personal vehicles and limited van ride services as a thorn related to healthy living:

Well, for some people that just don't have vehicles, they really can't rely on like health ride or med van or something because they don't actually-- they can't wait when we would take them over there to go grocery shopping, out to walk. Some people just can't do that. (S3P5)

Other participants described a county transportation system for seniors as a rose related to access to resources/healthcare:

S4P1: Well, they have that van that picks people up, I noticed, in the community. I don't use it, but I see it quite often.

AP: That's great. Is that for seniors only or is that for anyone?

S4P1: I think it's seniors.

Another participant from this session also described the county transportation system for seniors as a rose for healthy living: “And to places they’ll take you, [county public transportation system], you know that’s free, for reserve a ride if you have a card, go shopping, if you’re over 65” (S4P2). In Session 5, participants described this rural county transportation system similarly, as a rose for access to resources/healthcare:

S5P3: We can always get the van to go to [Town A] with the area agency. We have a van down in [Town B] that will pick you up.

S5P1: That helps.

S5P3: You know, two days a week on Tuesday and Wednesday we have that if we want to go to the store, bigger stores...Or to the doctor. They would take you to your doctor too, over in [Town C].

These transportation systems may be supportive for seniors, but these transportation systems only run on certain days and times, and they may require reservations. In addition, people who are outside of the age range may experience other limitations. A participant detailed how transportation barriers can affect people in an emergency and present a thorn in access to resources/healthcare:

Sometimes transportation for people can be a real problem. Especially if there's something that might be a crisis, and they need a ride and they don't get it, they might not have anybody to give them a ride, they might not have money for a taxi. And if you want to use Stateline services, you have to call a day or two ahead... not everybody wants to go in an ambulance... (S6P1)

While discussion on transportation within each session was generally brief, every session mentioned transportation once or twice. Sessions described either roses or thorns related to transportation. Participants’ choice to describe a rose or thorn seemed to depend on the destination or context of the travel they described. Roses described existing senior transportation systems, while thorns related to lack of transportation in rural areas or limitations on public transportation for trips related to health behaviors/destinations other than medical appointments (e.g., grocery

shopping, traveling pools, gyms, and AA meetings). Within sessions, participants did not argue/disagree over the transportation factors mentioned. Both men and women commented on transportation. Some older people spoke favorably of senior transportation systems, while other older people commented instead on transportation limitations for other populations/specific health issues. Younger people commented on these specific limitations as well.

4.3.2 Food Access

Participants in four sessions discussed food access. These comments were roses, thorns, and buds related to obesity and healthy living and access to resources/healthcare. Participants discussed food access intermittently in these sessions, sometimes returning to the topic of food access multiple times (e.g., Session 3 and Session 5 discussed food access roses and thorns, and then returned to the topic to discuss buds).

In Session 2, one participant shared the news of a grocery store's closure as a thorn for healthy living, and they discussed implications for food access:

S2P3: Do you think, like, since they closed that grocery store downtown, that that's an issue now?

S2P2: What grocery store?

S2P3: They closed Ideal Market.

S2P2: [gasps] Did they? Well, that's gonna be a big concern.

S2P4: Because everybody lived downtown, in the [building].

S2P2: A lot of people don't have transportation. Yeah, so that's transportation. And I didn't know they closed that.

S2P3: Yeah, I see Giant Eagle's offering to deliver your stuff. But there's people that aren't like, inclined to use your phone and do an order.

S2P4: For people that live in the [building] and you can't really move around the way you're supposed to. And that was the closest spot they had, so now what they gonna do?

One participant in Session 3 also mentioned grocery store closures as a thorn for healthy living: “I heard two grocery stores had just shut down downtown” (S3P4). Grocery store closure discussion in Session 3 was brief.

In Session 5, participants discussed a recent break-in and robbery of a new produce store in their rural town and how the repairs delayed the store’s opening. This limits community access to nutritious food, and participants described this situation as a thorn related to healthy living. This discussion was brief:

S5P4: We’re supposed to get our produce store back sometime.
S5P1: Somebody broke into that!
S5P4: I heard that, somebody broke into that.
S5P3: And they took copper.
S5P1: Now if you notice, the windows are boarded up.
S5P2: They said they’s putting new windows in it.
S5P1: Well, they broke into it.

Participants also discussed food access from farmer’s markets. Discussion of farmer’s markets was generally brief across sessions. Session 2 participants mentioned the benefits of a farmer’s market incentive program in coordination with SNAP. Participants described the farmer’s market as a rose for healthy living:

S2P3: I mean, I think the farmer’s market’s a good idea because then you can, they’re offering like an incentive, you go there, you can get—
S2P2: Oh yeah.
S2P3: Get your money back.

Other participants in Session 3 also shared perspectives on the farmer’s market. Some described it as a rose for healthy living because it provides access to food, while others described it as a thorn due to expense of available products:

AP: Now sir, you said that you go to the farmer’s market, but what do you like about the farmer’s market?
S3P5: The food.

AP: They have a good variety of things?

S3P5: Yeah, they, they got everything.

AP: Things that you like?

S3P5: Vegetables, and then they sell, they have other stuff. Like baked goods, and I mean—

S3P4: A couple of food vendors, whatever, tacos, and stuff like that.

AP: Does anyone else go to the farmer's market? Do you have any feedback about the farmer's market? Positive or negative.

S3P4: A little bit pricey sometimes.

Participants in Session 4, Somerset County also briefly described a local farmer's market as a rose for access to resources/healthcare:

S4P1: We also have the park up there, they have a country market every Wednesday, you can go up there and walk, swim, whatever you want to do.

...

S4P3: They have a lot of setups up there, go up and buy your vegetables.

Food delivery service to increase food access came up in Session 3. A participant briefly shared how a food service previously delivered items for purchase to a housing facility. The participant described this as a bud (opportunity for growth) for addressing obesity and healthy living, suggesting that the food delivery service be reinstated:

S3P2: I remember when the fruit and vegetable man used to drive around and sell all kind of stuff.

AP: And has that continued in recent years? No? Do you know why?

S3P2: Just can't afford to pay the gas and everything else. The economy.

AP: Was that just an individual person who did that? Or was it through an organization?

S3P2: Oh, the same kind of people that were going to downtown [town] on Fridays, were making runs all over the place up in Ebensburg, Richland... Give people more of an opportunity to come out their front door and pull up there, and they can get what they want.

Participants also discussed food access from various food banks and community-based organizations. Participant 2 of Session 2 mentioned a Greater Pittsburgh Community Food Bank distribution at a Cambria County shopping center as a rose for healthy living: "The food thing at

the [mall]. The free food that they give out is usually cheese or whole foods, like healthier ones” (S2P2).

Somerset County participants briefly discussed current limitations of a local food bank, describing expanding and improving food banks’ work these as buds for improving access to resources:

AP: Any other buds or opportunities around the access to resources?

S4P4: Are you talking like the food banks?

AP: Sure, sure. Is there something that you think they could do more of, or--?

S4P8: Oh my, yes.

S4P5: Oh yeah.

S4P6: I think they do a lot of that, the food bank. A lot around here.

S4P4: They’ve got too many people going and not enough people getting.

S4P6: Too many people who are using it now—

S4P3: —that don’t need it.

In Session 5, participants also shared how food banks and community organizations provide food, describing these as roses for healthy living. One participant shared that a rural senior center provides food: “Well, back to the senior center, they have programs sometimes...and they give healthy lunches, too” (S5P5). A second participant said that the local school distributes food: “Well, the school... they’re doing it this year, they gave out lunches to the kids” (S5P4). A third participant noted that their community also has a food bank: “Well, we have [a] food bank, too” (S5P3). These mentions were brief.

Roses on food access described existing food distribution programs and organizations; however, some of these are seasonal. Thorns on food access mostly described recent grocery store closures. Each of the four sessions (2, 3, 4, and 5) described some combination of roses, thorns, and/or buds. Participants within sessions generally agreed, except for discussion in Session 3 on the farmer’s market that identified both roses and a thorn. A few comments said that some organizations could improve their food access services and suggested a food delivery program.

Conversation on grocery store closures in Sessions 2 and 5 was more energized and involved multiple participants; otherwise, comments on food access were generally brief. Both men and women, as well as a mixture of younger and older people, commented on food access.

4.3.3 Exercise and Healthy Living

Participants shared information about existing facilities, locations, and programs for exercise available to the community, and they described barriers to accessing these resources. These comments briefly described roses, thorns, and buds related to exercise within discussions of factors related to obesity and healthy living.

Participants in Cambria County described barriers to adults' access to gyms as a thorn for healthy living:

S2P2: Most of the gyms around here aren't that cheap. And I think there's waiting lists at YMCA. I know they have grants, but I don't know that it's that easy.

S2P4: When you try to go somewhere, you can't get in because you got to wait, a long waiting list, can never get in anywhere for people to help you.

Other participants at a residential facility shared that an onsite exercise program ended due to lack of participation, describing this as a thorn for healthy living:

S3P2: Yeah, you could say here there's basically in the building other than getting out and doing it on your own. Some buildings have gym rooms in them.

S3P3: We used to have a lady that came here to do exercises but then they didn't come down so they just stopped. It takes participation.

Other participants shared information about publicly available exercise equipment and classes, describing these as roses for healthy living: "Well right in here in the center, we exercise three days a week. They have tai chi one day, I mean that is all good. Tai chi's good for your balance" (S4P3). Another participant spoke about exercise equipment at a different senior center.

“We have exercise here, we have exercise equipment in our room in there” (S5P1). This group also noted that they have an exercise group and classes. Other participants mentioned a group sport in their town as a rose for healthy living:

| S4P4: Pickleball is big. Down at the...
| S4P1: [Name] field.

Another participant recommended an intervention for group exercise as a bud: “They should have everybody get together and go for a walk. Like one once a day or something like through the neighborhood” (S3P5).

Participants also shared information about local recreational areas in which people may exercise. One participant spoke about Cambria County trails as a bud: “...they’re changing it, they’re working on it, but the older trails that they have through the city and through the woods and they are, they got a grant and they’re up there upgrading them” (S2P2).

Other participants described a rose related to outdoor recreation in a rural area (although these participants noted that the people who use these areas are mostly tourists):

| S5P2: We have a lot of recreation out here, I mean, you have the bike trail, you can walk anywhere.
| S5P1: We have the dam.
| S5P3: Fishing, you can go fishing.
| S5P6: Go on the beach.
| S5P2: A lot of outdoor activities here that people can do.
| S5P1: Yes, we do.

Comments also addressed roses related to exercise and healthy living among youth. In Session 2, one participant said that in a Cambria County town, “They have a gym where you can go to the gym after school” (S2P2). In Session 4, participants explained how a local church helps youth to exercise:

| S4P3: The church that opened up for young kids to that not tai chi what is it?

S4P5: Kung fu.

S4P3: We have one of the churches that closed somebody brought kung fu or something down there, the kids to go exercise.

Session 2 participants also described a thorn with an existing Cambria County waterpark:

S2P3: I mean, they should make like, a water park, or like, a community pool, so kids aren't playing in the river up here, I think.

S2P2: They put a little water park in the east end there on [street name].

S2P3: Yeah, I thought I heard about, it's not working.

S2P2: I mean, you have to be under a certain age. And it's not like a ton of water.

S2P3: Yeah, I know that the price—

S2P2: They upped it? So then that's a—

S2P4: That's a thorn.

S2P3: It was five, now it's 10.

S2P2: What?

Comments on exercise and healthy living represented roses of existing exercise facilities/groups/activities, thorns of barriers to accessing existing exercise resources (i.e., expense, program closure), and buds related to how existing exercise resources could be improved. Sessions 4 and 5 described roses, while Sessions 2 and 3 described mostly thorns and buds. Multiple sessions mentioned communal exercise programs and outdoor exercise as helpful/desirable. Within sessions, participants did not argue or disagree. Conversations on barriers in Session 2 were more energized; otherwise, comments on exercise were generally brief. Both men and women commented on exercise; younger and older people commented on exercise.

4.3.4 Expenses and High Cost of Living

In four sessions, participants described thorns related to increased costs of essential resources as a barrier to healthy living. Several comments across three sessions focused on the high cost of “unhealthy” food compared with “healthy” food. In Cambria County, one participant

said, “The cost to eat healthy is a lot more than to eat cheap food, too” (S2P6). Somerset County participants agreed:

S4P3: Well everywhere is, if you want to eat healthy, it costs you more money than if you eat poor.

S4P5: Yeah.

S4P7: It’s cheaper to go out if you’re by yourself and just buy something. It really is.

Another participant commented on food prices: “Unhealthy food is cheaper than healthy food...A head of cauliflower is much more expensive than a bag of potato chips” (S5P4).

Sessions also briefly covered other topics related to expenses and the high cost of living in the area. In Session 5, other participants commented on the expensive water bill for senior housing in their area:

S5P1: Well the one drawback on [the available senior housing] is the water bill.

S5P2: Yeah.

S5P1: Which is over four hundred dollars for one month.

In Session 3, one participant listed “the price of everything” (S3P3) as a barrier to healthy living.

This participant also related low income to worsened mental health:

AP: And what would you say are some, a couple of the top worries of people in the community?

S3P2: Where the next dollar’s coming from to take care of themselves.

Comments on expenses and the high cost of living were all thorns. Cost of food was a common theme across sessions, but multiple sessions also discussed other topics related to expenses. Each of these comments were brief. Within sessions, participants agreed with one another. Older men and women commented on expenses in the context of healthy living in general.

4.3.5 Formal and Informal Mental Health Community Support

In five sessions, participants listed roses and/or buds about formal and informal mental health community support, within broader discussions about factors affecting mental health in the community.

Some comments related to existing or proposed formal structures for mental health support within a community. In Session 2, one participant described a community mental health center as a rose:

They have a housing grant, they have multiple support groups that they hold there. I want to say, any kind of support, the lady who runs it knows, she has contacts everywhere. So really, they help with anything, but they're for mental health. (S2P2)

In Session 4, participants described existing social groups and activities at a senior center as roses for mental health:

S4P4: And they have bingo, they help the women with their numbers.
S4P9: And we have penuchle to help you with your brain.
S4P4: We need more penuchle players!

In Session 6, one participant suggested that local organizations could create a peer support program for menopausal women as a bud for mental health:

I think you could have like once a month a group meeting of people, instead of just, I know they have the day programs and everything down there. A lot of these people, they're severe, talking about maybe women who are going through menopause, and they're just, you know, experiencing anxiety and they just need to have that group to talk to, to just try to have like a, maybe a little lunch, something like this, where we just sit and talk and not feel like they have to be by themselves. (S6P1)

Participants also described mechanisms of informal support at an interpersonal or community level as roses for mental health. When asked if and how the COVID-19 pandemic

affected healthy living, Session 5 participants noted how their community has sustained a habit of “checking on” others:

S5P5: One thing I must say is a positive overall, I guess, like with the senior center, or even the housing, people check on each other.

S5P1: The meal delivery man, when he delivers meals, he checks on the elderly. Like if they aren't picking up their lunch or something, they check on them. So that's good too.

In Session 6, a participant shared a rose about how people within the participant's residential community support one another's mental health: “And we have a pretty good support system between all because we can vent and we can, you know, kind of hold each other like so that's, that's the good point that we have here” (S6P1).

In Session 1, a participant shared how the listening session itself was a form of community support and camaraderie, and how the community needs more of this type of interaction:

“We need more community. This is really great. I'm so glad to meet some of these people. It's just sad. It's just totally, you know, and togetherness means a lot. Loneliness is sad.” (S1P6)

Comments on formal and informal mental health support were generally brief, and the sessions that covered this theme mentioned one or two examples. Within sessions, participants agreed with one another on these comments. Mostly older women commented on this topic.

4.3.6 Mental Health Waiting Lists

Two sessions described a thorn of long waiting lists for mental health appointments. In Session 6, one participant described long wait times to get an appointment for mental health care, which resulted in delays in receiving medications:

Oh with mental health, nobody can get an appointment and people were wavering. I personally know three people that if you didn't show up to [the] office, they weren't giving

you the meds, and even if you had the Zoom meetings, they still were late and not giving you the meds too. (S6P1)

Participants in Session 2 agreed, describing a similar thorn on mental health waiting lists:

S2P4: When you try to go somewhere, you can't get in because you got to wait, a long waiting list, can never get in anywhere for people to help you.

