TREKKING THE FOOD DESERT: ANALYZING THE EFFECTS OF FOOD INSECURITY AND ALCOHOL ABUNDANCE ON MARGINALIZED COMMUNITIES

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A Capstone Project Submitted for Graduation with University Honors

May 09, 2024

University Honors
University of California, Riverside

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ABSTRACT

Much of the Southern Inland Empire can be characterized by a term that depicts a seemingly barren wasteland — food desert. That title describes an environment plagued by food insecurity. Residents have little to no access to supermarkets or large grocery stores, and they compensate by shopping where they can keep individual transactions low. Healthy food sources and markets have been supplanted by fast food establishments, liquor stores, convenience stores, and gas stations. This issue of food insecurity largely overlaps with an overabundant access and use of alcohol, as many retail stores that sell food act as off-sale alcohol outlets as well — establishments authorized to sell alcohol for consumption off of the premises. As of 2019, nearly 13% of Riverside and San Bernardino residents experience food insecurity, and there has been a 29.3% increase in binge drinking in these counties. These interconnected disparities have become commonplace in minoritized and disadvantaged communities, and their continuing impact may be characterized as structural racism and discrimination. Certain ethnic groups — namely Native Americans, African Americans, and Hispanic Americans — are discriminated against through a mutually reinforcing system of housing, education, employment, and healthcare. The purpose of this study is to determine if there is a correlation between food insecurity, alcohol accessibility and use, and communities facing structural racism in the Southern Inland Empire. By reviewing and analyzing demographic data, this study aims to identify how these public health disparities have impacted the local economic and socio-cultural well-being of minoritized communities.

ACKNOWLEDGMENTS

I am incredibly grateful for my faculty mentor, Dr. Mark Wolfson, who has been a huge inspiration and guide throughout my Capstone project. He has always given me his wholehearted support and I will forever take the lessons he taught me on my professional journey. I would like to thank the University Honors program for providing me with a wonderful environment to work with the wonderful faculty and students of this campus, and I appreciate Dr. Nigel Hughes for guiding me through the capstone development process in HNPG150. Lastly, I would not be where I am today without the support of my parents, siblings, and friends. Their continuous and unconditional love, support, and motivation has pushed me to navigate my educational and professional journey with a smile on my face, and I am excited for the future that lies ahead.

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BACKGROUND

The Inland Empire is a food desert – an area that is limited in its accessibility to supermarkets and balanced meals. At first glance, food insecurity may be the glaring issue at the core of food deserts, however alcohol outlet density and structural racism lay alongside it. These three issues have lowered the quality of life for Inland Empire residents and the general community. Although the region is known to have these issues independently, the associations amongst each other have not been thoroughly explored. The question of the capstone asks if structural racism is an underlying layer that affects both food insecurity and alcohol accessibility in the Inland Empire. By answering the question, the results will hopefully inform government officials and the local healthcare system on how to gear and cater care towards specific populations.

Food insecurity, alcohol density, and structural racism are all multi-faceted concepts that are believed to implicitly go hand-in-hand with one other. Food insecurity is an economic and social condition characterized by a household's "limited or uncertain" access to food (Coleman-Jensen, et al., 2023). It is often qualified by the "reduced quality, variety, or desirability of diet" as well as "disrupted eating patterns" (Coleman-Jensen, et al., 2023). Alcohol density can be differentiated into two different types – on-sale and off-sale outlets. On-sale outlets permit the consumption of alcohol on its premises after purchase, whereas off-sale outlets permit the purchasing of alcohol and removal off the premises (State of California). Structural racism – referred to as an "invisible evil" – is the discrimination implemented into society on the institutional level (De Maio, 2021). This issue often affects housing, education, employment, and healthcare (De Maio, 2021).

With nearly 13% of Riverside and San Bernardino residents experiencing food insecurity and a 29.3% increase in binge drinking in those counties, these interconnected disparities have become commonplace in minoritized and disadvantaged communities (RUHS, 2022). Communities experiencing food insecurity often resort to fast food establishments, gas stations, and liquor stores to compensate for the lack of fresh ingredients and accessible grocery stores (Walker, 2021). However, the rising frequencies of fast food establishments coincide with an increasing number of neighboring gas stations and liquor stores that can supply quick snacks and easy frozen meals. The ability for gas stations and liquor stores to also act as off-sale alcohol outlets has led to a steady incline in alcohol density as communities dive more and more into their food insecurity (Reitzel et al., 2020).

The continued impact of food insecurity and alcohol density may be a result of structural racism and discrimination. Certain ethnic groups — namely Native Americans, African Americans, and Latin Americans — are discriminated against through a mutually reinforcing system of housing, education, employment, and healthcare prejudice (Fong, 2021). These are also the ethnic groups most affected by food insecurity and alcohol abuse. Current studies only focus on one disparity, highlighting the direct impacts of each one and encouraging individual changes to that one issue. Even fewer studies are done to see how structural racism interacts with other disparities and if those disparities could even be a byproduct of it. Identifying the connections between food insecurity, alcohol density, and structural racism can reveal how exactly the factors work in tandem with each other, either as duos or a trio. If we can identify what happens when they work together, preventative and mitigative policies can be enacted to better the lives of those affected.

DESIGN AND METHODS

This study examines the interconnectedness of food insecurity, alcohol outlet density, and structural racism in the Inland Empire, which consists of Riverside and San Bernardino counties in Southern California. Riverside County includes cities like Banning, Beaumont, Blythe, Calimesa, Canyon Lake, Cathedral City, Coachella, Corona, Desert Hot Springs, Eastvale, Hemet, Indian Wells, Indio, Jurupa Valley, La Quinta, Lake Elsinore, Menifee, Moreno Valley, Murrieta, Norco, Palm Desert, Palm Springs, Perris, Rancho Mirage, Riverside, San Jacinto, Temecula, and Wildomar. San Bernardino County includes cities like Adelanto, Apple Valley, Barstow, Big Bear Lake, Colton, Chino, Chino Hills, Fontana, Grand Terrace, Hesperia, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, Victorville, Yucaipa, and Yucca Valley. Together, these cities represent a diverse population with varied socioeconomic backgrounds and health challenges, offering a unique setting to investigate how these three factors interact.

