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Factors Affecting the Rates of Childhood Poverty in Tennessee

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Scholarship in Medicine Final Report

Abstract

Objective: The goal of this investigation is to analyze data to determine the factors that influence childhood poverty in Tennessee. Specifically, I am examining how child poverty has changed over the past years, as well as determining its associations with residential segregation (Black/white), food insecurity, teen births, low birthweights, child and infant mortalities, drug overdose deaths, access to healthy foods, premature deaths, and uninsured children. Data was used from the County Health Rankings website. Their data has been collected from surveys. Paired t-tests, unpaired t-tests, Pearson correlations, and stepwise linear regressions were performed. Results indicated that Tennessee has had decreased rates of child poverty from the years 2015 to 2020 and that Tennessee has lower rates of child poverty compared to Kentucky. It was found that infant mortality, residential segregation (Black/white), teen births, and food insecurity accounted for child poverty in Tennessee counties in 2020. Low birthweights, child mortality, and premature death correlated to child poverty in Tennessee. However, limited access to healthy foods, uninsured children, and drug overdose deaths did not demonstrate a correlation to child poverty in Tennessee counties. The identification of the associated risk factors to child poverty is important because it can be used to implement direct resources and policies to reduce the number of children living in poverty in Tennessee.

Key Words: Tennessee, children poverty, food insecurity, teen births, residential segregation, low birthweight, child mortality, infant mortality, uninsured children

Introduction

In the United States, there are 72.4 million children under the age of 18.¹ Among these children, 41% are low-income children and 19% are poor.¹ In 2016, 22% of children were considered low-income, which was a value that surpassed the percentage of low-income adults at 16%.¹ Additionally, in 2016, it was found that children were twice as likely to be poor compared to adults that were 65 years or older.¹ These high numbers in child poverty is of great importance because a significant part of the population is unable to meet basic needs, which may ultimately affect their health, development, and future. According to the American Academy of Pediatrics, poverty is defined as a state in which one is unable to possess a usual or socially acceptable amount of money or material possessions, leading to a difficulty in meeting basic needs, such as food, shelter, healthcare, education, sanitation, and clothing.² The federal poverty level (FPL) is defined as a current method of measuring and operationalizing poverty based on family size and composition.² In 2020, the federal poverty level was defined as \$12,760 for a family of one, \$17,240 for a family of two, \$21,720 for a family of three, \$26,200 for a family of four, and \$30,680 for a family of five.³ Children who are living in poverty are at an increased risk for experiencing a higher number of adverse childhood events (ACEs), including the death of a parent, witnessing domestic or neighborhood violence, living with someone who has a drug or alcohol problem, exposure to racial/ethnic discrimination, and many more.⁴ It is important to reduce the number of children living in poverty because these children may disproportionately experience increased hardships that may negatively impact their mental, physical, and social health.

In comparison to other developed countries in the world, the United States has much higher rates of child poverty.⁵ The United States has had the highest level of long-term trends in

child poverty between the years of 1974 to 2012.⁵ Some researchers believe that the United States underinvests in children and their families, which ultimately leads to a higher number of children living in poverty and poorer health.⁵ One study found that in 2015, the overall estimate of child poverty in the United States cost the nation \$1.0298 trillion per year; this value represented about 5.4% of the annual gross domestic product.⁶ In the same study, there was further comparison of the cost of childhood poverty to the overall federal government spending, which was a total of \$3.688 trillion in 2015; the federal government spending included a wide variety of programs and agencies, such as Social Security, Medicare, Medicaid, defense spending, and many more.⁶ Therefore, the annual cost of childhood poverty represented about 28% of the entire federal government budget.⁶ This data shows that spending on childhood poverty is very high. Though the United States is using money to try to keep children out of poverty by implementing government assistant programs, critics also believe that the downstream factors associated with poverty, such as increased crime and worsened health among children living in poverty, are draining national resources at an alarming rate. In 2018, The National Center for Children in Poverty (NCCP) also found that Kentucky had 535,865 families with 985,484 children living in poverty, which is 25% of the state population and 19% of the national population.⁷ In 2018 the NCCP in Tennessee, which is a neighboring state to Kentucky, had 779,216 families with 1,458,751 children living in poverty, which is also 25% of the state population and 19% of the national population.⁸

Recognizing and understanding this cost is an important step in attempting to reduce child poverty, as well as focusing on ways to improve the negative effects that these children may face.