S2P2: Oh, that's good for mental health, too.

S2P4: Oh yeah, that's for mental health.

S2P3: I don't know about substance use, but I know mental health, it's hard to get in anywhere. There's waiting lists for years. So, if someone's dealing with a mental health problem, they can't deal with it for years.

Participants discussed mental health waiting lists infrequently; discussions about this topic were brief. Within each session, participants agreed with one another on these topics. Older and younger men and women commented on this topic.

4.3.7 Substance Use and Prevention

In three sessions, participants briefly described thorns related to substance use and roses related to prevention in their communities. In Session 1, a participant described local substance use as a thorn:

At the park, when you get going at the park, in the [building], outside, drug overdose happen right in front of you. The cameras are going there. Yeah, it just, it just, yeah that's what I just said. The cameras are watching them, you know, that's—and all this goes together. (S1P7)

In Session 5, participants described a thorn of substance use in their community and a lack of local treatment and recovery resources in their rural area:

S5P1: No, we've got lots of substance abuse. They sell it right on the street. Yeah. If you want anything, you can go up to the trailer court and you got it.

S5P2: Put your order in.

S5P1: Yeah...Put your order in and then... but there's nothing really in this town, too. Like they have AA and different things, but we have nothing.

Participants described Narcan (naloxone) as a rose for preventing overdose. One participant said, "I know, well, the drug task force, they hand out naloxone, too" (S2P2)

Participants in Somerset County said that local EMTs may have Narcan available, but they weren't sure:

S5P1: Yeah, we have Narcan, if you're around anybody—you can save their life.

AP: True. If the goal is to save the life, then yeah, that would be a rose. Do you know if that's easily accessible in the community?

S5P1: Uh, I would say the EMTs have it. I don't know.

Within broader discussions about substance use in three sessions, participants described thorns related to substance use and lack of local treatment. They also described a rose of Narcan as a prevention method. These comments were brief and infrequent compared to comments about other topics. Participants agreed with one another within sessions. A mixture of younger and older men and women commented on this.

4.3.8 Child and Adolescent Health Needs

In three sessions, participants expressed a community-level need for health services for youth and suggested ways that organizations could respond, although no session chose the 2022 CHNA early childhood topic for discussion. During a discussion about obesity and healthy living in Session 2, one participant spoke on the need for organizations to do more for children beyond providing summer food programs, to benefit their health:

Summer programs that are feeding the kids ain't enough, you know what I mean. You don't feed them and send them back out. It's not really doing much for the kid even though it is helping them not starving. But they, I feel they should do more for the kids. (S2P4)

In Session 1, participants described a bud/opportunity for organizations to focus on preventing substance use among youth:

S1P2: I think they should work with the kids more [to prevent substance use]... Start there, you know, because that's where that starts with, you know, and these kids, a lot of them, they don't have a lot to do, there's not a lot to do in the communities. So they, you know, get into trouble and you know, and stuff.

S1P5: And one thing leads to the other.

S1P8: Yeah. They need, they need more things to do and to start with the kids that have more education on it, you know, and understand, you know, what's going on with the drugs and whatever, whatever it may be?

...

S1P6: I think they ought to have that in the school. They ought to have, they, that should be in their education, think about learning, you know, about the do's and don'ts for drug abuse. You know, I've never heard of anything like that being done.

Session 1 participants also suggested that people in recovery should speak to youth, to encourage abstinence from drugs.

During a discussion about mental health in Session 6, a participant suggested a bud for schools' intervention in youth mental health:

I also think they need to address in the schools instead of being so accusatory. They need to address more things with kids, when they hit 6th, 7th grade when they're starting to get their hormones running. And um, just more openness for them instead of seeing the guidance counselor or a coach, somebody that's there that can maybe do that same kind of group thing for the kids so they can bounce ideas off of each other...because kids don't want to talk to their parents, because we're the enemy...If we could get more adults in the community involved into being a big brother or big sister. (S6P1)

This participant also described an opportunity for a local health system to improve services for teens, during a discussion about mental health and access to resources and healthcare:

Again, it comes down to, I'll just say [local health system]... They should have more things open to, like, teenagers and health issues. I mean, they just always want to put Planned Parenthood out there. But there's so many other needs with kids that we don't realize until they get older in their 20s and 30s. And they talk about they need this thing, you know, they need somebody to talk to...so they just need to reach out to the community more and have all these things accessible for us. (S6P1)

Comments about child and adolescent health needs covered multiple health topic areas, including substance use, obesity and healthy living, mental health, and access to resources and healthcare. Comments in this theme were richer than comments in some other topic areas. Participants generally agreed with one another. A combination of older and younger men and women commented on this theme.

4.3.9 Lack of Support for Parents

In two sessions, participants described the parent-child relationship as highly influential on a child's health. They identified parenting behaviors that have negative effects on health outcomes related to youth substance use, and they listed opportunities to support parents in preventing substance use among youth. In Session 1, participants said that parents don't monitor youth social media activity, which leads to exposure to online content about substance use. Participants identified a bud in which the community could support parents who have no lived experience with substance use in preventing their children from using substances:

S1P6: Their parents aren't paying attention to what they're doing on social media. You know, on the internet.

S1P7: ...I think there's a lot of people that don't use who don't know nothing bad because they never used. Good for them. I'm happy for that...I think the ones that haven't been there, and their kids are going through it, they need support, and they need to be taught how to cope with that. Because sometimes they don't realize you, you can't just go up that, "You're gonna kill yourself, you're gonna do this and that"... You have to say the right things to [the child] and tell them to never give up or something.

During discussion about substance use, mental health, and obesity and healthy living, participants in Session 2 listed a bud for supporting parents and youth:

Now a lot of these parents just don't, know what I mean? A lot of these parents not even listening to their kids and what they want to do anyway... Long as your kids ain't in the house, they say, okay. That's how the parents, some of the parents is now. So maybe

| somebody you look up to, and try to help them out you know what I mean? Like look at like, somebody, show him in a different direction. (S2P4)

Discussion about parenting was infrequent, but participants had more to say about this topic than others. Men seemed to be more interested in this topic than women. Both older and younger people commented. Participants generally agreed.

4.3.10 Relationship Between Substance Use and Mental Health

In four sessions, participants described thorns in the relationship between substance use and mental health. In Session 1, one participant said that substance use leads to mental health problems:

| Substance abuse goes with mental health and substance abuse a lot if you use that, that makes mental health problems issue...They go together, really go together. (S1P7)

In Session 2, a participant shared how stigma can hide this connection and how this is a thorn:

| I think the linkage between mental health and substance use is not always identified. People, and stigma, with substance use, for more people I've talked to, I think it usually stems from some kind of mental health thing, but it's not addressed. (S2P2)

In Session 4, another participant described how depression can lead to alcohol use and medication use, listing this as a thorn:

| ...They had that on [TV] just recently like I said they mentioned ladies are real depressed at home and they should get out. And they do go to two different things. They take more medication, and they seem to stop at the liquor store. (S4P4)

In Session 6, another participant discussed this relationship from a different perspective: "Sometimes, people that are dealing with something that is not caused by substance abuse, we kind of feel like we're put in second place" (S6P1).

Comments on this theme were generally brief. The choice of discussion topics also represents this theme, as multiple sessions (1, 2, 5) chose to discuss both substance use and mental health (although Session 5 did not comment on this relationship specifically). Older and younger men and women commented on this theme. Participants generally agreed, although the comment from Session 6 highlighted the need for mental health resources not related to co-occurring substance use.

4.3.11 Healthy Aging

In three sessions, participants expressed thorns and buds related to the need for more programs to promote healthy aging. In Session 2, participants suggested a few buds for new senior programs:

S2P4: More stuff for the senior citizens that could do.

S2P3: Trainers and—

S2P4: Yeah.

S2P3: Like an advocate...

S2P4: To help them out with like certain things, transportation, like you say, trying to lose weight, or help ‘em move around more? You know?

Another participant shared that in rural areas, older adults are isolated and described this as a thorn: “And then you have our elderly in the community, too, that are left alone, people not checking on them” (S5P1).

Participants also identified how the aging U.S. population will require more care in the coming years, which aligns with the concept of the epidemiological transition (McKeown, R. E., 2009). They described this as an opportunity for growth:

S4P4: Who said we’re going to have sixty nine percent of senior citizens by the year 2025 in the state of Pennsylvania? I think the governor or someone, it came across the news.

S4P9: They said something about Pennsylvania at a certain year.

...
S4P5: Seniors are living longer.

...
S4P2: Yeah. The health care is a good thing but it's keeping us alive a long time.

Discussion on healthy aging led to further discussion of senior housing. In Session 4, participants shared barriers and opportunities for older adult housing in Somerset County:

Well, there's a big waiting list now to get into nursing homes. I mean if you're not – you have to be in a hospital and then you get a person who directs you and helps you. But if you're in a house and you can't take care of that person you have to go through a lot of months and months of waiting. I feel we're going to be at an age that there's gonna be more utilized houses that will take maybe eight or nine people and then one person runs it. Like that up in [place]. (S4P4)

Speaking about nursing homes, another participant listed a thorn: “But they're not checked. What happens is, they notify they're coming to check things. And they shouldn't be notified, they should just walk in on them” (S4P6). Two others discussed thorns related to assisted living facilities:

S4P1: Also, you have to watch your assisted living.

S4P5: Yeah.

S4P1: Because they can take all your money, and then when you're out of money, they get rid of you. And you don't have any money to get into another home so you go to [town] again.

In Session 5, participants listed a bud related to senior housing. They shared that an older adult housing complex in their community has empty units:

S5P3: We have houses empty too. Open to seniors.

AP: Oh ok. Right, so open for people, for seniors to move in?

S5P3: Yes, those are empty ones.

AP: Oh ok, can you say more about—

S5P3: Low income. You know.

AP: Oh ok, is that in the housing community just up here?

S5P3: Yeah.

Comments on healthy aging covered various discussion topic areas, including mental health, healthy living, and access to resources and healthcare. These comments represented thorns

and buds. Session 4's discussion of this topic represented a significant portion of the conversation, while other sessions talked about healthy aging to a lesser extent. Mostly older participants spoke on this theme, although younger participants also commented. Participants generally agreed.

4.3.12 Advertising, Promotion, and Outreach From Organizations

In four sessions, participants described a need for greater advertisement, promotion, and outreach from community organizations on various health topics. In Session 1, one participant expressed a bud related to communication of success stories of substance use recovery to build morale, after hearing another participant share such a story:

You know, when you hear success stories about, you know, you know, I give him all the points in the world that I can say that I met somebody, and he straightened his life out. And he threw the bottle away, or whatever it was he did. But you don't hear these success stories. So being in here just feels like, I mean, I'm getting goosebumps, the whole nine yards. I'm proud, I'm proud to hear that somebody's getting help. But you don't hear that that often because you know why it's not there. And it has to do with our systems. (S1P6)

In Session 2, another participant expressed a thorn related to lack of substance use harm reduction outreach in the community:

So, I kind of feel like there's not enough outreach in the community for, like, harm reduction, or places that offer help for such things like that. I hardly see for – do they have, say, a needle exchange? I thought they used to have one at the hospital, I think they used to have one, but it was really hard to even find any information about it. So, people don't know things like that are available. I mean, I don't even know if they are available now, at this point. (S2P3)

The same participant also encouraged outreach from organizations that assist with job searching, describing this as a bud:

What about, like, [job search organization]? I don't know that, I don't think they promote enough that they can help you get a job and stuff...But if people are not working, they're not really going to know that's available. (S2P3)

Other participants in rural areas talked about challenges with promoting resources for preventing/stopping substance use. They described a need for more advertising of existing resources, listing this as a thorn in the context of discussions on substance use and mental health care services:

AP: And I heard you mention something with a challenge with getting the word out in this small community. Can you say more about that challenge?

S5P5: Just getting the word to people who need help. That there is help out there...That's very lacking too in our community, lacking.

In Session 6, another participant recommended that a local healthcare system conduct more community outreach, describing this as a bud for access to resources and healthcare:

I think [healthcare system] should have a town meeting and talk to the community because that's who your service, you're serving, and see, what do we actually need, properly. They just want to throw at us, but what do we, as a community, actually need for our services?
(S6P1)

Participants also explained that community outreach is necessary to determine the appropriate services to match community needs, to address a current thorn of lacking health services and consequent poor health status:

S6P4: ...I just don't think that there's too many things out there, that there's much of anything out there new to make a difference.

S6P1: That's what [healthcare system] need[s] to do, they need to talk about these things, because they're taking us backward, actually. I've seen more people that I know, and friends and family, my friends, that their health is going down because they can't get the right stuff around.

Comments on advertising, promotion, and outreach from community organizations covered topics related to substance use, mental health, and general access to resources and healthcare. These comments represented thorns and buds. Compared to men, women seemed to be more interested in this topic. Both younger and older people discussed this topic. Participants

agreed that there is a lack of advertising and community outreach on various health topics in their communities.

4.3.13 Lack of Awareness of Existing Resources

Across five sessions, participants expressed a lack of awareness of existing resources for various community health issues, either among themselves or among people in need of health and human services. In some cases, participants shared information about relevant, existing resources with one another.

4.3.13.1 Substance Use

In discussions about substance use, participants mentioned support group meetings and the lack of awareness about them. One participant encouraged people who have not attended Alcoholics Anonymous or Narcotics Anonymous meetings to attend a meeting, even if they have not used substances. This is a bud for growth in community support of people who are in recovery from substance use:

...The more people we have that are in AA meetings or NA meetings. And I might ask if there's a whole bunch of you all didn't go. I asked, have you ever been one, we all should know what they're like and what they are and whether you're an alcoholic or not, we should know. We might get some gifts and help somebody in the future. (S1P7)

In Session 1, participants engaged in information-sharing about existing Alcoholics Anonymous meetings. Participants who were aware of existing meetings shared this information with others, and they described this as a rose. They acknowledged that they may be unaware of existing resources for substance use in their community:

S1P8: Well, I liked whoever it was that said about a church, like a meeting. I think we could somehow, we could get the churches involved. You know more.

S1P10: I know there is one over here across the bridge that does [Alcoholics Anonymous] meetings.

S1P8: Oh yeah.

S1P5: That's three or four times a week, ain't it? I think.

S1P11: There is different churches. You just have to... you just have to work at it. It's like we're not aware of stuff, it's like, yeah.

In Session 5, participants discussed the attitudes and behaviors of people who use substances in their community, related to those individuals' awareness of available resources. The participants described this situation as a thorn for progress on recovery:

S5P4: And I don't even know if they know where to go for help, either...And I don't know if the school has programs or not.

S5P1: I don't know.

S5P4: Don't know. I'm sure they probably do, but they're not listening. They don't listen.

4.3.13.2 Food Resources

In Session 2, participants shared information with one another about food resources. They described a farmer's market and SNAP incentive program as a rose for healthy living:

S2P2: With the farmer's markets, they also, if you use your food stamps, so for every \$5 you spend they give you five extra dollars.

S2P4: Oh, I didn't know that.

S2P2: I don't know how to do it, but they just started that.

S2P3: [My friend] told me you go there with your card, and they do like, they have like some a register thing or something. And you do like an exchange, so they give you like a bonus. I think they give you a voucher.

S2P2: So, for every five dollars you spend, you get five extra?

S2P4: That's crazy.

S2P2: Yeah, so that's, like, that's definitely a good incentive.

4.3.13.3 Resources for Children

Participants in Session 2 explained that parents/guardians are unaware of available resources for children, which may present a thorn to children's healthy living:

S2P2: There are a lot of things to do with kids, it's just people...I don't think the spread of the word of what's going on.

...

S2P2: I'll talk it through because I seek out things. I'm saying that I think there are things for the kids to do. But most people just say there's nothing to do and they don't search it.

S2P3: Yeah, they don't know about it. Like on the news, you know, or on Facebook. I don't know. It's just not reaching out into the community that they know it's even available.

4.3.13.4 Resources for Losing Weight

In Session 2, one participant expressed lack of awareness of local weight loss programs: "I'd say anything to help people lose weight...I'm not aware of anything" (S2P5). The other participants then shared information about a relevant program, describing this as a rose for healthy living:

S2P3: It's called the SilverSneakers program. I think it's through UPMC.

S2P2: If you have Medicaid and Medicare, you can get it, so you don't have to be a senior citizen.