The California Health Interview Survey (CHIS), managed by the UCLA Center for Health Policy Research, is a rich and comprehensive data source for health behaviors and health care access across California. The CHIS is the largest state health survey in the U.S. and is conducted continuously, offering robust data at city, county, and statewide levels. The survey method switched from a random telephone sample to an address-based sample in 2019. This transition improved the survey's coverage by reaching more households and offering multiple ways to participate, such as web and telephone surveys. CHIS contacts households, randomly selecting one adult participant. This method is designed to generate representative data reflective of California's diverse population. The data used for this study will be pulled from the 2022

California Health Interview Survey, which employs the post-transition methods of collecting census data (UCLA, n.d.).

To facilitate analysis, CHIS provides two data access platforms, AskCHIS and AskCHIS Neighborhood Edition. AskCHIS offers customizable health statistics at various geographic scales, including state, county, and sub-county regions, while AskCHIS Neighborhood Edition provides detailed maps, highlighting data from cities, zip codes, and legislative districts. The survey data's granular level and wide-ranging topics make CHIS a critical resource for examining the relationships between food insecurity, alcohol use, and structural racism.

The study investigates several key variables to uncover how food insecurity, alcohol outlet density, and structural racism interact. Food insecurity will be defined by CHIS's "Food security vs food insecurity (ability to afford food)" survey, which provides insight into the availability and affordability of nutritious food in different neighborhoods and illuminates patterns of food deserts in the region. The second variable, alcohol outlet density, is gauged by the amount of the population that lives within a quarter mile of an alcohol outlet. The density of these outlets can significantly affect drinking behaviors, particularly in areas where access to alcohol is readily available. Lastly, structural racism is analyzed through indicators like "Worry about struggling with mortgage or rent," "Experiencing unfair treatment getting medical care due to race/ethnicity," "Education level completed," and "Current employment status." These measures offer a multidimensional view of systemic barriers that various demographic groups may face in achieving equitable health outcomes. By assessing these factors alongside food and alcohol access, we aim to uncover systemic inequities that contribute to health disparities in the Inland Empire.

To ensure consistency and reliability, the study uses data categorized according to the Office of Management and Budget (OMB) Statistical Policy Directive No. 15. This federal standard categorizes race as American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White (Office of Management and Budget, 1997). Ethnicity is classified separately as either Hispanic or Latin American or Not Hispanic or Latin American. Although "American Indian or Alaska Native" and "Native Hawaiian or Other Pacific Islander" are a part of the OMB standards, they are not included in the results because they were labeled as "statistically unstable" across all criteria due to low yield of participants.

The CHIS data will be explored through these standardized demographic categories, enabling an assessment of systemic patterns in health behaviors and outcomes. For instance, healthcare discrimination, education levels, and employment status will be analyzed in relation to race and ethnicity to uncover how systemic biases impact access to care. Other variables, such as the frequency of fast food consumption, difficulty finding fresh produce, and alcohol use patterns, will be cross-referenced with demographic data to identify potential relationships with systemic racism.

CHIS did not have surveys pertinent to alcohol outlet density, so relevant data was pulled from the California Department of Public Health's data report on "Population Percentage Within a Quarter Mile of Alcohol Outlets." The data from this report separates its quantitative data into ethnicities by OMB standards, California counties, alcohol outlet license type, number of people within a quarter mile of the alcohol outlet, and the total number of people in the geographic location (California Department of Public Health, 2023). Alcohol outlet license type is further separated into on-sale, off-sale, and total-sale outlets; for the purposes of this study, total-sale will be used, as it provides the aggregate of both on-sale and off-sale outlets.

To compare the relationship between food insecurity, alcohol outlet proximity, and each metric of structural racism, a correlational analysis will be performed between each variable. A correlational analysis is the chosen form of analysis because it suggests whether there is a positive, neutral, or negative relationship between the studied variables. In the case that a positive relationship is observed, we can state that there is at least a correlation between them. To visualize the data, a heatmap will be created from the values, further allowing us to see and compare the extent of correlation between all of the variables. This will allow us to see if the socioeconomic disparities are related to each other, irrespective of the racial or ethnic groups involved.

This study leverages CHIS data to explore the complex relationships between food insecurity, alcohol outlet density, and structural racism in the Inland Empire. By using robust data collection methods and analyzing a diverse array of variables, we aim to provide a comprehensive understanding of how these factors intertwine and impact the health and well-being of different demographic groups in this region.

RESULTS

Figure 1: Population by Ethnicity Experiencing Barriers in San Bernardino County

Criteria	Latin American	White	African-American	Asian	Two or More Races	Total
Food Insecurity (inability to afford enough food)	145,000 out of 345,000	63,000 out of 135,000	12,000 out of 39,000	16,000 out of 23,000	17,000 out of 18,000	253,000 out of 561,000
Living within ¼ mile of Alcohol Outlet*	423,708 out of 1,001,145	167,892 out of 677,598	62,425 out of 170,700	37,674 out of 123,978	13,502 out of 43,366	711,311 out of 2,035,210
Worry about struggling with mortgage or rent	392,000 out of 785,000	160,000 out of 521,000	76,000 out of 113,000	49,000 out of 117,000	21,000 out of 42,000	699,000 out of 1,582,000
Last time experienced unfair treatment getting medical care	75,000 out of 785,000	14,000 out of 521,000	24,000 out of 113,000	13,000 out of 117,000	12,000 out of 42,000	140,000 out of 1,582,000
Did not pursue post-secondary education	458,000 out of 785,000	167,000 out of 521,000	34,000 out of 113,000	36,000 out of 117,000	21,000 out of 42,000	747,000 out of 1,582,000
Unemployed	264,000 out of 785,000	243,000 out of 521,000	32,000 out of 113,000	38,000 out of 117,000	28,000 out of 42,000	618,000 out of 1,582,000