Many people who live in poverty experience food insecurities. A study found that in 2018, the United States nationally spent \$96.1 billion on domestic food assistance, but there were approximately 15 million households, or 11.8%, that experienced food insecurities at some time in that year.⁹ It was also found that families that experience food insecurities were higher in average for families that had children, as well as for households that were non-Hispanic Black or Hispanic.⁹ Food insecurities is an important factor to address for those who live in poverty because it can lead to maldevelopment of children and negatively impact their health. Heflin and Gable found that 35.4% of households headed by single women with children faced food insecurities.¹⁰ The study discussed how food insecurities can impact the various stages of development, such as the prenatal period.¹⁰ Food insecurities in pregnant mothers may hinder development of the prenatal period because it may lead to low birthweights in newborns. The study also found that a lack of food and nutritional intake during the first few years of life may result in slowed cognitive development, reduced physical growth, increased vulnerability to infections and chronic diseases, and a higher risk of delivering low birthweight babies.¹⁰ It is important to address food insecurities in those living in poverty because they may lead to increased childhood poverty and worsened health outcomes for the children.

Living in poverty may present with disadvantages during pregnancy that could impact perinatal health. In comparison to other developed countries, single mothers in the United States have a very high probability of living in poverty.⁵ In a study conducted by Hamad and Rehkopf, they discussed how low-income women showed increased malnutrition, smoking, alcohol usage, and psychological stress.¹¹ They also discussed that these women were less likely to have access to prenatal care or breastfeed.¹¹ A strong correlation exists between poverty during pregnancy and child health and development.¹¹ A different study examined the rates of infant mortality

specifically in England, which revealed that there was an unprecedented rise in infant mortality in areas that were significantly impacted by poverty; thus, leading to an increase in childhood poverty.¹² Another study attempted to determine the association between indicators of prenatal nutrition and appetite regulation among young children; they found that low-income girls, but not boys, had indicators of adverse prenatal conditions that were associated with poor appetite regulation during early childhood.¹³ The findings of this study suggest that among children living in poverty, females might be subjected more to poorer mental, physical, and social health outcomes.

Racial and poverty segregation can create educational challenges for children, as well as present them with unequal opportunities in their health and social aspects of their life.

Experiencing both racial and poverty segregation is known as double segregation.¹⁴ Racial isolation and inequality is perpetuated by non-white children being placed into schools that strongly benefit white and middle class families, as well as these children living in segregated neighborhoods that lead to poor information, contact, and opportunities.¹⁴ Between the years of 2013 to 2014, Tennessee was one of the most segregated states for black students; the findings for Tennessee showed that 27.9% of blacks were exposed to white students, there were 44.3% of black students in 90-100% non-white schools, and 22.8% of blacks were enrolled in school.¹⁴ Another study found that Black, Hispanic, and Native American children attended schools with the highest poverty concentrations; in comparison to whites and Asians, it was also found that the schools attended by Black, Hispanic, and Native American students had significantly lower test scores on average.¹⁵ However, it was also found that attending a charter school, a higher performing school, in a high poverty area can lead to better test scores than non-charter schools, whereas charter schools located in low-poverty areas have lower test scores.¹⁵ In determining

the educational success and life opportunities presented to children living in poverty, it is important to address racial and residential segregation.

It is known that being uninsured for healthcare can make it more difficult to obtain the appropriate healthcare. Those living in poverty, especially children, may not have access to funding to provide themselves with healthcare. A study found that publicly funded or no health insurance contributed to socioeconomic adversity for the United States and specifically in Tennessee.¹⁶ If families are unable to pay for their health bills, their ability to pay for other bills will also deteriorate, resulting in further socioeconomic adversity and poverty.¹⁶ Another study demonstrated further how socioeconomic adversities may result in poor health outcomes. The study specifically examined opioid fatalities and its association with a low socioeconomic status. Many people living in poverty are at an increased risk for opioid usage compared to people living at a higher socioeconomic status.¹⁷ The study found that people aged 10 to 19 years old accounted for 8.8% of opioid overdose fatalities.¹⁷ This study has important implication because it demonstrates that children in poverty are at a high risk of harming their health, which could possibly result in a fatality.

Although there have been many studies on the association between childhood poverty and poor health outcomes, lack of insurance, and food insecurities, the goal of this paper is to further assess these relationships, as well as focus on additional factors that may influence children in poverty. Additionally, the goal is to identify gaps in the literature between childhood poverty and residential segregation (Black/White), teen births, low birthweights, child mortality, infant mortality, residential segregation (Black/White), premature death, access to healthy foods, and drug overdose deaths. This study will condense these findings into one review and will help in identifying specific factors that are associated with child poverty. Previous literature has

mostly demonstrated findings that are generalized for the United States, but this study will specifically examine all of these relationships in Tennessee counties. The findings from this study may be used to identify significant factors associated with child poverty and direct specific resources to Tennessee counties in order to reduce rates of children living in poverty. By further understanding the influences on child poverty on a state level, we can hope to ultimately reduce child poverty rates on a national level.