4.3.13.5 Senior Center as a Resource

In Session 5, participants described senior centers as a resource hub for community members, but they said people may not be aware of the center as a resource due to low attendance:

Well we have a lot of resources right here, if people would just come to the center....They could find out answers to a lot of questions they would have, and if we don't know we could refer them on. They just, they do not come. There may be some that don't even know about it. (S5P1)

4.3.14 Navigating the Health and Human Service System

Within discussion about lack of awareness of existing resources, participants expressed a need for support in navigating the health and human service system to find information and resources. Comments commonly described a lack of knowledge of where to access this type of

assistance, and/or the perception that local assistance does not exist for their community, a specific population, or a health topic of interest.

In Session 1, one participant noted the lack of navigational support for youth and linked this to isolation and substance use among youth. The participant described this as a thorn for substance use and mental health:

But, you know, it seems like we don't have the support. You might say, and please don't get mad at me for saying that. But you could maybe say because you're working on all this or whatever, we really have a horrible system, you know, know who to talk to, you don't know where to go. So what do you do? You sit in your room and smoke a little bit of weed. You know, and it just ain't right. It's just sad. You know, because everybody needs somebody, even to talk to, or even like this group, you know. I don't know these people, but I know some of their names and whatever. And I'm impressed with some of the things that they're saying. And it's the truth. It's just so sad what [town] has for us. It's a big dump, but nothing for kids around. (S1P6)

Another participant in Session 1 emphasized a lack of assistance for parents of youth who are using substances and seeking mental health services to navigate the system:

You know, like I said earlier, people that, that the kids who are out using, the parents. Like I said before, who's helping them? That's a heartache, you know, they'll go to psychiatrists, well help them. They probably can't afford to go to their psychiatrist, or they can't afford to go get help with their kids and stuff. And the right people to talk to, you know? (S1P7)

In Session 2, a participant described challenges in navigating mental health care and funding for health-related resources:

[There is] no direction, like as far as like a person to talk to about like grants or like, who you talk to toward like a therapist or stuff like that. (S2P3)

In Session 4, other participants described problems with getting help when finding general health information for seniors:

S4P5: So somebody there to help you do that, you know, where to call how to call who to call and talk to.

S4P6: Just not the point of finding who to call, you just don't get a person to answer on the other side. It's a robot. That's what aggravates you.

S4P1: Or talking in a language you can't even understand.

Participants also described challenges related to navigating nursing home options:

S4P4: ...So, you have to watch who's directing you and where you're going. And if you don't have any money, they'll just put you in any old place. They'll send you to [town].

...

S4P2: If there was an agency that you could actually go to that could tell you all that—

In a discussion about buds for obesity and healthy living during Session 3, one participant described existing case manager services at one facility that could be expanded:

Yeah, for doctor appointments, or just being in your house talking with you, showing you every, uh, things like how to get transportation, housing, stuff like that...And this, this is for everybody in the building, you know, you have to ask to go through that stuff. (S3P2)

Comments on lack of awareness of existing resources covered substance use, obesity and healthy living, mental health, and access to resources and healthcare. Comments represented a mixture of roses, thorns, and buds. Participants agreed with one another that the community has a lack of awareness about various health resources. A mixture of older and younger women and men commented on this theme.

4.4 Comments on the Effects of the COVID-19 Pandemic

4.4.1 Substance Use During the COVID-19 Pandemic

Participants in three sessions described an observed increase in substance use during the COVID-19 pandemic. When asked if the pandemic affected access to substance use treatment, one participant affirmed this but noted that access has recently improved:

I say yes, in the beginning because everything was shut down, couldn't go nowhere. So, people needed help but didn't have it but now everything's opened up, so I would say yes and no, that would be my answer. (S1P7)

Another Session 1 participant agreed, noting that substance use increased during stay-at-home orders: "Just like you couldn't go out nowhere. So what'd they do? They stayed in their house to do their drugs, you know what I mean?" (S1P5). In Session 2, a participant agreed: "I think substance use been higher since COVID. Because people probably weren't able to go to like groups or like NA meetings and such" (S2P3). A participant in Session 5 also agreed: "Boredom might have caused them to [use substances]" (S5P1).

One participant shared that increased availability of Narcan via mail during the COVID-19 pandemic led to improvement in harm reduction resources: "I know it made naloxone a little bit easier to take, cause you can get it through the mail" (S2P3).

In general, participants agreed that substance use increased during the COVID-19 pandemic. Older and younger men and women commented on this theme. These comments were brief.

4.4.2 Access to Resources During the COVID-19 Pandemic

Participants in two sessions discussed changing access to resources during the COVID-19 pandemic. In Session 4, participants explained that COVID-19 relief funding increased access to resources. One participant said, “Through COVID, you know, COVID paid for a lot of stuff, now they’re all getting funds” (S4P5). Other participants said that this access is now declining in some ways:

S4P1: I’ll say while the COVID was here, there was probably more access to things and now they’re taking them all away... Well, I think one thing is the food pantries and things like that, and like the access to different shots.

S4P4: And being tested, used to be able to go up to the mall and tested, and they would notify you and—

S4P1: I don’t know but I think, cause I’m not real--but I think you now get charged now if you go to the hospital to get a test.

...

S4P2: I don’t know about anybody else but... I think it’s Medicare still, paying for your home tests for COVID.

Discussion of access to resources during the pandemic also covered expenses and cost of living. In Session 2, participants explained how the cost of living in their communities increased during the COVID-19 pandemic:

S2P3: But now, like, cost of living, everything’s gone up. So even to buy healthy food—

S2P4: Everything went up, that’s crazy.

Other participants shared similar comments on prices:

AP: Then on the healthy living, has COVID affected healthy living at all, in the past couple of years?

S4P2: Well, actually, it did.

S4P1: The price [of fuel] went up.

S4P2: And everybody turned their thermostats down.

S4P5: And they freeze.

S4P1: Healthy food costs more money.

Comments on access to resources during the COVID-19 pandemic mostly occurred during Sessions 2 and 4. Mostly older women commented, although some older men and young people also spoke. Participants agreed that access to resources changed during the pandemic. However, comments on increasing vs. decreasing access varied. One participant noted that pandemic emergency relief funds previously increased capacity to purchase essential resources, and participants also said that more recent price increases and decreased resource availability have created barriers to accessing essential resources.

4.4.3 Mental Health Worsened During the COVID-19 Pandemic

In four sessions, participants shared an observed decline in mental health during the COVID-19 pandemic:

I've seen a lot of decline of mental health, the not being around social, socially, especially you know in the beginning of COVID when everyone had to stay home. I know a lot of people regressed... I feel like it's getting better now... But there's definitely some of the people that, I mean, it probably is going to be long term to like, get back to where they were... (S2P2)

Another participant agreed: "Yeah, keeping people locked up there for the longest time, school systems... It has its effect on every, every, every part of a person's life" (S3P2). Another participant said, "There was a lot of suicides" (S4P5). Another participant said, "And I do think that people who did not have anxiety or depression, when COVID hit, it made everybody go, 'ohhh,' everybody dying" (S6P1). Participants went on to say:

S6P1: Oh yeah, we're only two years out from the heat of it, so a lot of people are still wary about everything.

S6P4: Some people have the PTSD from it, it's not going to go away.

S6P1: And I mean, even you're still even talking about, there's issues getting food around and getting necessities around and that makes people anxious, and that makes people feel that they've lost any type of control, not that we have that much control over our lives

anyway, but they feel that they've lost control, they can't feed their families correctly, even to this day, or they can't get the correct necessities for their family. Because every time something goes wrong, and they say well, that's still leading down from the pandemic, we still can't get products to you, we're having shipping issues...

Participants agreed that mental health worsened during the COVID-19 pandemic. Mostly women and older people spoke, but men and younger people also commented.

4.4.4 Healthy Living Was More Difficult During the COVID-19 Pandemic

In Session 2, participants explained how healthy living worsened during the pandemic. One participant said, “Staying in the house and just wanting to, not have proper eating, just be depressed and eat, eat, eat. Can’t go anywhere, everything shut down” (S2P6).

Other participants associated weight gain with increased food purchasing using COVID-19 relief funds:

S2P2: I probably have an unpopular opinion. They gave everyone so much money for food, the same people that already still have income, they still have food stamps, and now you’re, let’s give them a ton more. And I don’t know, you just had access to buy more.

S2P3: And now it’s all taken away, ya know, since all the COVID, it’s gone, yeah.

S2P6: Grants and all that, unemployment and all that.

S2P2: But I feel like, I feel like people probably, I don’t know for a fact, but probably gained weight because...

S2P3: Oh yeah, because you were able to buy more.

S2P2: And they’re like I said, then you’re stuck in the house. So you’re, you have all this extra.

Participants generally agreed that the COVID-19 pandemic presented various challenges to healthy living. Women seemed to be more interested in this topic compared to men; younger people were more interested than older people.

4.4.5 COVID-19 Mortality and Its Effects

In three sessions, participants expressed that COVID-19 mortality affected the community. One person said, “COVID did other things, I mean, it hurt, it took our loved ones” (S1P6). Another person said, “Well, a lot of people did lose loved ones” (S6P4). In Session 5, participants agreed:

| S5P2: It changed our lifestyle, that’s for sure.
| S5P3: And a lot of people died.

Participants who spoke on this topic agreed. Women seemed to be more interested in this topic compared to men; both younger and older people commented.

4.5 Notes on Participant Comments Outside CPH/Task Force Scope of Work

Each session mentioned at least one existing organization or program that provides community health services or resources, but these generally did not repeat across sessions and seemed to be located within their municipalities. These recommendations are connected to each group’s community health priorities of choice. Some sessions identified topics outside CPH’s and the Task Force’s scope of work, or participants made isolated comments unrelated to themes across the sessions.

In Session 1, a few participants described inadequate responses to overdoses by local authorities. Four participants discussed lack of discipline in schools related to substance use and bullying. One of these participants also commented on societal perceptions of people committing crimes due to mental health issues and politicians’ decisions that increased opportunities for “outsiders” to bring substances into the area. Another of these participants commented on schools’

choice to stop asking students to say the Pledge of Allegiance, the changing types of substances that youth may be using, and a desire for President Biden to dress in casual clothing to appear more relatable. A third participant described schools' ignorance of/refusal to acknowledge substance use among students, the need for greater focus on federal domestic policy for substance use as opposed to international aid, and individual motivations to stop misusing substances. Another participant briefly commented on the futility of helping people who are struggling with alcohol addiction. One participant said that people use substances to self-regulate emotions. A participant also shared a personal story regarding their use of telehealth services during the COVID-19 pandemic.

In Session 2, one participant said that the community focuses more on medication than prevention. This participant and two others briefly discussed the accessibility of downtown Johnstown for wheelchair users. They also shared examples of community organizations that provide resources, including the library, a medical supply center, and a peer resource referral program. These three participants also recommended actions for police to take, including conducting community outreach and completing mental health/substance use crisis training. This group briefly discussed minimum wage policy, medication-assisted treatment for incarcerated persons, and the experiences of people who use medications from a "dispensary" instead of using "hard drugs."

In Session 3, a participant mentioned taking prescribed medications and maintaining personal hygiene as healthy behaviors, lack of proper sleep among people in the community, individual limitations for physical exercise, a lack of locally available medical services for a specific condition, limitations on services due to health insurance policies, home physical therapy, a local ER being overwhelmed, the relationship between food prices, gas prices, and vendors

setting prices, and the idea that COVID-19 was the main reason why President Biden was elected. In this session, this participant spoke disproportionately more than the other participants.

In Session 4, participants briefly mentioned home physical rehabilitation for seniors. One person described a federal policy to reduce prescription drug prices. Another participant described an association of lack of sun exposure with type 2 diabetes. Three people discussed supply chain issues with furniture and cars that they attribute to the COVID-19 pandemic. A few participants listed behaviors like exercise, taking vitamins, and healthy eating as methods to promote mental and physical health. The group discussed scams against seniors. The group also discussed health technology. One participant discussed eliminating real estate tax after age 65. Another participant described how elderly people could not access the DMV during the COVID-19 pandemic to re-take driving tests.

In Session 5, participants described a previous, unsuccessful attempt to create a local substance use center. Some participants described not having local police to address substance use, how winter weather prevents people from leaving their homes, and the poor water quality from the town water supply. The group also described understaffing across businesses due to younger people's lack of motivation to seek employment.

In Session 6, one participant mentioned that a local ER was overwhelmed and commented on the conduct of health insurance call center workers. This participant also described reduced stigma related to taking medication for mental health, a problem with workplace violence against healthcare workers, and an observation of general practitioners leaving Pennsylvania due to expensive malpractice insurance. This participant spoke disproportionately more than other participants. Another participant commented on the duration of primary care appointments. Participants also briefly discussed the quality of Medicare and the parts of Medicare, as well as

“invisible” disabilities and healthcare workers’ perceptions of people who are seeking pain medication for chronic pain. A participant also shared a personal story regarding their use of telehealth services during the COVID-19 pandemic.

In each session, unprompted, participants shared comments regarding their own health or anecdotes about specific people who were not present during the session. Because this information was not requested and is not relevant to the community-level focus of this evaluation, this information is omitted from the analysis. During Sessions 1, 2, and 3, a notetaker attended and briefly exchanged comments with participants, unprompted by the evaluator. During Session 3, a CPH staff member attended and, in one instance, shared program information during the session in response to a participant’s comments, unprompted by the evaluator. During Session 4, a person who was not a participant briefly interrupted the session and shared health information. These comments are omitted from this evaluation. During Sessions 4, 5, and 6, a staff member of the host organization made a few comments. This staff member was not a participant and did not sign a consent form, so these comments are omitted.

4.6 Visualize the Vote: Community Health Priorities Identified

Priorities differed by session based on the discussion topic(s) chosen, but similar priorities arose across multiple sessions. The evaluator categorized these priorities into topic areas, displayed in Table 5. The evaluator defined short-term priorities as immediate and urgent. The evaluator defined long-term priorities as important issues that would require more effort, resources, and time to address.

Table 5 Short- and Long-term Priority Topics From Listening Sessions

<u>Short-Term Priority Topics</u>	<u>Long-Term Priority Topics</u>
Address substance use Help parents prevent substance use in children	Address substance use
Address mental health	Address mental health
Provide community-centered health care	Increase in-home healthcare services and seniors' health programs
Increase ease of healthcare access	Improve healthcare service wait times and health insurance coordination
Increase community capacity to build friendships	Increase opportunities for community interaction and community outreach
Lower prices/improve access to essential resources: food, gas, medications, heating	Reduce cost of living Increase home food delivery
Provide support/community health workers for diabetes	Address heart problems
Improve transportation and travel infrastructure	
Increase community knowledge of resources	
Provide job training to the community	

4.7 Notes on Priorities Identified Outside CPH/Task Force Scope of Work

Some priorities identified were outside CPH's and the Task Force's scope of work.

Session 1: One person recommended prioritizing solutions to problems with schools that are not addressing substance use or allowing people who are in recovery to speak to students in assemblies or other school events.

Session 4: One participant chose “the roads; problems with speeding; the weather.” One participant said, “It will take years to fix the Communist government.” One participant said to focus on climate change. One participant asked for a “cure for diabetes.” One participant asked for a “car that ride on the back speed [sic].” One participant said to prioritize “true freedom!” Three participants recommended a priority of reducing taxes, and two recommended a focus on reducing prescription drug prices.

Session 6: One participant chose “organization of insurances.” One participant chose “better wait time in Doc visit/ER.” Two participants recommended a focus on bullying in schools.

In three sessions, some participants said that all topics discussed during the session were important, therefore refusing to identify a short-term or long-term priority. This occurred during the following sessions:

- Session 1 (Cambria County): Substance use, mental health, access to resources
- Session 3 (Cambria County): Obesity and healthy living
- Session 4 (Somerset County): Access to resources, obesity and healthy living, and mental health

5.0 Discussion

This program evaluation assessed CPH's and the Task Force's community health outreach. The project created an opportunity for agency leadership to learn about community health assets, challenges, and opportunities for growth directly from community members, with consideration of the social determinants of health and health equity. Community members shared feedback on existing public health outreach and resources in Cambria and Somerset Counties. Their comments are more nuanced and detailed than the qualitative data previously reported in the 2022 CHNA.