*This data was gathered from the California Department of Public Health's Data Report on Population Percentage Within a Quarter Mile of Alcohol Outlets

Figure 2: Population by Ethnicity Experiencing Barriers in Riverside County

Criteria	Latin American	White	African-American	Asian	Two or More Races	Total Population Surveyed
Food Insecurity (inability to afford enough food)	142,000 out of 389,000	61,000 out of 186,000	17,000 out of 29,000	5,000 out of 24,000	1,000 out of 3,000	229,000 out of 638,000
Living within ¼ mile of Alcohol Outlet*	292,135 out of 995,257	167,134 out of 869,068	32,730 out of 130,823	24,929 out of 125,921	10,227 out of 48,110	531,826 out of 2,189,641
Worry about struggling with mortgage or rent	360,000 out of 810,000	275,000 out of 738,000	33,000 out of 106,000	49,000 out of 103,000	13,000 out of 43,000	738,000 out of 1,822,000
Last time experienced unfair treatment getting medical care	88,000 out of 810,000	14,000 out of 738,000	25,000 out of 106,000	2,000 out of 103,000	1,000 out of 43,000	133,000 out of 1,810,000
Did not pursue post-secondary education	490,000 out of 810,000	295,000 out of 738,000	31,000 out of 106,000	6,000 out of 103,000	16,000 out of 43,000	840,000 out of 1,822,000
Unemployed	266,000 out of 810,000	379,000 out of 738,000	17,000 out of 106,000	30,000 out of 103,000	6,000 out of 43,000	711,000 out of 1,822,000

*This data was gathered from the California Department of Public Health's Data Report on