Research Questions

RQ1: How does the rate of children living in poverty change by county in Tennessee in 2015 versus 2020?

RQ2: How does the rate of children living in poverty in Tennessee compare to Kentucky in 2020?

RQ3: How does infant mortality, residential segregation (Black/White), and food insecurity influence the rate of children in poverty in Tennessee counties in 2020?

RQ4: How does the rate of low birthweights correlate to child poverty by county in Tennessee in 2020?

RQ5: How can the percent of teen births in Tennessee counties in 2020 account for the variance in children poverty rates?

RQ6: How does rate of child mortality correlate to children in poverty by county in Tennessee in 2020?

RQ7: Does premature death correlate with children living in poverty in Tennessee counties in 2020?

RQ8: How does access to healthy foods correlate to childhood poverty rates in Tennessee counties in 2020?

RQ9: How does the percent of uninsured children in Tennessee counties in 2020 correlate to children living in poverty?

RQ10: Is there a correlation between drug overdose deaths and children in poverty in Tennessee counties in 2020?

Methods

Context/Protocol

Children in poverty is measured as the percentage of children under the age of 18 years old that are living in poverty. Data collected on children living in poverty comes from the Small Area Income and Poverty Estimates program; this data is derived from the American Community Survey and complex statistical modeling is used to form the estimates. Children in poverty is also divided into data for different races, such as American Indian & Alaska Native, Asian & Pacific Islander, Black, Hispanic, and non-Hispanic White children; this data was measured between the years of 2014 and 2018 from the American Community Survey. Data was used from 2018 for 2020 County Health Rankings. This measure is also compared to Kentucky, which is a neighboring state to Tennessee. Data from Kentucky regarding child poverty was collected with the same methods.

The number of deaths among children that are less than the age of one year per 1,000 live births is measured as infant mortality. The rate of infant mortality is measured as the number of events, such as births and deaths, in a given time period divided by the average number of people who are at risk during that time period. The death of an infant is counted by the county that the infant lived in. Counties that have less than 20 infant deaths in the time period have missing

values. Data from 2012-2018 was used for 2020 County Health Rankings for this measure. Data was collected from the National Vital Statistics System.

Racial and ethnic segregation is defined as the degree as to which two or more groups live separately from each other in a specific geographical area. Demographics between Black and White residents is measured as the index of dissimilarity, which makes up the distribution in counties. The index has a range from 0, indicating complete integration, to 100, indicating complete segregation. Counties that have a Black population of less than 100 in a specific time frame will have a missing value. Data was collected from the American Community Survey. Data from 2014-2018 was used for 2020 County Health Rankings for this measure.

The percentage of people in a population that do not have access to a reliable food source during the past year is measured as a food insecurity. This variable was modeled with the Core Food Insecurity Model, which used data from the Bureau of Labor Statistics, American Community Survey, and the Community Population Survey. Data from 2017 was used for 2020 County Health Rankings for this measure.

The percentage of live births in which the infant weighs less than 2,5000 grams (about 5 lbs, 8 oz.) is defined as low birthweight. Infant births are counted in a county according to the mother's address, not the county in which the child was born. Counties that have less than 10 low birthweights in a specific time frame will have a missing value. Data from 2012-2018 was used for 2020 County Health Rankings for this measure. Data was collected from the National Vital Statistics System (NVSS).

Teen births are measured as the number of births by females who are between the ages of 15 to 19 per 1,000 females in a specific county. Similarly to low birthweights, teen births are counted by the mother's address on the child's birth certificate. If there are less than 10 births in

a county, then there will be a missing value. Data from 2012-2018 was used for 2020 County Health Rankings for this measure. Data was collected from the National Vital Statistics System (NVSS).

Child mortality is measured as the number of deaths in children who are under the age of 18 per 100,000 population. The death of a child is counted by the place of residence of the child. If there are less than 10 births in a county, then there will be a missing value for the county. Data from 2015-2018 was used for 2020 County Health Rankings for this measure. Data was collected from the National Vital Statistics System (NVSS).