5.1 Public Health Implications

As of November 2023, Cambria County and Somerset County do not have county or municipal health departments. This evaluation indicates a need for stronger local public health infrastructure to establish sustainable programs and services, which CPH and the Task Force could create with increased funding and staff. Considering CPH and the Task Force's experience and history of working in these communities, the organizations and their partners have great potential to fill this gap.

5.2 Comparing Themes Across Sessions With CPH’s Existing Programs and 2022 CHNA Findings

The 2022 CHNA focus groups/interviews report summarized, paraphrased comments about general community health concerns, as well as those facing seniors, children, medically underserved/low-income populations, and “minority” populations. (Note: The report does not define “minority” in terms of race/ethnicity, gender, sexual identity, or other characteristics.) Program evaluation participant comments contextualize the 2022 CHNA focus group/interview findings with greater nuance and detail. See Table 6 for a summary of themes addressed in the 2022 CHNA, 2023 listening sessions, and CPH programs as of summer 2023.

**Table 6 Summary of Themes Addressed in 2022 CHNA, 2023 Listening Sessions, and CPH Programs as of
Summer 2023**

<u>2022 CHNA</u>	<u>2023 Listening Sessions</u>	<u>CPH Programs</u>
Lack of transportation*	Transportation benefits and challenges	No transportation program
Food insecurity, food deserts, lack of healthy food*	Food access	Current food systems coordination programs
Obesity and healthy living	Exercise and healthy living	No exercise program
Poverty*	Expenses and high cost of living	No program specific to cost of living; food systems program provides low-cost/free produce, promotes SNAP collaborative program
Mental/behavioral health	Mental health	No mental health program
Substance use	Substance use	No substance use program; collaborates with Cambria County partners focused on substance use
Early childhood	Child and adolescent health and parenting	Current CHW perinatal health program; no program focused on child and adolescent health
Seniors' health concerns*	Healthy aging	CHW program for people with diabetes; no program on healthy aging
Barriers related to health & human service system navigation and infrastructure*	Communications, outreach, and navigation	Existing role as convener of community-based organizations; opportunity for expansion
Community health effects of the COVID-19 pandemic*	Effect of the COVID-19 pandemic	Facilitates Cambria-Somerset COVID-19 Task Force

*Topic was included in the 2022 CHNA focus group/interview data, but was not independently listed among the seven main priorities of the 2022 CHNA

Please note: The 2023 listening sessions provide greater detail and nuance on each theme, compared with the information presented in the 2022 CHNA report. The specifics of these comments are summarized in the discussion section.

5.2.1 Transportation

The 2022 CHNA focus groups/interviews listed “lack of transportation” as a community health concern for children and adults, especially for seniors and medically-underserved/low-income populations (Center for Population Health et al., 2022). Program evaluation participants discussed transportation in greater detail and described benefits and challenges related to specific destinations, locations, and rider demographics. Benefits related to existing senior transportation systems’ availability. Barriers included lack of personal vehicles, public transportation, and van ride services for trips for adults to exercise, access AA/NA meetings, and access care in a crisis. Participants said lack of public transportation was pronounced in rural areas. Comments indicate that public transportation schedules with infrequent stops, transportation rider age requirements, and scheduled, demand-response-style transit systems may be inadequate. These findings are consistent with reports of differing transportation barriers and needs by demographics in other rural areas (Akinlotan et al., 2023; Mattson & Mistry, 2022; National Academy of Sciences, 2021; Syed et al., 2013; USDA Economic Research Service, 2021). Most comments on transportation barriers described Cambria County transportation to medical and non-medical destinations. This may relate to Cambria County’s disproportionately high loss of transportation industry sector jobs since the Great Recession (Baker et al., 2021; Center for Rural Pennsylvania, 2020). Community members clearly find transportation for health-related trips important. These comments fall under the 2022 CHNA priority of “access to social determinant of health needs/healthcare,” but the 2022 CHNA did not list transportation as a distinct, major community health priority. CPH does not have a transportation program. Future programming and local coalition building should focus on transportation access for people in both metro and rural areas of both counties, especially for younger to middle-aged adults and for health-related trips other than medical or dental

appointments (such as grocery shopping or traveling to exercise). Solutions will likely require collaboration with local transportation authorities.

5.2.2 Food Access

The 2022 CHNA focus groups/interviews listed food insecurity, food deserts, and lack of healthy food as concerns facing the general community and “minority” populations (Center for Population Health et al., 2022). Listening session participants addressed food access in greater detail, describing specific supports, barriers, and opportunities for growth. Barriers included grocery store closures, expense, and lack of available food. Supportive resources included farmer’s markets, food bank distributions, senior center lunches, and school food distributions. Opportunities for growth included food delivery programs and expansion of food bank capacity. Some of these factors (e.g., grocery store closures) arose after the 2022 CHNA was concluded. These comments align with reports on the impact of food insecurity in rural Pennsylvania and data on types of food vendors in rural areas (Feng et al., 2023; Mckie et al., 2022; Pinard et al., 2016). The listening session feedback also reflects the interconnected relationship of food access, proximity/availability of food vendors, and finances/income/poverty in rural areas (Byker Shanks et al., 2022; Darmon & Drewnowski, 2015; Evans et al., 2015; Grimm et al., 2013; Ohri-Vachaspati et al., 2019). These comments fall under the 2022 CHNA priority of “access to social determinants of health needs/healthcare.” CPH’s food systems programs will likely remain important and relevant to the community. Future programming and local coalition building should focus on year-round food access for both counties, especially in areas affected by grocery store closures and areas that are served by seasonal farmer’s markets. CPH should assess the capacity of food banks and other existing community-based food distribution programs. CPH should also

further advertise existing resources and consider creative interventions, such as onsite food delivery programs for housing complexes or other community locations.

5.2.3 Exercise and Healthy Living

The 2022 CHNA focus groups/interviews said that outdoor activity access has improved in recent years, and the report listed chronic illnesses as major health concerns for children, “minority populations,” and the general community (Center for Population Health et al., 2022). Program evaluation participants discussed existing resources and barriers to exercise for youth, seniors, and adults in general. Barriers included expensive facility entry fees, waitlists, and transportation barriers. Resources included existing group exercise programs for seniors and youth, as well as outdoor recreation locales. These comments align with reports of worse rural health and mortality outcomes compared to those of urban areas (Abrams et al., 2021; CDC, 2018; Curtin & Spencer, 2021; Rural Health Information Hub, 2022). In addition, the listening session feedback is consistent with the disproportionate burden of rural poverty statewide and nationwide (USDA Economic Research Service, 2021; USDA Economic Research Service, 2023, Oct. 25) and with reports of rural transportation barriers (Henning-Smith et al., 2017; Mattson & Mistry, 2022; National Academy of Sciences, 2021), which can limit rural residents’ ability to access exercise spaces/facilities. However, participants noted that some existing communal and outdoor exercise programs provide supportive resources and opportunities for exercise to some Cambria and Somerset County communities. These topics fall under the 2022 CHNA priority of “obesity and healthy living.” CPH does not have an exercise program. Future programs related to exercise and healthy living should address barriers to exercise described in these sessions (such as exercise facility entry fees, waiting lists, and transportation barriers). Programs could include onsite,

community-based programming with incentives (to address transportation barriers, cost-related barriers, and low participation) and community-led exercise programming that increases a sense of ownership of the program (to address low participation). CPH could also offer gym membership or pool/waterpark vouchers, expand existing community-based group exercise programs, and increase advertisement of existing exercise resources within communities.

5.2.4 Expenses and High Cost of Living

The 2022 CHNA focus groups/interviews listed poverty as a major community health concern, especially for medically-underserved/low-income and subsidized housing populations (Center for Population Health et al., 2022). However, the 2022 CHNA did not discuss high prices. Program evaluation participants described high prices of essential resources (specifically food and water) as a barrier to healthy living. This topic falls under the 2022 CHNA priorities of “access to social determinant health needs/healthcare” and “socioeconomics/job training.” Comments on expensive essential resources in Cambria and Somerset Counties are consistent with national and statewide findings on the disproportionate burden of poverty and lower economic mobility in rural areas (Baker et al., 2021; Center for Rural Pennsylvania, 2020; County Health Rankings & Roadmaps, 2023b; USDA Economic Research Service, 2021; USDA Economic Research Service 2023, Jun. 16; USDA Economic Research Service, 2023, Oct. 25). CPH’s food access program coordinates provision of low cost or free produce at farmer’s markets and advertises a SNAP collaborative program, but CPH programs do not address high cost of living. Future programs could better advertise resources for reduced-price or free social determinant of health-related resources and fold this into community outreach work. Future programs should also address the

intersection of high food prices, limited access to healthy food, physical health, and stress/mental health, as the participants described, and seek to ameliorate related disparities.

5.2.5 Mental Health

The 2022 CHNA focus groups/interviews described mental health as a concern for “minority” populations and the community overall, specifying “depression, anxiety, anger” and “lack of resources” as topics of concern (Center for Population Health et al., 2022). Program evaluation participants shared comments about mental health in greater detail. Comments on existing resources described formal and informal mental health community support within community organizations and among individuals. Barriers included long wait times for mental healthcare appointments. Opportunities for growth described future support groups, such as a group for menopausal women. These fall under the 2022 CHNA priority of “mental health/behavioral health.” Comments on long mental healthcare wait times align with other reports of geographic disparities in mental healthcare access (Andrilla et al., 2018; Kepley & Streeter, 2018; Morales et al., 2020). Recent healthcare industry job loss, which Cambria County experienced in excess from 2008-2019, may have contributed to this disparity (Baker et al., 2021; Center for Rural Pennsylvania, 2020). National data indicates a disproportionate burden of suicide in rural areas (CDC, 2023, Apr. 21; Wang et al., 2022), and the 2022 CHNA reported CDC data showing the 2020-2022 Cambria and Somerset County suicide rates were above PA and U.S. rates (Center for Population Health et al., 2022). However, listening session comments only mentioned suicide once, in the context of the effects of the COVID-19 pandemic. More investigation may be needed to describe the community’s views on suicide and the potential influence of stigma that may deter discussion of suicide. CPH does not have a mental health program. Future coalition-

building should engage mental healthcare providers to determine the current state of waiting lists and determine next steps for increasing access to care. Future programs should also focus on expanding or creating peer support groups and community-level interventions, as participants suggested.

5.2.6 Substance Use

The 2022 CHNA focus groups/interviews listed substance use as a concern for “minority” populations, medically-underserved/low-income populations, and the community overall. They related substance use to mental health (Center for Population Health et al., 2022). Program evaluation participants shared observations of community substance use and overdose, and they described geographic variations in availability of treatment and preventive resources. Program evaluation participants also described the relationship between substance use and mental health. These comments align with the 2022 CHNA priority of “substance use.” These comments are consistent with national data, which indicates significant and growing rates of drug overdose in rural areas that is comparable to rates in urban areas, and statewide data that shows higher overdose rates in rural Pennsylvania compared with urban areas (Center for Rural Pennsylvania, 2023; Mack et al., 2017; Spencer et al., 2022). Comments on limited rural Narcan access and limited rural treatment options align with national and statewide reports (Bommersbach et al., 2023; Bond Edmond et al., 2015; Center for Rural Pennsylvania, 2023; Corry et al., 2022). A Cambria County-based partner organization has distributed Narcan at Cambria County community health events co-organized with CPH. Otherwise, CPH does not have a substance use-focused program. CPH could partner with other organizations to increase Narcan distribution in Somerset County, given that CPH’s service area includes Somerset County. In response to participant comments, future

programs should address the intersection of substance use and mental health, while equitably serving participants with mental health needs exclusive of those related to substance use.

5.2.7 Child and Adolescent Health and Parenting

The 2022 CHNA focus groups/interviews listed children’s health concerns, including dysfunctional households, lack of structure and supervision, juvenile diabetes, mental health (specifically anxiety), lack of counselors in schools, lack of resources, disability, and lack of access to LGBTQ healthcare (Center for Population Health et al., 2022). Program evaluation participants discussed the need to improve parenting, the lack of resources to promote wellness, concerns about child/adolescent mental health, and concerns about child/adolescent substance use. Some of these comments fall under the 2022 CHNA priority of “early childhood.” Other comments focused on older children and teens. These comments are consistent with national and statewide reports of disparities in mental health, substance use, and healthcare access for rural children and adolescents (Bettenhausen et al., 2021; Fontanella et al., 2015; Graves et al., 2020; Health Research & Services Administration, 2020; Miron et al., 2019; Nance et al., 2010; Probst et al., 2018; Rural Health Information Hub, 2023, Jun. 28; Svistova et al., 2022; Wiggins et al., 2019). Other than a CHW perinatal health program, CPH does not have a program focused on child and adolescent health. Future programs could focus on preventing adolescent substance use, improving child and adolescent mental health, and promoting child and adolescent wellness. Programs could also provide information and resources for parents.

5.2.8 Healthy Aging

The 2022 CHNA focus groups/interviews listed health concerns for seniors, including unaffordable healthcare and medications, socioeconomic concerns, isolation, lack of access to care, deteriorating health/chronic conditions, and unequipped grandparents raising grandchildren (Center for Population Health et al., 2022). Program evaluation participants described factors affecting older adults' health. Barriers and challenges included isolation, poor senior care facility quality, long nursing home waiting lists, and high assisted living facility costs. Opportunities for growth included the need for more healthy aging programs and the need to expand programs' capacity to effectively serve the growing population of older adults. Some of these comments fall under the 2022 CHNA priority areas of "access to social determinant of health needs/healthcare" and "obesity and healthy living," but they may be better described as a new category: "healthy aging."

Comments on the need for healthy aging programs are consistent with literature on rural disparities in poverty (USDA Economic Research Service, 2021; USDA Economic Research Service, 2023, Oct. 25), health outcomes (Burns & Kakara, 2018; CDC, 2018; Cohen & Greany, 2023; Watson et al., 2020; Lang et al., 2022; Loccoh et al., 2022; Moreland et al., 2020; Rahman et al., 2020; Rural Health Information Hub, 2022; Singh et al., 2019), mental health (Andrilla et al., 2021), and healthcare access (American Hospital Association, 2022; Germack et al., 2019; Frazee et al., 2022; Johnston et al., 2019; Liu & Wadhera, 2022). The comment on older adult isolation reflects national reports on prevalence, but stark geographic disparities in older adult isolation and loneliness do not exist at the national level (Henning-Smith et al., 2019; Lynch et al., 2021). However, the literature notes that disparities in loneliness and isolation can exist within rural areas, and risk factors related to other rural disparities may create barriers to social interaction

for rural older adults (Andrilla et al., 2021; Henning-Smith, 2020; Henning-Smith et al., 2019; Mattson & Mistry, 2022; National Academy of Sciences, 2021).

Comments on poor quality of senior care facilities in rural areas align with national data, although this does not indicate a rural disparity (Rural Policy Research Institute, 2022). Comments on this topic were limited and did not discuss specific factors contributing to poor quality of care facilities. Comments on the impact of costly senior living facility services align with evidence of disproportionate rural poverty rates across the U.S. and Pennsylvania (USDA Economic Research Service, 2021; USDA Economic Research Service, 2023, Oct. 25). Comments on nursing home wait lists also align with the literature (Henning-Smith et al., 2018; Miller et al., 2023). Additional evaluation could assess the availability of senior living facilities and older adult care across Cambria and Somerset Counties, to develop effective referral programs and identify gaps in services. However, state and/or federal policy change may be necessary to truly address barriers to senior living facility care in rural areas.

Other than the CHW program for people with diabetes and Highmark Wholecare insurance, CPH does not have a program for older adults and healthy aging. Future local coalition-building could center partners' focus on healthy aging and advocate for policy change. Future programs could address older adults' social determinant of health needs (especially related to transportation and housing referrals/access), increase opportunities for social interaction, and promote available resources at senior centers.

5.2.9 Communications, Outreach, and Navigation

The 2022 CHNA focus groups/interviews listed several factors related to health communications, outreach, and navigation, but the assessment did not organize these comments

into a specific theme or list this theme as a separate community health priority. The 2022 CHNA described an overall “lack of education” in the community and listed misinformation as a concern. The 2022 CHNA also described systemic issues, such as “people falling through the cracks,” “multiple duplications of resources,” and a need for “better management of non-profits.” For medically-underserved/low-income populations, the 2022 CHNA listed concerns of “lack of life skills,” distrust of healthcare, lack of information on physical health/chronic illness, and lack of desire for education. Gaps in the social safety net, including language and cultural barriers, are a concern for marginalized populations, according to the 2022 CHNA (Center for Population Health et al., 2022).