Population Percentage Within a Quarter Mile of Alcohol Outlets

Figure 3: Population by Ethnicity Experiencing Barriers in San Bernardino County

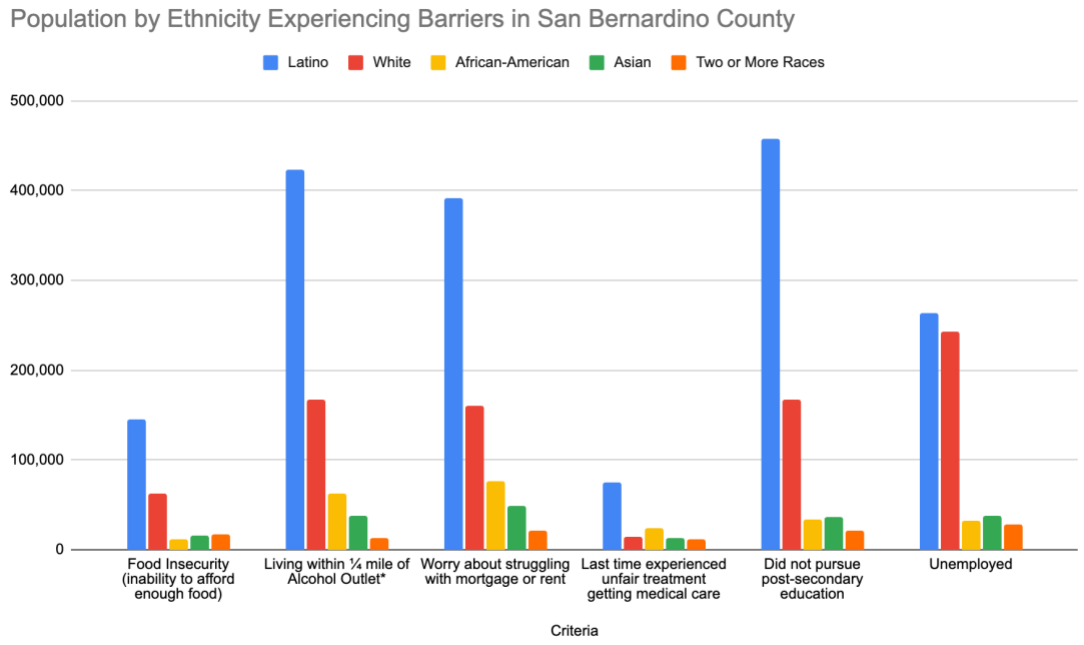


Figure 4: Percentage by Ethnicity Experiencing Barriers in San Bernardino County

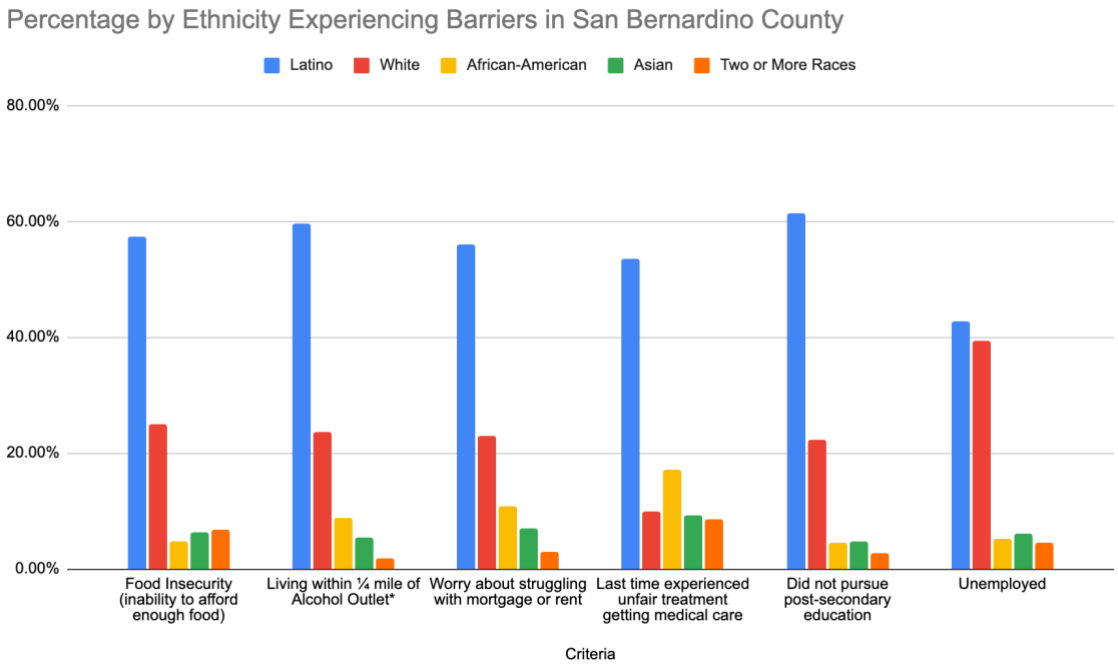


Figure 5: Population by Ethnicity Experiencing Barriers in Riverside County