Program evaluation participants added more nuance and context to this theme. Comments highlighted a need for improved outreach and advertisement from health and human service organizations, due to community members’ lack of awareness of existing health and human service resources and where to find navigational support. These comments fall under the 2022 CHNA priority of “access to social determinant of health needs/healthcare.” They also relate to all 2022 CHNA priorities, as well as health topics covered during the listening sessions. These comments are consistent with the lack of community engagement/outreach, poor patient engagement, and barriers related to navigating the healthcare system in rural areas described in the literature (Cyr et al., 2019).

Due to the breadth and variety of the communication-related themes in participants’ comments, as well as their application to a wide variety of health topics and populations, CPH and partner organizations should improve community outreach and communication about existing resources. Communication should address social determinant of health resources, as well as topics identified in this evaluation. Specific topics should include job searching, harm reduction for

substance use, success stories of substance use recovery, substance use treatment and recovery resources, food access (e.g., SNAP, farmer's market), children's activities and resources, exercise and weight loss programs, senior center resources, and mental healthcare resources/funding. Specific audiences/populations should include seniors, parents, and youth, as well as the general adult population. In particular, healthcare systems and organizations that assist with navigating the health and human service system should conduct more outreach to assess community needs and advertise relevant services. Future CPH programs should focus on timely, consistent, accessible, community-centered communication, as well as continued dialogue with program participants and other community members. These comments also indicate that the community would likely be interested in future iterations of CPH's CHW programs, health fairs, and related community outreach. Expansion of the CHW resource referral programs to serve additional populations and address new health goals, as determined by this evaluation, would likely be effective.

5.3 Roses, Thorns, and Buds

Across sessions (except for Session 1), most comments were either roses or thorns. This indicates that participants identified existing community health resources available to them, and they identified existing challenges and barriers related to their community health topic(s) of choice. Participants in each session also identified buds, or opportunities for growth, related to the health topic(s) they chose. CPH and partner organizations likely will need to partner with community members in a collaborative solutions design process. CPH may find human-centered design methods useful in facilitating discussions with community members and agency decision-makers.

5.4 Comparing Participants' Priorities With 2022 CHNA Priorities

5.4.1 Short-Term Priorities

Based on results from the Visualize the Vote activity, participants' short-term priorities reflect the common themes of discussion. Some of these priorities align with the 2022 CHNA priority areas of substance use, access to social determinant of health needs/healthcare, mental health/behavioral health, socioeconomics/job training, early childhood, and obesity and healthy living. Some of the participants' priorities do not align with a 2022 CHNA priority area; these represent the discussion themes of advertising, promotion, and outreach from organizations, formal and informal mental health community support, and child and adolescent health needs/parenting.

5.4.2 Long-Term Priorities

Based on results from the Visualize the Vote activity, participants' long-term priorities reflect the common themes of discussion. Some of these priorities align with the 2022 CHNA priority areas of substance use, mental health/behavioral health, access to social determinant of health needs/healthcare, and socioeconomics/job training. One participant long-term priority, "increase opportunities for community interaction and community outreach," represents the discussion themes of formal and informal mental health community support and advertising, promotion, and outreach from organizations. One participant long-term priority, "address heart problems," may be outside the scope of CPH's work, if this priority directs CPH to treat existing

heart problems. The priority “improve healthcare service wait times and health insurance coordination” is outside the scope of CPH’s work.

5.5 Discussion of Comments on COVID-19

The 2022 CHNA listed community health effects of COVID-19, including worsening mental health, isolation, substance use setbacks, education inequities, unreported child abuse, increased technology use, unmet nutrition needs, postponed dental visits, harmful effects on businesses, and an overwhelmed medical system (Center for Population Health et al., 2022). Across program evaluation sessions, participants also related the COVID-19 pandemic to their community health discussion topic(s) of choice, with similarities and differences compared to the 2022 CHNA. Across program evaluation sessions, participants described how certain health outcomes and behaviors, including substance use, mental health, eating non-nutritious food, and weight gain, may have worsened during the early days of the pandemic, when stay-at-home orders were in place in Pennsylvania. Participants also described how COVID-19 relief funding improved access to resources, but participants noted that access to other resources (such as COVID-19 vaccines and tests) is changing or becoming more difficult today. Other participants described how the cost of living has skyrocketed during the COVID-19 pandemic. A few participants also described COVID-19 mortality and its effect on the community in the form of grief and loss. There were also two mentions of COVID-19 vaccine hesitancy/regret. As no participant or group chose to focus on COVID-19 as a main discussion topic, the comments indicate that these communities may not view COVID-19 as a major health priority, despite continued transmission and the ranking of COVID-19 among the top causes of death in the United States.

Comments on COVID-19's effect on rural areas reflect disproportionate hospitalizations and mortality rates in rural areas across the U.S. (Anzalone et al., 2022; Tan et al., 2020). Comments on worsened mental health during stay-at-home orders align with national findings, but this does not indicate a rural disparity. Overall, there was an eight-fold increase in U.S. adults' likelihood of experiencing serious mental distress in April 2020, compared to 2018 data (Twenge & Joiner, 2020). Urban residents were more likely to report worsening anxiety (28.8%) than rural residents (23%) in 2020, and there was no significant geographic difference in likelihood of worsening depression at this time (Danek et al., 2023).

Comments on worsened substance use during the initial stage of the COVID-19 pandemic reflect national data, again without indicating a rural disparity. The National Center for Health Statistics estimated a 28.5% increase in drug overdose deaths when comparing data from April 2019-April 2020 to data from April 2020-April 2021 (CDC, 2021). National data for 2020 indicates a higher drug overdose death rate in urban counties (28.6 per 100,000), but rural counties experienced a similar overdose death rate (26.2 per 100,000) (Spencer et al., 2022).

Comments on changes in diet during the early COVID-19 pandemic align with national data. In June 2020, over half of U.S. adult respondents reported an increase in consuming unhealthy snacks/desserts during the pandemic (Park et al., 2022). While it is unclear whether there was a geographic difference in dietary habits, people experiencing lower household income reported higher consumption of unhealthy foods (Park et al., 2022). Given the disproportionate impact of rural poverty (USDA Economic Research Service, 2021), rural areas may have experienced greater consumption of unhealthy food during stay-at-home orders. In addition, comments on weight gain during the pandemic reflect national data. In a national survey of adults,

48% of respondents reported gaining weight during the COVID-19 pandemic, and 52% of respondents who gained weight lived in a rural area (Khubchandani et al., 2022).

Comments on rising costs during the COVID-19 pandemic align with national reports of rising inflation. Inflation may increase the cost of living faster for rural Americans, due to differences in costs of keeping a car, obtaining food, accessing healthcare, and maintaining heating and cooling systems (Weiler & Conroy, 2023). However, assessing geographic differences in the impact of inflation is challenging, because the Bureau of Labor Statistics only considers urban populations when determining the consumer price index (Weiler & Conroy, 2023).

Comments on changes in access to COVID-19 vaccines and tests during summer 2023 are hyper-local and too recent to compare with national existing literature at the time of this writing.

In future programming, CPH should consider the effects of the COVID-19 pandemic on other community health topics as the participants described, as well as this population's health literacy needs regarding COVID-19 information. The comments on changing access to COVID-19 vaccines and tests may indicate a need for the COVID-19 Task Force to develop new strategies in providing access to these resources, as federal policies change.

5.6 Challenges and Limitations

Most of the participants were not of childbearing age, so this could have skewed the focus of the data away from discussions of topics like CPH's perinatal health CHW program and the 2022 CHNA early childhood priority area. Some participants requested a virtual session, but the evaluator was not able to ascertain whether they were truly community members or not. The evaluator did not hold a virtual session, and this could have excluded community members who were unable to access the in-person sessions. Sessions were held during the day due to space availability, which may have excluded some potential participants who work during the day. During the Rose, Bud, Thorn activity, some participants who disagreed with others' comments may have been influenced to agree or abstain from commenting, due to groupthink (Dimitroff et al., 2005, cited in Fusch & Ness, 2015, p. 1410), which may have limited the variety of comments shared. The evaluation's findings from the Affinity Clustering activity are less robust, because the evaluator clustered the participants' comments with participant feedback, rather than asking the participants to cluster all factors themselves. The latter was not feasible for this population. The application of the Visualize the Vote activity may have introduced some bias in the participants' answers. Some participants did not understand the activity, and the evaluator had to provide examples of potential answers. This may have led participants to write down the example provided as their answer. The evaluator was the single coder for this thematic analysis, which limits the variety of perspectives of the data and the number of interpretations.

6.0 Conclusion

This program evaluation explored the community health views of adult residents of Cambria and Somerset Counties and how these views contextualize the 2022 Community Health Needs Assessment findings. The findings identified how adult residents of Cambria and Somerset Counties perceive COVID-19 among community health priorities. The evaluator used human-centered design methods to facilitate six listening sessions with 46 total participants. Participants were adults who reside in Cambria and Somerset Counties.

Participants identified existing resources, present challenges/barriers, and opportunities for growth related to community health topics of their choice. The evaluator used practical thematic analysis to describe themes within the comments. Across sessions, themes related to transportation, food access, exercise and healthy living, cost of living, mental health and community support, substance use, child/adolescent health, parenting, healthy aging, community outreach, advertisement of resources, and navigating the health and human service system. Participants discussed community health in the context of the COVID-19 pandemic, and they identified short-term and long-term community health priorities. Participants enjoyed participating in the listening sessions; some expressed that this was a form of community for them or that they learned valuable information.

The evaluator recommends that CPH continue to use the 2022 CHNA as a guiding document for future program design, with consideration to this evaluation's findings. Participants' comments highlight nuances within the 2022 CHNA report that should inform CPH's program planning. CPH should devote particular attention to the themes of communications, outreach, and health and human service system navigation, which were not prioritized in the 2022 CHNA.

Quality communication, outreach, and navigational support are foundational to resource access. In addition, future CPH programs should address the other themes of this evaluation that were not independently listed among the main 2022 CHNA priorities, namely food access, expenses/high cost of living, transportation, older child/adolescent health, and healthy aging. Programs related to mental health, substance use, and exercise/healthy living will also remain important. Wherever possible, CPH should use participant suggestions for new programs/interventions.

CPH and the COVID-19 Task Force should consider the COVID-19 pandemic's lasting effects on community health/social determinants of health. Future programs should address this population's health literacy needs and equitably improve access to COVID-19 vaccines, testing, and other COVID-19-related resources while COVID-19 remains a public health issue of concern.

At present, Cambria and Somerset Counties lack county health departments. CPH has an opportunity to fill the gaps and act as a grant-seeker, coalition-builder, and advocate for rural health promotion. CPH should bolster the local public health workforce and employ systems thinking principles to address social determinant of health needs. The evaluator recommends that CPH should create and use logic models for future community outreach programs. CPH should continue to consistently involve agency decision makers and community members in program development and implementation, using human-centered design methods as appropriate.

Appendix A Consent Form

Please visit D-Scholarship@Pitt to view the consent form that all participants signed before participating in a listening session. The document is available at this link: <https://d-scholarship.pitt.edu/45592/3/Listening%20Session%20Participation%20Consent%20Form.docx>

Appendix B Demographic Survey Form

Please visit D-Scholarship@Pitt to view the voluntary, anonymous demographic survey form that participants were asked to complete as part of the listening sessions. The document is available at this link:

<https://d-scholarship.pitt.edu/45592/1/Listening%20Sessions%20Information%20Form.docx>

Bibliography

- 1889 Jefferson Center for Population Health. (2021). *Annual report*.
<https://www.centerforpophealth.org/wp-content/uploads/2022/02/2021-Annual-Report-small-file.pdf>
- Abrams, L. R., Myrskylä, M., & Mehta, N. K. (2021, December). The growing rural–urban divide in US life expectancy: contribution of cardiovascular disease and other major causes of death, *International Journal of Epidemiology*, 50(6), 1970-1978.
<https://doi.org/10.1093/ije/dyab158>
- Akinlotan, M., Khodakarami, N., Primm, K., Bolin, J., & Ferdinand, A. O. (2023). Travel for medical or dental care by race/ethnicity and rurality in the U.S.: Findings from the 2001, 2009, and 2017 National Household Travel Surveys. *Preventive Medicine Reports*, 35, 102297. <https://doi.org/10.1016/j.pmedr.2023.102297>
- American Hospital Association. (2022). *Fast facts: U.S. rural hospitals*. [Infographic]. AHA.org.
<https://www.aha.org/infographics/2021-05-24-fast-facts-us-rural-hospitals-infographic>
- Anderson, M. C., Evans, E., Zonfrillo, M. R., & Thomas, K. S. (2021). Rural/urban differences in discharge from rehabilitation in older adults with traumatic brain injury. *Journal of the American Geriatrics Society*, 69(6), 1601-1608. <https://doi.org/10.1111/jgs.17065>
- Andrilla, C. H. A., Patterson, D. G., Garberson, L. A., Coulthard, C., & Larson, E. H. (2018). Geographic variation in the supply of selected behavioral health providers. *American Journal of Preventive Medicine*, 54(6 Suppl 3), S199-S207.
<https://doi.org/10.1016/j.amepre.2018.01.004>
- Andrilla, C. H. A., Garberson, L. A., Patterson, D. G., Quigley, T. F., & Larson, E. H. (2021). Comparing the health workforce provider mix and the distance travelled for mental health services by rural and urban Medicare beneficiaries. *The Journal of Rural Health*, 37(4), 692–699. <https://doi.org/10.1111/jrh.12504>
- Anzalone, A. J., Horswell, R., Hendricks, B. M., Chu, S., Hillegass, W. B., Beasley, W. H., Harper, J. R., Kimble, W., Rosen, C. J., Miele, L., McClay, J. C., Santangelo, S. L., Hodder, S. L., & National COVID Cohort Collaborative (N3C) Consortium (2022). Higher hospitalization and mortality rates among SARS-CoV-2-infected persons in rural America. *The Journal of Rural Health*, 39(1), 39-54. <https://doi.org/10.1111/jrh.12689>
- Austin, E. W., Austin, B. W., Willoughby, J. F., Amram, O., & Domgaard, S. (2021). How media literacy and science media literacy predicted the adoption of protective behaviors amidst the COVID-19 pandemic. *Journal of Health Communication*, 26(4), 239-252.
<https://doi.org/10.1080/10810730.2021.1899345>

- Baah, F. O., Teitelman, A. M., & Riegel, B. (2019). Marginalization: Conceptualizing patient vulnerabilities in the framework of social determinants of health-An integrative review. *Nursing Inquiry*, 26(1), e12268. <https://doi.org/10.1111/nin.12268>
- Baker, S. J., Alter, T. R., Fuller, T. E., & Martino, N. C. (2021). *Employment change in Pennsylvania industries: A statewide and countywide graphic update: 2001-2019*. Center for Economic and Community Development, College of Agricultural Sciences, The Pennsylvania State University. https://aese.psu.edu/research/centers/cecd/publications/economic-trends/psu-ceed_emp-chg-in-pa-indust-2001-2019_nov2021.pdf
- Bettenhausen, J. L., Winterer, C. M., & Colvin, J. D. (2021). Health and poverty of rural children: An under-researched and under-resourced vulnerable population. *Academic Pediatrics*, 21(8S), S126-S133. <https://doi.org/10.1016/j.acap.2021.08.001>
- Bommersbach, T., Justen, M., Bunting, A. M., Funaro, M. C., Winstanley, E. L., & Joudrey, P. J. (2023). Multidimensional assessment of access to medications for opioid use disorder across urban and rural communities: A scoping review. *The International Journal on Drug Policy*, 112, 103931. <https://doi.org/10.1016/j.drugpo.2022.103931>
- Bond Edmond, M., Aletraris, L., & Roman, P. M. (2015). Rural substance use treatment centers in the United States: An assessment of treatment quality by location. *The American Journal of Drug and Alcohol Abuse*, 41(5), 449-457. <https://doi.org/10.3109/00952990.2015.1059842>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2014). What can “thematic analysis” offer health and wellbeing researchers? *International Journal of Qualitative Studies in Health and Well-being*, 9, 26152. <https://doi.org/10.3402/qhw.v9.26152>
- Brown, H. L., & DeNicola, N. (2020). Telehealth in maternity care. *Obstetrics and Gynecology Clinics of North America*, 47(3), 497-502. <https://doi.org/10.1016/j.ogc.2020.05.003>
- Bruine de Bruin, W., Saw, H. W., & Goldman, D. P. (2020). Political polarization in US residents' COVID-19 risk perceptions, policy preferences, and protective behaviors. *Journal of Risk and Uncertainty*, 61(2), 177-194. <https://doi.org/10.1007/s11166-020-09336-3>
- Buchanich, J. M., Balmert, L. C., Pringle, J. L., Williams, K. E., Burke, D. S., & Marsh, G. M. (2016). Patterns and trends in accidental poisoning death rates in the US, 1979-2014. *Preventive Medicine*, 89, 317-323. <https://doi.org/10.1016/j.ypmed.2016.04.007>
- Burns, E., & Kakara, R. (2018). Deaths from falls among persons aged ≥ 65 years - United States, 2007-2016. *Morbidity and Mortality Weekly Report*, 67(18), 509-514. <https://doi.org/10.15585/mmwr.mm6718a1>

- Butzner, M., & Cuffee, Y. (2021). Telehealth interventions and outcomes across rural communities in the United States: Narrative review. *Journal of Medical Internet Research*, 23(8), e29575. <https://doi.org/10.2196/29575>
- Byker Shanks, C., Andress, L., Hardison-Moody, A., Jilcott Pitts, S., Patton-Lopez, M., Prewitt, T. E., Dupuis, V., Wong, K., Kirk-Epstein, M., Engelhard, E., Hake, M., Osborne, I., Hoff, C., & Haynes-Maslow, L. (2022). Food insecurity in the rural United States: An examination of struggles and coping mechanisms to feed a family among households with a low-income. *Nutrients*, 14(24), 5250. <https://doi.org/10.3390/nu14245250>
- Callaghan, T., Lueck, J. A., Trujillo, K. L., & Ferdinand, A. O. (2021). Rural and urban differences in COVID-19 prevention behaviors. *The Journal of Rural Health*, 37(2), 287-295. <https://www.doi.org/10.1111/jrh.12556>
- Čavojová, V., Šrol, J., & Ballová Mikušková, E. (2020). How scientific reasoning correlates with health-related beliefs and behaviors during the COVID-19 pandemic? *Journal of Health Psychology*, 0(0), 1359105320962266. <https://doi.org/10.1177/1359105320962266>
- CDC. (2018). *Summary health statistics: National Health Interview Survey, 2018*. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2018_SHS_Table_P-1.pdf
- CDC. (2021). *Drug overdose deaths in the U.S. top 100,000 annually*. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2021/20211117.htm
- CDC. (2023, April 21). *Suicide in rural America*. <https://www.cdc.gov/ruralhealth/Suicide.html>
- CDC. (2023, August 23). *Program evaluation*. <https://www.cdc.gov/evaluation/index.htm>
- Center for Population Health. (n.d.). *Center for Population Health*. <https://www.centerforpophealth.org/>
- Center for Population Health, Conemaugh Health System, 1889 Foundation, & United Way of the Laurel Highlands. (2022). *2022-2025 Cambria and Somerset Counties, PA Community Health Needs Assessment*. https://www.centerforpophealth.org/wp-content/uploads/2023/03/CHNA_CambriaSomerset-Counties-Community-report_2022v80.pdf
- Center for Rural Pennsylvania. (n.d.a). *Adult educational attainment in Pennsylvania*. <https://www.rural.pa.gov/datagram/133/Adult-Educational-Attainment-in-Pennsylvania>
- Center for Rural Pennsylvania. (n.d.b). *Rural quick facts: Demographics*. <https://www.rural.pa.gov/data/rural-quick-facts>
- Center for Rural Pennsylvania. (2020). *Rural-urban maps*. <https://www.rural.pa.gov/data/rural-urban-definitions.cfm>

- Center for Rural Pennsylvania. (2023). *Drug overdoses in rural and urban Pennsylvania: A progress report*. <https://www.rural.pa.gov/getfile.cfm?file=Resources/factsheets/Overdose%20Fact%20Sheet%202023.pdf&view=true>
- Chang, C. H., P W Bynum, J., & Lurie, J. D. (2019). Geographic expansion of federally qualified health centers 2007-2014. *The Journal of Rural Health, 35*(3), 385-394. <https://doi.org/10.1111/jrh.12330>
- Chatterjee, A. (Ed.). (2017). *Elements of information organization and dissemination*. Chandos Publishing. <https://doi.org/10.1016/B978-0-08-102025-8.00020-X>
- Chen, J., Amaize, A., & Barath, D. (2021). Evaluating telehealth adoption and related barriers among hospitals located in rural and urban areas. *The Journal of Rural Health, 37*(4), 801-811. <https://doi.org/10.1111/jrh.12534>
- Chen, Z., Roy, K., Khushalani, J. S., & Puddy, R. W. (2022). Trend in rural-urban disparities in access to outpatient mental health services among US adults aged 18-64 with employer-sponsored insurance: 2005-2018. *The Journal of Rural Health, 38*(4), 788-794. <https://doi.org/10.1111/jrh.12644>
- Cheng, K. J. G., Sun, Y., & Monnat, S. M. (2020). COVID-19 death rates are higher in rural counties with larger shares of Blacks and Hispanics. *The Journal of Rural Health, 36*(4), 602-608. <https://doi.org/10.1111/jrh.12511>
- Coburn, A. F., Griffin, E., Thayer, D., Croll, Z., & Ziller, E. C. (2016). *Are rural older adults benefiting from increased state spending on Medicaid home and community-based services?* Maine Rural Health Research Center. <http://muskie.usm.maine.edu/Publications/rural/Medicaid-Home-Community-Based-Services-Rural.pdf>
- Cohen, S. A., & Greaney, M. L. (2023). Aging in rural communities. *Current Epidemiology Reports, 10*(1), 1-16. <https://doi.org/10.1007/s40471-022-00313-9>
- Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2022, September). Household food security in the United States in 2021. *USDA Economic Research Service*. <https://www.ers.usda.gov/webdocs/publications/104656/err-309.pdf>
- Corry, B., Underwood, N., Cremer, L. J., Rooks-Peck, C. R., & Jones, C. (2022). County-level sociodemographic differences in availability of two medications for opioid use disorder: United States, 2019. *Drug and Alcohol Dependence, 236*, 109495. <https://doi.org/10.1016/j.drugalcdep.2022.109495>
- Cosby, A. G., McDoom-Echebiri, M. M., James, W., Khandekar, H., Brown, W., & Hanna, H. L. (2019). Growth and persistence of place-based mortality in the United States: The rural mortality penalty. *American Journal of Public Health, 109*, 155-162. <https://doi.org/10.2105%2FAJPH.2018.304787>

- County Health Rankings & Roadmaps. (2023a). *Cambria, PA*. <https://www.countyhealthrankings.org/explore-health-rankings/pennsylvania/cambria?year=2023>
- County Health Rankings & Roadmaps. (2023b). *Compare counties*. <https://www.countyhealthrankings.org/explore-health-rankings/compare-counties?compareCounties=42021%2C42111%2C42000&year=2023>
- County Health Rankings & Roadmaps. (2023c). *Somerset, PA*. <https://www.countyhealthrankings.org/explore-health-rankings/pennsylvania/somerset?year=2023>
- Curtin, S.C., & Spencer, M.R. (2021). *Trends in death rates in urban and rural areas: United States, 1999-2019*. National Center for Health Statistics. <https://www.cdc.gov/nchs/data/databriefs/db417.pdf#page=3>
- Cyr, M. E., Echin, A. G., Guthrie, B. J., & Benneyan, J. C. (2019). Access to specialty healthcare in urban versus rural US populations: A systematic literature review. *BMC Health Services Research*, 19(1), 974. <https://doi.org/10.1186/s12913-019-4815-5>
- Danek, R., Taylor, H., & Ellis Hilts, K. (2023). Changes in reported levels of depression and anxiety among rural and urban populations during the COVID-19 pandemic. *Mental Health Science*, 1(3), 128-135. <https://doi.org/10.1002/mhs2.24>
- Darmon, N., & Drewnowski, A. (2015). Contribution of food prices and diet cost to socioeconomic disparities in diet quality and health: A systematic review and analysis. *Nutrition Reviews*, 73(10), 643-660. <https://doi.org/10.1093/nutrit/nuv027>
- Davis, J. C., Rupasingha, A., Cromartie, J., & Sanders, A. (2022). *Rural America at a glance*. USDA Economic Research Service. <https://www.ers.usda.gov/webdocs/publications/105155/eib-246.pdf?v=4569.3>
- DiClemente, R. J., Salazar, L. F., & Crosby, R. A. (2015). Community-based participatory research in the context of health promotion. In R. A. Crosby, R. J. DiClemente, & L. F. Salazar (Eds.), *Research methods in health promotion* (pp. 312-335). San Francisco: Jossey-Bass.
- Dimitroff, R. D., Schmidt, L. A., & Bond, T. D. (2005). Organizational behavior and disaster: A study of conflict at NASA. *Project Management Journal*, 36(2), 28-38. <https://doi.org/10.1177/875697280503600204>
- Dopp, A. R., Parisi, K. E., Munson, S. A., & Lyon, A. R. (2020). Aligning implementation and user-centered design strategies to enhance the impact of health services: Results from a concept mapping study. *Implementation Science Communications*, 1(17). <https://doi.org/10.1186/s43058-020-00020-w>

- Douthit, N., Kiv, S., Dwolatzky, T., & Biswas, S. (2015). Exposing some important barriers to health care access in the rural USA. *Public Health*, *129*(6), 611-620. <https://doi.org/10.1016/j.puhe.2015.04.001>
- Elder, A. J., Alazawi, H., Shafaq, F., Ayyad, A., & Hazin, R. (2023). Teleoncology: Novel approaches for improving cancer care in North America. *Cureus*, *15*(8), e43562. <https://doi.org/10.7759/cureus.43562>
- Enders, A. M., Uscinski, J., Klofstad, C., & Stoler, J. (2022). On the relationship between conspiracy theory beliefs, misinformation, and vaccine hesitancy. *PLoS One* *17*(10), e0276082. <https://doi.org/10.1371/journal.pone.0276082>
- Evans, A., Banks, K., Jennings, R., Nehme, E., Nemec, C., Sharma, S., Hussaini, A., & Yaroch, A. (2015). Increasing access to healthful foods: A qualitative study with residents of low-income communities. *The International Journal of Behavioral Nutrition and Physical Activity*, *12* Suppl 1(Suppl 1), S5. <https://doi.org/10.1186/1479-5868-12-S1-S5>
- Feng, W., Page, E. T., & Cash, S. B. (2023). Dollar stores and food access for rural households in the United States, 2008–2020. *American Journal of Public Health*, *113*(3), 331-336. <https://doi.org/10.2105/AJPH.2022.307193>
- Finegood, D. T., Johnston, L. M., Steinberg, M., Matteson, C. L., & Deck, P. B. (2017). Complexity, systems thinking, and health behavior change. In A. M. El-Sayed and S. Galea (Eds.), *Systems science and population health* (pp. 435-458). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780190492397.001.0001>
- Fong, M. C., Russell, D., Gao, O., & Franzosa, E. (2023). Contextual forces shaping home-based health care services between 2010 and 2020: Insights from the social-ecological model and organizational theory. *The Gerontologist*, *63*(7), 1117-1128. <https://doi.org/10.1093/geront/gnac113>
- Fontanella, C. A., Hiance-Steelesmith, D. L., Phillips, G. S., Bridge, J. A., Lester, N., Sweeney, H. A., & Campo, J. V. (2015). Widening rural-urban disparities in youth suicides, United States, 1996-2010. *JAMA Pediatrics*, *169*(5), 466-473. <https://doi.org/10.1001/jamapediatrics.2014.3561>
- Fortney, J. C., Bauer, A. M., Cerimele, J. M., Pyne, J. M., Pfeiffer, P., Heagerty, P. J., Hawrilenko, M., Zielinski, M. J., Kaysen, D., Bowen, D. J., Moore, D. L., Ferro, L., Metzger, K., Shushan, S., Hafer, E., Nolan, J. P., Dalack, G. W., & Unützer, J. (2021). Comparison of teleintegrated care and telereferral care for treating complex psychiatric disorders in primary care: A pragmatic randomized comparative effectiveness trial. *JAMA Psychiatry*, *78*(11), 1189-1199. <https://doi.org/10.1001/jamapsychiatry.2021.2318>
- Fortney, S., & Tassé, M. J. (2021). Urbanicity, health, and access to services for people with intellectual disability and developmental disabilities. *American Journal on Intellectual and Developmental Disabilities*, *126*(6), 492-504. <https://doi.org/10.1352/1944-7558-126.6.492>

- Fraze, T. K., Lewis, V. A., Wood, A., Newton, H., & Colla, C. H. (2022). Configuration and delivery of primary care in rural and urban settings. *Journal of General Internal Medicine*, 37(12), 3045-3053. <https://doi.org/10.1007/s11606-022-07472-x>
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9), 1408-1416. <https://doi.org/10.46743/2160-3715/2015.2281>
- Gadarian, S. K., Goodman, S. W., & Pepinsky, T. B. (2021). Partisanship, health behavior, and policy attitudes in the early stages of the COVID-19 pandemic. *PloS One*, 16(4), e0249596. <https://doi.org/10.1371/journal.pone.0249596>
- Germack, H. D., Kandrack, R., & Martsolf, G. R. (2019). When rural hospitals close, the physician workforce goes. *Health Affairs (Project Hope)*, 38(12), 2086-2094. <https://doi.org/10.1377/hlthaff.2019.00916>
- Giroux, S., Waldman, K., Burris, M., Valliant, J. C. D., Babb, A. M., Stafford, P., Fobi, D., Czebotar, K., & Knudsen, D. C. (2022). Food security and well-being among older, rural Americans before and during the COVID-19 pandemic. *PloS One*, 17(9), e0274020. <https://doi.org/10.1371/journal.pone.0274020>
- Göttgens, I., & Oertelt-Prigione, S. (2021). The application of human-centered design approaches in health research and innovation: A narrative review of current practices. *JMIR Publications*, 9(12), e28102. <https://doi.org/10.2196/28102>
- Graves, J. M., Abshire, D. A., Mackelprang, J. L., Amiri, S., & Beck, A. (2020). Association of rurality with availability of youth mental health facilities with suicide prevention services in the US. *JAMA Network Open*, 3(10), e2021471. <https://doi.org/10.1001/jamanetworkopen.2020.21471>
- Grimm, K. A., Moore, L. V., & Scanlon, K. S. (2013). Access to healthier food retailers: United States, 2011. *Morbidity and Mortality Weekly Report*, 62(3), 20-26. https://www.cdc.gov/mmwr/preview/mmwrhtml/su6203a4.htm?s_cid%3Dsu6203a4_x
- Hash, K. M., Schreurs, B. G., Tolley, S. M., & Fiske, A. (2023). Health disparities in Appalachian and other rural communities. *International Journal of Aging & Human Development*, 914150231171856. <https://doi.org/10.1177/00914150231171856>
- Health Research & Services Administration. (2020). *Rural/urban differences in children's health*. <https://mchb.hrsa.gov/sites/default/files/mchb/data-research/rural-urban-differences.pdf>
- Health Research & Services Administration. (2023). *HPSA Find* [Data set]. Data.hrsa.gov. <https://data.hrsa.gov/tools/shortage-area/hpsa-find>
- Hedegaard, H., & Spencer, M. R. (2021). *Urban–rural differences in drug overdose death rates, 1999–2019*. National Center for Health Statistics. <https://dx.doi.org/10.15620/cdc:102891>