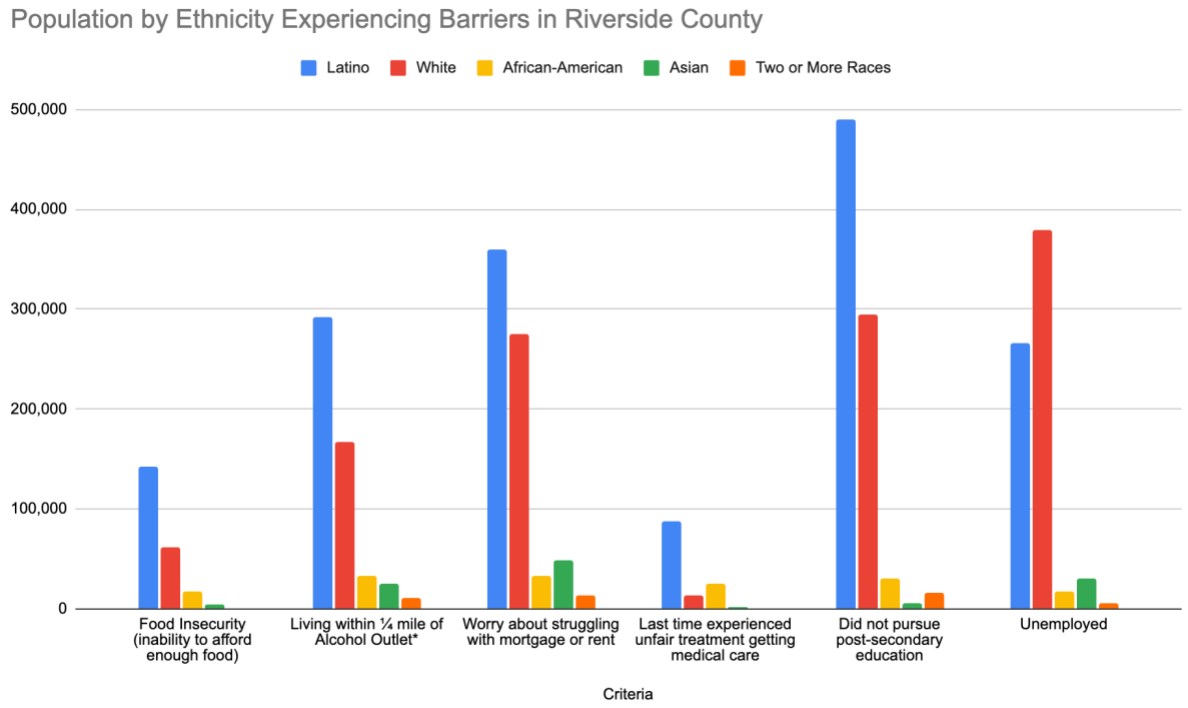


Figure 6: Percentage by Ethnicity Experiencing Barriers in Riverside County

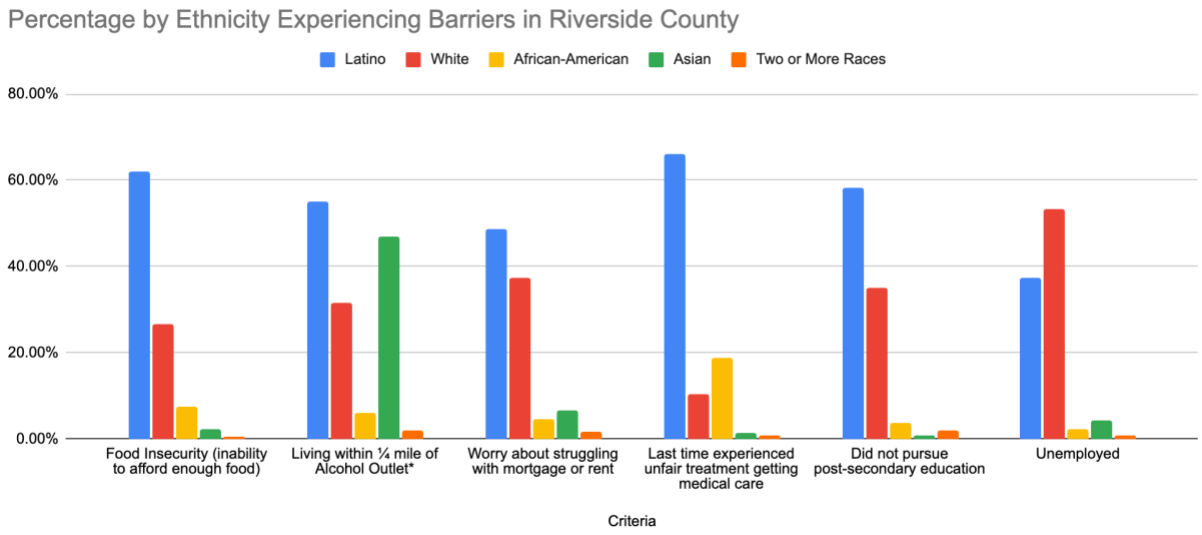


Figure 7: Correlation Analysis Heatmap of Socioeconomic Indicators in San Bernardino County

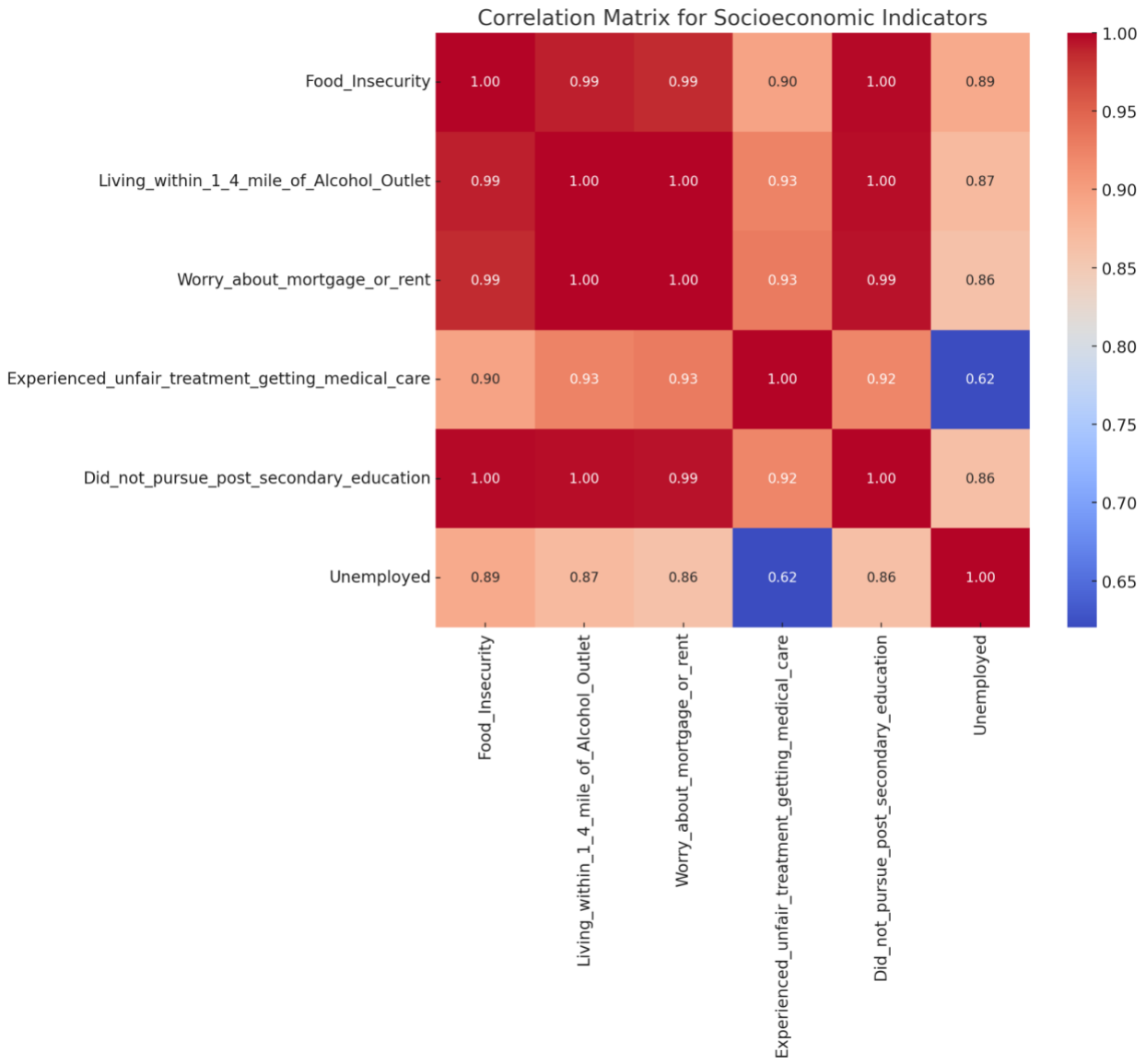
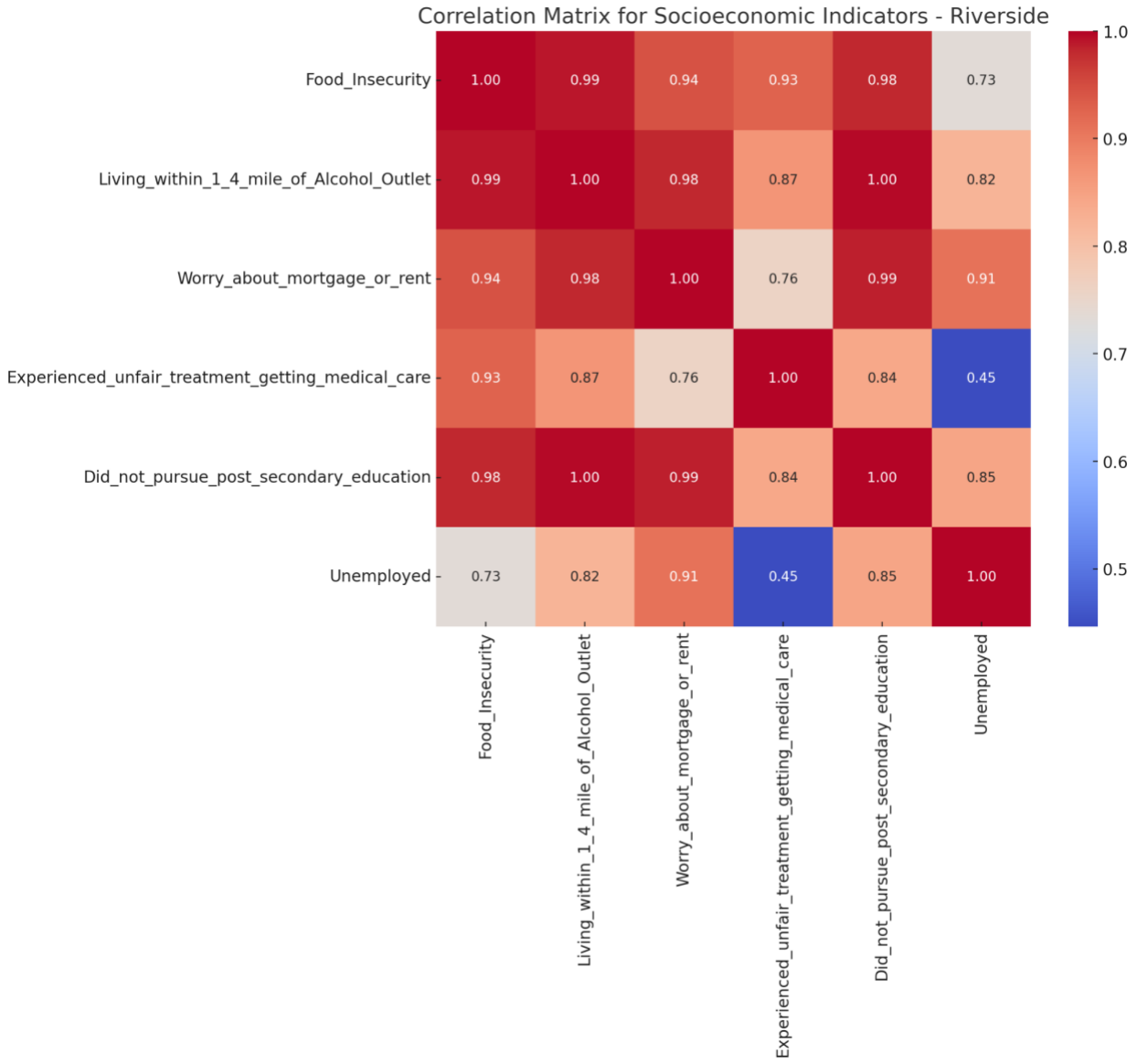