- Henke, R. M., Fingar, K. R., Jianig, H. J., Liang, L., & Gibson, T. B. (2021). Access to obstetric, behavioral health, and surgical inpatient services after hospital mergers in rural areas. *Health Affairs*, 40(10), 1627-1636. <https://doi.org/10.1377/hlthaff.2021.00160>
- Henning-Smith, C. (2020). Meeting the social needs of older adults in rural areas. *JAMA Health Forum*, 1(11), e201411. <https://www.doi.org/10.1001/jamahealthforum.2020.1411>
- Henning-Smith, C., Evenson, A., Corbett, A., Kozhimannil, K., & Moscovice, I. (2017). *Rural transportation: Challenges and opportunities*. University of Minnesota Rural Health Research Center. <https://rhrc.umn.edu/wp-content/uploads/2019/01/1518734252UMRHRCTransportationChallenges.pdf>
- Henning-Smith, C., Kozhimannil, K. B., Casey, M. M., & Prasad, S. (2018). Beyond clinical complexity: Nonmedical barriers to nursing home care for rural residents. *Journal of Aging & Social Policy*, 30(2), 109-126. <https://doi.org/10.1080/08959420.2018.1430413>
- Henning-Smith, C., Meltzer, G., Kobayashi, L. C., & Finlay, J. M. (2023). Rural/urban differences in mental health and social well-being among older US adults in the early months of the COVID-19 pandemic. *Aging & Mental Health*, 27(3), 505-511. <https://doi.org/10.1080/13607863.2022.2060184>
- Henning-Smith, C., Moscovice, I., & Kozhimannil, K. (2019). Differences in social isolation and its relationship to health by rurality. *The Journal of Rural Health*, 35(4), 540-549. <https://doi.org/10.1111/jrh.12344>
- Hood, C. M., Gennuso, K. P., Swain, G. R., & Catlin, B. B. (2016). County health rankings: Relationships between determinant factors and health outcomes. *American Journal of Preventive Medicine*, 50(2), 129-135. <https://doi.org/10.1016/j.amepre.2015.08.024>
- Horner-Johnson, W., Dobbertin, K., & Iezzoni, L. I. (2015). Disparities in receipt of breast and cervical cancer screening for rural women age 18 to 64 with disabilities. *Women's Health Issues*, 25(3), 246-253. <https://doi.org/10.1016/j.whi.2015.02.004>
- Johnson, K., & Lichter, D. (2022). *Growing racial diversity in rural America: Results from the 2020 Census*. University of New Hampshire Carsey School of Public Policy. <https://carsey.unh.edu/publication/growing-racial-diversity-in-rural-america>
- Johnston, K. J., Wen, H., & Joynt Maddox, K. E. (2019). Lack of access to specialists associated with mortality and preventable hospitalizations of rural Medicare beneficiaries. *Health Affairs (Project Hope)*, 38(12), 1993-2002. <https://doi.org/10.1377/hlthaff.2019.00838>
- Jones, M., Bhattar, M., Henning, E., & Monnat, S. M. (2023). Explaining the U.S. rural disadvantage in COVID-19 case and death rates during the Delta-Omicron surge: The role of politics, vaccinations, population health, and social determinants. *Social Science & Medicine*, 335, 116180. <https://doi.org/10.1016/j.socscimed.2023.116180>
- Kepley, H. O., & Streeter, R. A. (2018). Closing behavioral health workforce gaps: A HRSA program expanding direct mental health service access in underserved areas. *American*

- Journal of Preventive Medicine*, 54(6 Suppl 3), S190-S191.
<https://doi.org/10.1016/j.amepre.2018.03.006>
- Keyes, K. M., Cerdá, M., Brady, J. E., Havens, J. R., & Galea, S. (2014). Understanding the rural-urban differences in nonmedical prescription opioid use and abuse in the United States. *American Journal of Public Health*, 104(2), e52-e59.
<https://doi.org/10.2105/AJPH.2013.301709>
- Khubchandani, J., Price, J. H., Sharma, S., Wiblishauser, M. J., & Webb, F. J. (2022). COVID-19 pandemic and weight gain in American adults: A nationwide population-based study. *Diabetes & Metabolic Syndrome*, 16(1), 102392.
<https://doi.org/10.1016/j.dsx.2022.102392>
- Kichloo, A., Albosta, M., Dettloff, K., Wani, F., El-Amir, Z., Singh, J., Aljadah, M., Chakinala, R. C., Kanugula, A. K., Solanki, S., & Chugh, S. (2020). Telemedicine, the current COVID-19 pandemic and the future: A narrative review and perspectives moving forward in the USA. *Family Medicine and Community Health*, 8(3), e000530.
<https://doi.org/10.1136/fmch-2020-000530>
- Ko, J. S., El-Toukhy, S., Quintero, S. M., Wilkerson, M. J., Nápoles, A. M., Stewart, A. L., & Strassle, P. D. (2023). Disparities in telehealth access, not willingness to use services, likely explain rural telehealth disparities. *The Journal of Rural Health*, 39(3), 617-624.
<https://doi.org/10.1111/jrh.12759>
- Koonin, L. M., Hoots, B., Tsang, C. A., Leroy, Z., Farris, K., Jolly, T., Antall, P., McCabe, B., Zelis, C. B. R., Tong, I., & Harris, A. M. (2020). Trends in the use of telehealth during the emergence of the COVID-19 pandemic - United States, January-March 2020. *Morbidity and Mortality Weekly Report*, 69(43), 1595-1599.
<https://doi.org/10.15585/mmwr.mm6943a3>
- Kricorian, K., Civen, R., & Equils, O. (2022). COVID-19 vaccine hesitancy: Misinformation and perceptions of vaccine safety. *Human Vaccines & Immunotherapeutics*, 18(1), 1950504.
<https://doi.org/10.1080/21645515.2021.1950504>
- Kroelinger, C. D., Brantley, M. D., Fuller, T. R., Okoroh, E. M., Monsour, M. J., Cox, S., & Barfield, W. D. (2021). Geographic access to critical care obstetrics for women of reproductive age by race and ethnicity. *American Journal of Obstetrics and Gynecology*, 224(3), 304.e1-304.e11. <https://doi.org/10.1016/j.ajog.2020.08.042>
- Krout, J. A., & Hash, K. M. (2015). What is rural? In Hash K. M., Jurkowski E. T., Krout J. A. (Eds.), *Aging in rural places: Programs, policies, and professional practice* (pp. 3-22). Springer Publishing.
- Kuehn, M., LaMori, J., DeMartino, J. K., Mesa-Frias, M., Doran, J., Korrapati, L., Bhojwani, R., Lefebvre, P., & Kirson, N. (2022). Assessing barriers to access and equity for COVID-19 vaccination in the US. *BMC Public Health*, 22(1), 2263. <https://doi.org/10.1186/s12889-022-14636-1>

- Lang, I. M., Antonakos, C. L., Judd, S. E., & Colabianchi, N. (2022). A longitudinal examination of objective neighborhood walkability, body mass index, and waist circumference: The REasons for Geographic And Racial Differences in Stroke study. *The International Journal of Behavioral Nutrition and Physical Activity*, 19(1), 17. <https://doi.org/10.1186/s12966-022-01247-7>
- Larson, E. H., Andrilla, C. H. A., & Gaberson, L. A. (2020). *Supply and distribution of the primary care workforce in rural America: 2019*. WWAMI Rural Health Research Center, University of Washington. https://depts.washington.edu/fammed/rhrc/wp-content/uploads/sites/4/2020/06/RHRC_PB167_Larson.pdf
- Lenardson, J. D., Hansen, A. Y., & Hartley, D. (2015). Rural and remote food environments and obesity. *Current Obesity Reports*, 4(1), 46-53. <https://doi.org/10.1007/s13679-014-0136-5>
- Lenardson, J. D., Paluso, N., & Ziller, E. (2020). *Substance use among rural and urban youth and young adults*. Maine Rural Health Research Center. https://digitalcommons.usm.maine.edu/cgi/viewcontent.cgi?article=1072&context=behavioral_health
- Lister, J. J., Weaver, A., Ellis, J. D., Himle, J. A., & Ledgerwood, D. M. (2020). A systematic review of rural-specific barriers to medication treatment for opioid use disorder in the United States. *The American Journal of Drug and Alcohol Abuse*, 46(3), 273-288. <https://doi.org/10.1080/00952990.2019.1694536>
- Liu, M., & Wadhwa, R. K. (2022). Primary care physician supply by county-level characteristics, 2010-2019. *Journal of the American Medical Association*, 328(19), 1974-1977. <https://doi.org/10.1001/jama.2022.15106>
- Loccoh, E. C., Joynt Maddox, K. E., Wang, Y., Kazi, D. S., Yeh, R. W., & Wadhwa, R. K. (2022). Rural-urban disparities in outcomes of myocardial infarction, heart failure, and stroke in the United States. *Journal of the American College of Cardiology*, 79(3), 267-279. <https://doi.org/10.1016/j.jacc.2021.10.045>
- LUMA Institute. (2023). *LUMA System methods*. <https://www.luma-institute.com/about-luma/luma-system-explore-methods/>
- LUMA Institute. (2012). *Innovating for people: Handbook of human-centered design methods*. LUMA Institute.
- Lynch, L., Mielenz, T. J., Li, G., Eby, D. W., Molnar, L. J., Betz, M. E., DiGuseppi, C., Hill, L. L., Jones, V., & Strogatz, D. (2021). Rate of social isolation by geographic location among older adults: AAA LongROAD study. *Frontiers in Public Health*, 9, 791683. <https://doi.org/10.3389/fpubh.2021.791683>
- MacDougall, H., Mork, D., Hanson, S., & Smith, C. H. (2023). Rural-urban differences in health care unaffordability. *The Journal of Rural Health*. Advance online publication. <https://doi.org/10.1111/jrh.12788>

- Maciejko, L. A., Fox, J. M., Steffens, M. T., Patten, C. A., Newman, H. R., Decker, P. A., Wheeler, P., Juhn, Y. J., Wi, C. I., Gorfine, M., Brewer, L., & Sinicrope, P. S. (2023). Rural and urban residents' attitudes and preferences toward COVID-19 prevention behaviors in a midwestern community. *PloS One*, *18*(6), e0286953. <https://doi.org/10.1371/journal.pone.0286953>
- Mack, K. A., Jones, C. M., & Ballesteros, M. F. (2017). Illicit drug use, illicit drug use disorders, and drug overdose deaths in metropolitan and nonmetropolitan areas — United States. *MMWR Surveillance Summary*, *66*(SS-19), 1-12. <http://dx.doi.org/10.15585/mmwr.ss6619a1>
- Mallinson, D. J., Yoo, E., & Cruz, B. (2021). *Suicide trends and prevention in rural Pennsylvania counties and schools*. The Center for Rural Pennsylvania. <https://www.rural.pa.gov/download.cfm?file=Resources/reports/assets/10/Suicide-Trends-Prevention-2021.pdf>
- Marinthe, G., Brown, G., Delouvé, S., & Jolley, D. (2020). Looking out for myself: Exploring the relationship between conspiracy mentality, perceived personal risk, and COVID-19 prevention measures. *British Journal of Health Psychology*, *25*(4), 957-80. <https://doi.org/10.1111/bjhp.12449>
- Mattson, J., & Mistry, D. (2022, April). *Rural Transit Fact Book 2022*. Small Urban and Rural Center on Mobility, Upper Great Plains Transportation Institute, North Dakota State University. <https://www.ugpti.org/resources/reports/downloads/surtcom22-11.pdf>
- McBain, R. K., Cantor, J. H., Kofner, A., Stein, B. D., & Yu, H. (2022). Ongoing disparities in digital and in-person access to child psychiatric services in the United States. *Journal of the American Academy of Child and Adolescent Psychiatry*, *61*(7), 926-933. <https://doi.org/10.1016/j.jaac.2021.11.028>
- McKeown, R. E. (2009). The epidemiologic transition: Changing patterns of mortality and population dynamics. *American Journal of Lifestyle Medicine*, *3*(1 Suppl), 19S-26S. <https://doi.org/10.1177/1559827609335350>
- Mckie, N. J., Omoyugbo, S. A., Ramsay, A. N., Adebayo, T. A., & Chew, A. (2022). Incidence of food insecurity in rural and urban counties in Pennsylvania. *Scholarly Research in Progress*, *6*, 81-89. <https://issuu.com/geisingercommonwealth/docs/scrip2022>
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, *15*(4), 351-77. <https://doi.org/10.1177/109019818801500401>
- Medpac. (2023). *Chapter 7: Skilled nursing facility services*, In Report to the Congress: Medicare payment policy. https://www.medpac.gov/wp-content/uploads/2023/03/Ch7_Mar23_MedPAC_Report_To_Congress_SEC.pdf

- Melles, M., Albayrak, A., & Goossens, R. (2021). Innovating health care: Key characteristics of human-centered design. *International Journal for Quality in Health Care*, 33(1), 37-44. <https://doi.org/10.1093/intqhc/mzaa127>
- Mettler, S., & Brown, T. (2022, March 16). The growing rural-urban political divide and democratic vulnerability. *The Annals of the American Academy of Political and Social Science*, 699(1), 130-142. <https://doi.org/10.1177/000271622111070061>
- Miller, K. E. M., Chatterjee, P., & Werner, R. M. (2023). Trends in supply of nursing home beds, 2011-2019. *JAMA Network Open*, 6(3), e230640. <https://www.doi.org/10.1001/jamanetworkopen.2023.0640>
- Miller, K. E. M., Miller, K. L., Knocke, K., Pink, G. H., Holmes, G. M., & Kaufman, B. G. (2021). Access to outpatient services in rural communities changes after hospital closure. *Health Services Research*, 56(5), 788-801. <https://doi.org/10.1111/1475-6773.13694>
- Miron, O., Yu, K., Wilf-Miron, R., & Kohane, I. S. (2019). Suicide rates among adolescents and young adults in the United States, 2000-2017. *Journal of the American Medical Association*, 321(23), 2362-2364. <https://doi.org/10.1001/jama.2019.5054>
- Mohatt, N. V., Kreisel, C. J., Hoffberg, A. S., Mph, L. W., & Beehler, S. J. (2021). A systematic review of factors impacting suicide risk among rural adults in the United States. *The Journal of Rural Health*, 37(3), 565-575. <https://doi.org/10.1111/jrh.12532>
- Morales, D. A., Barksdale, C. L., & Beckel-Mitchener, A. C. (2020). A call to action to address rural mental health disparities. *Journal of Clinical and Translational Science*, 4(5), 463-467. <https://doi.org/10.1017/cts.2020.42>
- Moreland, B., Kakara, R., & Henry, A. (2020). Trends in nonfatal falls and fall-related injuries among adults aged ≥ 65 years - United States, 2012-2018. *Morbidity and Mortality Weekly Report*, 69(27), 875-881. <https://doi.org/10.15585/mmwr.mm6927a5>
- Murphy, J. (2018). *Comparing rural and urban drug use and violence in the Pennsylvania Youth Survey*. The Center for Rural Pennsylvania. <https://www.rural.pa.gov/Resources/reports/assets/39/PAYS-2018.pdf>
- Nance, M. L., Carr, B. G., Kallan, M. J., Branas, C. C., & Wiebe, D. J. (2010). Variation in pediatric and adolescent firearm mortality rates in rural and urban US counties. *Pediatrics*, 125(6), 1112-1118. <https://doi.org/10.1542/peds.2009-3219>
- National Academy of Sciences. (2021). *Guidebook and research plan to help communities improve transportation to health-care services*. The National Academies of Sciences, Engineering, and Medicine Transportation Research Board. <https://nap.nationalacademies.org/catalog/25980/guidebook-and-research-plan-to-help-communities-improve-transportation-to-health-care-services>

- National Institute on Drug Abuse. (2021). *Percentage of adolescents reporting drug use decreased significantly in 2021 as the COVID-19 pandemic endured*. <https://nida.nih.gov/news-events/news-releases/2021/12/percentage-of-adolescents-reporting-drug-use-decreased-significantly-in-2021-as-the-covid-19-pandemic-endured>
- National Institute on Drug Abuse. (2022). *Most reported substance use among adolescents held steady in 2022*. <https://nida.nih.gov/news-events/news-releases/2022/12/most-reported-substance-use-among-adolescents-held-steady-in-2022>
- Ohri-Vachaspati, P., DeWeese, R. S., Acciai, F., DeLia, D., Tulloch, D., Tong, D., Lorts, C., & Yedidia, M. (2019). Healthy food access in low-income high-minority communities: A longitudinal assessment-2009-2017. *International Journal of Environmental Research and Public Health*, 16(13), 2354. <https://doi.org/10.3390/ijerph16132354>
- Palma, A., & Lounsbury, D. W. (2017). Complexity: The evolution toward 21st century science. In A. M. El-Sayed and S. Galea (Eds.), *Systems science and population health* (pp. 37-47). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780190492397.001.0001>
- Palombi, L. C., St Hill, C. A., Lipsky, M. S., Swanoski, M. T., & Lutfiyya, M. N. (2018). A scoping review of opioid misuse in the rural United States. *Annals of Epidemiology*, 28(9), 641-652. <https://doi.org/10.1016/j.annepidem.2018.05.008>
- Park, S., Hee Lee, S., Yaroch, A. L., & Blanck, H. M. (2022). Reported changes in eating habits related to less healthy foods and beverages during the COVID-19 pandemic among US adults. *Nutrients*, 14(3), 526. <https://doi.org/10.3390/nu14030526>
- Patel, U. K., Malik, P., DeMasi, M., Lunagariya, A., & Jani, V. B. (2019). Multidisciplinary approach and outcomes of tele-neurology: A review. *Cureus*, 11(4), e4410. <https://doi.org/10.7759/cureus.4410>
- Patton, M. Q. (2011). *Developmental evaluation: Applying complexity concepts to enhance innovation and use*. New York: Guilford Press.
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.
- Pennsylvania Department of Health. (2023). *Pennsylvania resident deaths: Age-adjusted rates per 100,000* [Data set]. Enterprise Data Dissemination Informatics Exchange. https://www.phaim1.health.pa.gov/EDD/WebForms/DeathCntySt.aspx#P8e101d0e27b043b88c81ae69a6093f3a_2_81iT0
- Pennsylvania Department of State. (2023). *Voter registration statistics by county* [Data set]. Dos.pa.gov. <https://www.dos.pa.gov/VotingElections/OtherServicesEvents/VotingElectionStatistics/Pages/VotingElectionStatistics.aspx>

- The Pennsylvania State University. (2019a). 2019 Pennsylvania Youth Survey: Cambria County. <https://www.pccd.pa.gov/Juvenile-Justice/PAYS/Cambria%20County%20Profile%20Report%202019.pdf>
- The Pennsylvania State University. (2019b). 2019 Pennsylvania Youth Survey: Somerset County. <https://www.pccd.pa.gov/Juvenile-Justice/PAYS/Somerset%20County%20Profile%20Report%202019.pdf>
- The Pennsylvania State University. (2019c). Pennsylvania Youth Survey (PAYS): State Report PAYS 2019. <https://www.pccd.pa.gov/Juvenile-Justice/Documents/2019%20PAYS/PAYS%202019%20State%20Report%20Full%20Detailed%20Version.pdf>
- Peters, D. J. (2020). Community susceptibility and resiliency to COVID-19 across the rural-urban continuum in the United States. *The Journal of Rural Health, 36*(3), 446-456. <https://doi.org/10.1111/jrh.12477>
- Pickup, M., Stecula, D., & Van der Linden, C. (2020). Novel coronavirus, old partisanship: COVID-19 attitudes and behaviours in the United States and Canada. *Canadian Journal of Political Science/Revue Canadienne De Science Politique, 53*(2), 357-364. <https://www.doi.org/10.1017/S0008423920000463>
- Pinard, C. A., Byker Shanks, C., Harden, S. M., & Yaroch, A. L. (2016). An integrative literature review of small food store research across urban and rural communities in the U.S. *Preventive Medicine Reports, 3*, 324-332. <https://doi.org/10.1016/j.pmedr.2016.03.008>
- Probst, J. C., Barker, J. C., Enders, A., & Gardiner, P. (2018). Current state of child health in rural America: How context shapes children's health. *The Journal of Rural Health, 34 Suppl 1*(Suppl 1), s3-s12. <https://doi.org/10.1111/jrh.12222>
- Probst, J., Zahnd, W., & Breneman, C. (2019). Declines in pediatric mortality fall short for rural US children. *Health Affairs, 38*(12), 2069-2076. <https://doi.org/10.1377/hlthaff.2019.00892>
- Quigley, D. D., Chastain, A. M., Kang, J. A., Bronstein, D., Dick, A. W., Stone, P. W., & Shang, J. (2022). Systematic review of rural and urban differences in care provided by home health agencies in the United States. *Journal of the American Medical Directors Association, 23*(10), 1653.e1-1653.e13. <https://doi.org/10.1016/j.jamda.2022.08.011>
- Rahman, M., White, E. M., Thomas, K. S., & Jutkowitz, E. (2020). Assessment of rural-urban differences in health care use and survival among Medicare beneficiaries with Alzheimer disease and related dementia. *JAMA Network Open, 3*(10), e2022111. <https://doi.org/10.1001/jamanetworkopen.2020.22111>
- Rossen, L. M., Khan, D., & Warner, M. (2014). Hot spots in mortality from drug poisoning in the United States, 2007-2009. *Health & Place, 26*, 14-20. <https://doi.org/10.1016/j.healthplace.2013.11.005>

- Rudd, R. A., Aleshire, N., Zibbell, J. E., & Gladden, R. M. (2016). Increases in drug and opioid overdose deaths--United States, 2000-2014. *Morbidity and Mortality Weekly Report*, 64(50-51), 1378-1382. <https://doi.org/10.15585/mmwr.mm6450a3>
- Rural Health Information Hub. (2022). *Rural health disparities*. <https://www.ruralhealthinfo.org/topics/rural-health-disparities>
- Rural Health Information Hub. (2023, June 20). *Rural long-term care facilities*. <https://www.ruralhealthinfo.org/topics/long-term-care>
- Rural Health Information Hub. (2023, June 28). *Substance use and misuse in rural areas*. <https://www.ruralhealthinfo.org/topics/substance-use>
- Rural Policy Research Institute. (2022). *Nursing homes in rural America: A chartbook*. RUPRI Center for Rural Health Policy Analysis, University of Iowa College of Public Health. <https://rupri-public-health.uiowa.edu/publications/other/Nursing%20Home%20Chartbook.pdf>
- Rutter, H., Savona, N., Glonti, K., Bibby, J., Cummins, S., Finegood, D. T., Greaves, F., Harper, L., Hawe, P., Moore, L., Petticrew, M., Rehfuss, E., Shiell, A., Thomas, J., & White, M. (2017, June 15). The need for a complex systems model of evidence for public health. *The Lancet*, 390, 2602-2604. [https://doi.org/10.1016/S0140-6736\(17\)31267-9](https://doi.org/10.1016/S0140-6736(17)31267-9)
- Saelee, R., Zell, E., Murthy, B. P., Castro-Roman, P., Fast, H., Meng, L., Shaw, L., Gibbs-Scharf, L., Chorba, T., Harris, L. Q., & Murthy, N. (2022). Disparities in COVID-19 vaccination coverage between urban and rural counties - United States, December 14, 2020-January 31, 2022. *Morbidity and Mortality Weekly Report*, 71(9), 335-340. <https://doi.org/10.15585/mmwr.mm7109a2>
- Salazar, L. F., Mijares, A., Crosby, R. A., & DiClemente, R. J. (2015). Qualitative research strategies and methods for health promotion. In R. A. Crosby, R. J. DiClemente, & L. F. Salazar (Eds.), *Research methods in health promotion* (pp. 209-255). San Francisco: Jossey-Bass.
- Saunders, C. H., Sierpe, A., von Plessen, C., Kennedy, A. M., Leviton, L. C., Bernstein, S. L., Goldwag, J., King, J. R., Marx, C. M., Pogue, J. A., Saunders, R. K., Van Critters, A., Yen, R. W., Elwyn, G., & Leyenaar, J. K. (2023, June 8). Practical thematic analysis: A guide for multidisciplinary health services research teams engaging in qualitative analysis. *BMJ*, 381, e074256. <https://doi.org/10.1136/bmj-2022-074256>
- Schalkoff, C. A., Lancaster, K. E., Gaynes, B. N., Wang, V., Pence, B. W., Miller, W. C., & Go, V. F. (2020). The opioid and related drug epidemics in rural Appalachia: A systematic review of populations affected, risk factors, and infectious diseases. *Substance Abuse*, 41(1), 35-69. <https://doi.org/10.1080/08897077.2019.1635555>
- Shalowitz, D. I., & Moore, C. J. (2020). Telemedicine and gynecologic cancer care. *Obstetrics and Gynecology Clinics of North America*, 47(2), 271-285. <https://doi.org/10.1016/j.ogc.2020.02.003>

- Simione, L., Vagni, M., Gnagnarella, C., Bersani, G., & Pajardi, D. (2021). Mistrust and beliefs in conspiracy theories differently mediate the effects of psychological factors on propensity for COVID-19 vaccine. *Frontiers in Psychology, 12*, 683684. <https://doi.org/10.3389/fpsyg.2021.683684>
- Singh, G. M., Becquart, N., Cruz, M., Acevedo, A., Mozaffarian, D., & Naumova, E. N. (2019). Spatiotemporal and demographic trends and disparities in cardiovascular disease among older adults in the United States based on 181 million hospitalization records. *Journal of the American Heart Association, 8*(21), e012727. <https://doi.org/10.1161/JAHA.119.012727>
- Spencer, M. R., Garnett, M. F., & Miniño, A. M. (2022). *Urban-rural differences in drug overdose death rates, 2020*. National Center for Health Statistics. <https://www.cdc.gov/nchs/data/databriefs/db440.pdf>
- Stecula, D., & Pickup, M. (2021). How populism and conservative media fuel conspiracy beliefs about COVID-19 and what it means for COVID-19 behaviors. *Research & Politics, 8*(1), <https://doi.org/10.1177/2053168021993979>
- Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin and J. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 273-285). Oaks, CA: Sage.
- Šuriņa, S., Martinsone, K., Perepjolkina, V., Kolesnikova, J., Vainik, U., Ruža, A., Vrublevska, J., Smirnova, D., Fountoulakis, K. N., & Rancans, E. (2021). Factors related to COVID-19 preventive behaviors: A structural equation model. *Frontiers in Psychology, 12*, 676521. <https://doi.org/10.3389/fpsyg.2021.676521>
- Svistova, J., Lee, A., Harris, C., Song, J., Horton, J., Fogarty, B., Hansen, J., & Mills, C. (2022). *Access to mental health services in rural Pennsylvania*. The Center for Rural Pennsylvania. <https://www.rural.pa.gov/download.cfm?file=Resources/reports/assets/1/Mental%20Health%20Access%20Final%20Report%20January%202022.pdf>
- Syed, S. T., Gerber, B. S., & Sharp, L. K. (2013). Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health, 38*, 976-993. <https://doi.org/10.1007/s10900-013-9681-1>
- Tan, T. Q., Kullar, R., Swartz, T. H., Mathew, T. A., Piggott, D. A., & Berthaud, V. (2020). Location matters: Geographic disparities and impact of coronavirus disease 2019. *The Journal of Infectious Diseases, 222*(12), 1951-1954. <https://doi.org/10.1093/infdis/jiaa583>
- Thompson, N. J., & Kegler, M. C. (2015). Program evaluation. In R. A. Crosby, R. J. DiClemente, & L. F. Salazar (Eds.), *Research methods in health promotion* (pp. 209-255). San Francisco: Jossey-Bass.

- Twenge, J. M., & Joiner, T. E. (2020). Mental distress among U.S. adults during the COVID-19 pandemic. *Journal of Clinical Psychology*, 76(12), 2170-2182.
<https://doi.org/10.1002/jclp.23064>
- U.S. Census Bureau. (2021, October 8). *One in five Americans live in rural areas*.
<https://www.census.gov/library/stories/2017/08/rural-america.html>
- U.S. Census Bureau. (2022, December 29). *Nation's urban and rural populations shift following 2020 Census*. <https://www.census.gov/newsroom/press-releases/2022/urban-rural-populations.html>
- U.S. Census Bureau. (2023a). *QuickFacts: Cambria County, Pennsylvania*.
<https://www.census.gov/quickfacts/fact/table/cambriacountypennsylvania/PST045222>
- U.S. Census Bureau. (2023b). *QuickFacts: Somerset County, Pennsylvania*.
<https://www.census.gov/quickfacts/somersetcountypennsylvania>
- U.S. Census Bureau. (2023, June 13). *Annual estimates: April 1, 2020 to July 1, 2022 (SUB-EST2022): Pennsylvania* [Data set]. Census.gov.
<https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.html>
- U.S. Census Bureau. (2023, September 26). *State-level 2020 and 2010 Census urban and rural information for the U.S., Puerto Rico, and Island Areas sorted by state FIPS code* [Data set]. Census.gov. <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html>
- U.S. Department of Health & Human Services. (2020). *Defining rural population*.
<https://www.hhs.gov/guidance/document/defining-rural-population>
- USDA Economic Research Service. (2021). *Data show U.S. poverty rates in 2019 higher in rural areas than in urban for racial/ethnic groups*. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=101903>
- USDA Economic Research Service. (2023, January 17). *Rural job growth has shifted toward high-skill workers since 2001*. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=105587>
- USDA Economic Research Service. (2023, March 20). *Educational attainment improved in rural America but educational gap with urban areas grew for bachelor's degrees and higher*.
<https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=106147>
- USDA Economic Research Service. (2023, June 16). *Percent of total population in poverty, 2021: Pennsylvania*. <https://data.ers.usda.gov/reports.aspx?ID=17826>

- USDA Economic Research Service. (2023, October 25). *State fact sheets: Pennsylvania*.
<https://data.ers.usda.gov/reports.aspx?StateFIPS=42&StateName=Pennsylvania&ID=17854>
- Vechakul, J., Shrimali, B. P., & Sandhu, J. S. (2015, July 22). Human-centered design as an approach for place-based innovation in public health: A case study from Oakland, California. *Maternal and Child Health Journal*, 19, 2552-2559.
<https://doi.org/10.1007/s10995-015-1787-x>
- Wachira, E., Laki, K., Chavan, B., Aidoo-Frimpong, G., & Kingori, C. (2023). Factors influencing COVID-19 prevention behaviors. *Journal of Prevention*, 44(1), 35-52.
<https://doi.org/10.1007/s10935-022-00719-7>
- Wallisch, A., Sankowski, O., Krause, D., & Paetzold, K. (Eds.). (2019). *Overcoming fuzzy design practice: Revealing potentials of user-centered design research and methodological concepts related to user involvement*. 2019 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC).
<https://doi.org/10.1109/ICE.2019.8792591>
- Wang, J., Brown, M. M., Ivey-Stephenson, A. Z., Xu, L., & Stone, D. M. (2022). Rural-urban comparisons in the rates of self-harm, U.S., 2018. *American Journal of Preventive Medicine*, 63(1), 117-120. <https://doi.org/10.1016/j.amepre.2021.12.018>
- Watanabe-Galloway, S., Chasek, C., Yoder, A. M., & Bell, J. E. (2022). Substance use disorders in the farming population: Scoping review. *The Journal of Rural Health*, 38(1), 129-150.
<https://doi.org/10.1111/jrh.12575>
- Watson, K. B., Whitfield, G. P., Thomas, J. V., Berrigan, D., Fulton, J. E., & Carlson, S. A. (2020). Associations between the National Walkability Index and walking among US adults - National Health Interview Survey, 2015. *Preventive Medicine*, 137, 106122.
<https://doi.org/10.1016/j.ypmed.2020.106122>
- Weigel, P., Bhagianadh, D., Merchant, K. A., Wittrock, A., Rahmouni, H., Bell, A., Laws, S., & Ward, M. M. (2021). Tele-emergency behavioural health in rural and underserved areas. *Journal of Telemedicine and Telecare*, 27(7), 453-462.
<https://doi.org/10.1177/1357633X19887027>
- Weiler, S., & Conroy, T. (2023, January 27). *Rural Americans aren't included in inflation figures – and for them, the cost of living may be rising faster*. The Conversation.
<https://theconversation.com/rural-americans-arent-included-in-inflation-figures-and-for-them-the-cost-of-living-may-be-rising-faster-197781>
- Wiggins, A. T., Huntington-Moskos, L., Rayens, E. A., Rayens, M. K., Noland, M., Butler, K., & Hahn, E. J. (2019). Tobacco use among rural and urban US middle and high school students: National Youth Tobacco Survey, 2011-2016. *The Journal of Rural Health*, 36(1), 48-54. <https://doi.org/10.1111/jrh.12356>