Figure 8: Correlation Analysis Heatmap of Socioeconomic Indicators in Riverside County



The study shows how food insecurity, alcohol outlet density, and structural racism are connected and unequal among different racial and ethnic groups in the Inland Empire. The tables break down the data in detail, showing the difficulties that San Bernardino County and Riverside County face.

Of the 561,000 individuals surveyed in San Bernardino County, 253,000 people (45.09% of the surveyed population) indicated that they faced some level of food insecurity. This includes

145,000 Latin Americans (57.31% of those facing food insecurity), 63,000 White individuals (24.90%), 12,000 African-Americans (4.74%), 16,000 Asians (6.32%), and 17,000 individuals from two or more races (6.72%). On the other hand, Riverside surveyed 638,000 people and 229,000 (35.89%) indicated some level of food insecurity. When compared to San Bernardino, Riverside County's proportion of people affected by food insecurity remains fairly consistent — 142,000 Latin Americans (62.01%), 61,000 White individuals (26.64%), 17,000 African Americans (7.42%), 5,000 Asians (2.18%), and 1,000 individuals of multiple races or ethnicities (0.44%). The data indicates that Latin Americans bear the highest burden of food insecurity, making up a significant majority of those affected.

Proximity to alcohol outlets reveals yet another dimension of inequality in the Inland Empire. Of the 711,311 people living within a quarter mile radius of any type of alcohol outlet in San Bernardino County, 423,708 are Latin Americans (59.57%), 167,892 are White (23.60%), 62,425 are African-American (8.75%), 37,674 are Asian (5.30%), and 13,502 are from two or more races (1.90%). When looking at Riverside County's 531,826 individuals living within a quarter mile of an alcohol outlet, 292,135 are Latin Americans (54.93%), 167,134 are White (31.43%), 32,730 are African Americans (6.15%), 24,929 are Asians (4.69%), and 10,227 are of two or more races (1.92%). Similar to the distribution seen with food insecurity, this distribution shows that Latin Americans are more likely to live near an alcohol outlet — whether it be on-sale or off-sale — compared to other groups.

For the first proponent of structural racism, housing security is studied by looking at how many people expressed worry about struggling with their rent or mortgage. Of the 1,582,000 individuals surveyed in San Bernardino, 699,000 individuals indicate some frequency (from time to time, somewhat often, very often) of worrying about their housing costs. Breaking down the

ethnic makeup of that count, 392,000 are Latin Americans (56.08%), 160,000 are White (22.89%), 76,000 are African-American (10.87%), 49,000 are Asian (7.01%), and 21,000 are from two or more races (3.00%). When looking at Riverside County's 738,000 out of 1,822,000 individuals who expressed worry about their housing costs, 360,000 are Latin American (48.78%), 275,000 are White (37.26%), 33,000 are African-American (4.47%), 49,000 are Asian (6.64%), and 13,000 are of two or more races (1.76%). Once again, this pattern shows that Latin Americans again represent the largest proportion of those affected.

Discrimination in healthcare is another significant indicator of structural racism. A total of 140,000 people out of the 1,582,000 surveyed in San Bernardino reported experiencing unfair treatment in medical care, with Latin Americans constituting 75,000 (53.57%), Whites 14,000 (10.00%), African-Americans 24,000 (17.14%), Asians 13,000 (9.29%), and individuals of two or more races 12,000 (8.57%). In relation to Riverside County's 133,000 out of 1,810,000 people that reported healthcare discrimination, 88,000 are Latin American (66.17%), 14,000 are White (10.53%), 25,000 are African-American (18.80%), 2,000 are Asian (1.50%), and 1,000 are of two or more races (0.75%). Here, we see that Latin Americans and African-Americans are more likely to face healthcare discrimination than any other racial or ethnic group in San Bernardino and Riverside Counties.

Educational attainment is another crucial metric in understanding structural racism. From the 747,000 individuals out of the 1,582,000 that were surveyed who did not pursue post-secondary education in San Bernardino, 458,000 are Latin Americans (61.31%), 167,000 are White (22.36%), 34,000 are African-American (4.55%), 36,000 are Asian (4.82%), and 21,000 are individuals of two or more races (2.81%). These ratios stay consistent in Riverside County, as 490,000 Latin Americans (58.33%), 295,000 Whites (295,000), 31,000 African-Americans

(3.69%), 6,000 Asians (0.71%), and 16,000 individuals of two or more races (1.90%) did not pursue higher education. Beyond housing insecurity and healthcare discrimination, we once again see that Latin Americans are the most susceptible to yet another metric of structural racism via education level.

Unemployment rates reflect further socioeconomic disparities, with 618,000 individuals reported as unemployed in San Bernardino out of the 1,582,000 surveyed. Of these, 264,000 are Latin Americans (42.72%), 243,000 are White (39.32%), 32,000 are African-American (5.18%), 38,000 are Asian (6.15%), and 28,000 are individuals of two or more races (4.53%). Latin Americans and Whites are the most affected groups, accounting for over 80% of unemployment collectively. From the 711,000 individuals who reported unemployment out of the 1,822,000 surveyed in Riverside County, 266,000 are Latin American (37.41%), 379,999 are White (53.31%), 17,000 are African-American (2.39%), 30,000 are Asian (4.22%), and 6,000 are of two or more races (0.84%). In Riverside County, we see that the White population is the most susceptible to unemployment, being closely followed by the Latin American population.

From the correlation analysis in San Bernardino County, we can see that there is a strong correlation across all variables. Nearly every single variable displays a value of at least 0.86, which suggests a strongly positive correlation. The lowest correlation relationship observed is 0.62 between “Unemployment” and “Experienced unfair treatment getting medical care,” however it is still a moderately strong positive relationship. This relationship is consistent in Riverside County as well, with the lowest correlation also being between “Unemployment” and “Experienced unfair treatment getting medical care.” This suggests that there is a strong correlation between food insecurity and alcohol proximity, food insecurity and structural racism, and alcohol proximity and structural racism.

The data across these indicators show clear disparities that demonstrate the complex interplay between food insecurity, alcohol outlet density, and structural racism. Latin Americans, in particular, are disproportionately affected, consistently ranking the highest in each measure. The results point to deep-seated structural issues that intertwine economic, health, and social determinants.

DISCUSSION

The data from San Bernardino and Riverside County provide crucial insights into the relationships between food insecurity, alcohol outlet density, and structural racism. By examining these counties, a nuanced understanding emerges that illustrates not just disparities but also common structural barriers impacting the health and well-being of these communities.

Across both San Bernardino County and Riverside County, food insecurity disproportionately affects the Latin American community. In San Bernardino, the Latin American community accounts for over half (57.31%) of the surveyed population affected by food insecurity, and this disparity reveals similar patterns in Riverside County with Latin Americans again being the ethnic group experiencing the highest proportion of food insecurity (62.01%). Beyond displaying the largest percentage, they are also the largest ethnic group in San Bernardino and Riverside, thereby representing the highest raw number of individuals experiencing food insecurity across both counties. The persistent strain of food insecurity on the community's daily lives compounds itself to have physical psychological consequences, often manifesting itself as chronic diseases like diabetes, hypertension, hyperlipidemia, gout, obesity, depression, anxiety, and other mental health disorders. In adults, this stress can lead to coping behaviors such as smoking or excessive alcohol consumption, further worsening health outcomes.

Both counties also display a disproportionate demographic bias regarding alcohol outlet density. Once again, we see San Bernardino's Latin American community showing the highest proportion of any ethnic group facing a health disparity — in this case being proximity to an on-sale or off-sale alcohol outlet. Alcohol outlet density remains a challenge in Riverside as well, with the proportion of Latin Americans living near outlets being similar to that in San

Bernardino — 54.93% and 59.57%, respectively. The high density of alcohol outlets near the Latin American community increases the risk of alcohol-related health problems, such as alcoholism and cardiovascular disease, and contributes to existing health disparities. When tied with food insecurity, the high density of alcohol outlets in San Bernardino County creates a complex web of factors that exacerbates poor health outcomes.

Food insecurity already compromises nutrition and chronic stress, weakening the immune system and increasing one's susceptibility to illness. Heightened ease of access to alcohol further impairs health by encouraging excessive consumption via binge drinking. According to Riverside University Health System (RUHS) Department of Public Health's report on Alcohol-Related Harm in Riverside County in 2022, the binge drinking rate of the Hispanic/Latinx community in Riverside County was 37.1% — the highest proportion of binge drinking amongst any other ethnic group aside from those of multiple races (RUHS, 2022). With alcohol often being paired with processed snacks or fast food, especially when they are available at prices lower than healthier alternatives, a high density of alcohol outlets amidst a food desert filled with gas stations and fast food establishments only further encourages an unhealthy diet.

Intersection between physical and mental health challenges trap individuals into a cycle of poor health and a low socioeconomic status, making it harder to overcome the barriers presented by structural racism. As seen in Figures 4 and 6, the Latin Americans in San Bernardino and Riverside Counties are disproportionately affected by housing insecurity, healthcare discrimination, education level, and unemployment. These factors of structural racism are closely related. While it's not certain, it's possible that lower education levels lead to fewer job opportunities and higher unemployment rates, which in turn cause economic instability and concerns about housing costs. Without a stable income, many people are forced to live in

neighborhoods with high alcohol outlet densities, where drinking often serves as a coping mechanism for financial and social stress. San Bernardino's West Side neighborhood has been historically redlined to include mostly minority populations — namely Latin and African Americans (Tilton, 2023). By just living in such neighborhoods, Latin and African Americans are often neglected, lacking access to quality education, job opportunities, and accessible and affordable healthcare. The lack of economic mobility keeps these communities stuck in poverty, making it hard for them to move to areas with better resources. Additionally, discrimination in healthcare leaves these groups more vulnerable, with limited access to preventive care and substance abuse treatment — both of which are essential for reducing alcohol-related harm and nutritional deficiencies. As a result, the high density of alcohol outlets combined with food insecurity makes health disparities rooted in structural racism even worse, causing poor health outcomes and deepening the disadvantage of these marginalized communities.

LIMITATIONS

Although the study offers insightful analysis on food insecurity, alcohol outlet density, and structural racism in the Inland Empire, there are multiple limitations regarding data diversity and how it affects the depth of analysis. The data sourced from the California Health Interview Survey, while valuable, may not fully capture the diversity of San Bernardino and Riverside counties because of its reliance on self-reported information. Because of this, it naturally introduces some level of bias — whether it be affinity, attribution, conformity, or confirmation bias. Furthermore, there is risk of response bias through the collection means of the survey. Because CHIS surveys are collected via digital means, like web and telephone surveys, many individuals who do not have access to a phone or computer — including but not limited to homeless individuals or those below the poverty line — may not be appropriately represented in the published data. Lack of their representation could potentially skew the quantitative data in a way that is not reflective of the situation's reality.

The geographic scope being limited to the county level as well as the study's cross-sectional design paves way for overgeneralizations and limits the ability to draw causal conclusions. Because of this, differences between rural and urban areas within each county are not considered and density measures based on proximity therefore lack precision. Furthermore, important factors such as individual income and neighborhood safety were not considered, which might affect the observed relationships.

FUTURE RESEARCH RECOMMENDATIONS

For future research, a mixed-methods approach combining quantitative surveys with qualitative interviews could provide a more comprehensive understanding of how food insecurity, alcohol outlet density, and structural racism affect the Inland Empire. By analyzing both types of data, the quantitative data can show how the disparities affect the community level, whereas qualitative data can highlight the unique stories and personal challenges on the individual level. Furthermore, delving deeper geographically by analyzing the individual cities of each county would highlight where concentrations of people may be more susceptible to the disparities compared to others. This could be done by employing map data to visualize the density of fast food establishments or alcohol outlets in each city or county. Comparative studies with different counties or states could also further suggest if the patterns observed in the Inland Empire are unique or are indicative of broader trends. By addressing these gaps and incorporating these suggestions, future studies can better understand these interactions and inform more effective public health policies and initiatives.

CONCLUSION

This research paper seeks to acknowledge and describe how food insecurity, alcohol outlet density, and structural racism affects the racially marginalized communities of California's Southern Inland Empire. From analyzing quantitative data provided from the California Health Interview Survey and data reports from California's Department of Public Health, it is reasonable to say that the three disparities build on top of one another and create a feedback loop that affects the community as a whole. Latin Americans, who form the largest demographic group in both counties, are disproportionately affected by the three disparities compared to the other ethnic groups. Results and patterns observed across both San Bernardino and Riverside counties underscore the role that social, economic, and geographic barriers play in perpetuating health inequities.

These findings from San Bernardino and Riverside counties indicate a pressing need for policy intervention and community action targeting food insecurity, alcohol outlet density, and structural racism. Fortunately, many community efforts already exist. Free clinics and non-profit organizations — Riverside Free Clinic, San Bernardino Free Clinic, Inland Empire Street Medicine Clinic, Coachella Valley Free Clinic, and Jurupa Valley's Reach Out Center to name a few — have made continuous efforts to address healthcare discrimination through culturally competent care, food insecurity through partnerships with local farms, and housing insecurity through social service resources. However, very little legal or policy initiatives have been put into practice. To address food insecurity, state-enforced incentive policies that provide financial subsidies or tax provisions could encourage grocery stores and farmers markets to operate in cities with a high density of fast food restaurants. In similar fashion, incentive policies could be used to discourage alcohol outlets from clustering in lower-income or racially concentrated

neighborhoods, effectively capping the number of alcohol licenses in specific regions. In doing so, financial incentive policies could indirectly play a large role in mitigating food-related and alcohol-related health issues. Enhancing educational opportunities for minority populations is crucial for breaking the cycle of poverty and health disparities. With many jobs now emphasizing some level of college education, scholarships, mentorship programs, and community college partnerships can encourage higher education participation amongst the entire population, not just racially marginalized communities.

Food insecurity, alcohol outlet density, and structural racism present significant challenges for the Inland Empire's health and social systems. Multidisciplinary action via institutional and community engagement can address these interconnected issues, ensuring that all communities have equitable access to nutrition, healthcare, and economic opportunities.

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