Premature death is defined as the years of potential lives lost before age 75 per 100,000 population. In order to calculate premature death, rates are found by the number of events, such as births and events, in a given time period divided by the average number of people who are at risk in the given time period. In a 3 year period, all of the years of potential life that are lost in a county are summed and then divided by the county's total population in the same time period. This value is multiplied by 100,000 in order to determine the potential life lost under the age of 75 per 100,000. The rate and distribution of premature mortality is measured by years of potential life lost. Premature death is reported as an age-adjusted rate. Deaths are counted by the place of residence of the individual. Data from 2016-2018 was used for 2020 County Health Rankins data for this measure. Data was collected from the National Vital Statistics System (NVSS).

The percentage of people that are considered to be low-income and that do not live near a grocery store are determined to have limited access to healthy foods. In rural areas, having limited access to healthy foods means living more than 10 miles from a grocery store. However, in nonrural areas, living more than one mile means having limited access to healthy foods. If a

family has an annual income of less than or equal to 200% of the federal poverty threshold for the family size, they are measured to be a low-income family. Data from 2015 was used for this measure for the 2020 County Health Rankings.

The percentage of people in the population who are under the age of 19 and do not have health insurance coverage in a given county are defined as uninsured children. Having no insurance coverage is defined as not being covered through a current or former employer/union, purchased from an insurance company, Medicaid, Medicare, TRICARE or other military health care, Veterans Affairs, Indian Health Services, any kind of government assistance plan for those with low-income or disability, Medical Assistance, or any other type of health insurance. Data was collected from the US Census Bureau's Small Area Health Insurance Estimates (SAHIE) program. Data from 2017 was used for 2020 County Health Rankings for this measure.

The number of deaths due to drug poisoning per 100,000 population is defined as drug overdose deaths. The death of the individual is counted by the place of residence of the deceased individual. If there are fewer than 10 deaths per county, there will be a missing value. Data from 2016 to 2018 was used for the 2020 County Health Rankings of this measure. Data was collected from the National Vital Statistics System (NVSS).

Data Collection

Benton, Clay, Hancock, Houston, Johnson, Lewis, Meigs, Moore, Morgan, Pickett, Trousdale, and Van Buren counties all have missing values for child poverty that include specific percentages of Asian, Black, Hispanic, and White populations. Many counties do not have values specifically for the Asian population, so these counties will be excluded when examining the rates of Asian children living in poverty. Many counties do not have the percentages of Black, Hispanic, and White children living in poverty, so these will be excluded. There are 51 counties

that have missing values for infant mortality rate, so these counties will be excluded. There are 18 counties with missing values for residential segregation (Black/White), so these will be excluded from analyses. All counties measuring food insecurities will be included for the analyses. All counties have a percentage value for low birthweights, which will be included in analyses. Many counties have missing values for Asian, Black, Hispanic, and White populations, which will be excluded. All counties have a value for teen births, which will be included in analyses. Many counties have missing values for Asian, Black, Hispanic, and White populations, which will be excluded. There are 25 counties measuring child mortality that will be excluded due to missing values. All counties have a value for premature deaths, which will be included in analyses. Many counties have missing values for Asian, Black, Hispanic, and White populations, which will be excluded. All counties have a value for limited access to healthy foods, which will be included in analyses. All counties have a value for uninsured children, which will be included in analyses. There are 21 counties that have missing values measuring drug overdose deaths, so these will be excluded.

A limitation of residential segregation (Black/White) is only available for counties that have a Black population of at least 100. This applies to about 65% of counties in the United States. This suggests that there are still many counties that may be experiencing residential segregation (Black/White) despite having a smaller Black population. This measure is also a reflection of racial discrimination rather than ethnic discrimination.

The Core Food Insecurity Model generates estimates that are more stable with a smaller number of residents or survey responses. However, this model has limitations. For example, more estimates are derived from the model rather than survey responses if there are smaller population samples or county sizes. This model may also may statistical assumptions, which may

not be true for every case presented. Additionally, models are not perfect and each model has its own limitations.

A limitation of teen births is that the measure does not include teen births that occur in those that are younger than the age of 15. Teen pregnancy and teen births are also considered to be different measures since all pregnancies do not lead to a birth.

A limitation of premature death is that the years of potential life lost may be difficult for people to interpret. Deaths that also occur after the age limit are not accounted for in this measure; this may result in a deaths not being counted if the age cut-off is too low.

All data will be used for the available counties for each measure. Counties that have missing values for a specific measure will not be used.

Data Analysis

To determine how the rate of children living in poverty changes by county in Tennessee from 2015 to 2020 (RQ1), a paired samples t-test was conducted. The rate of children living in poverty in Tennessee compared to Kentucky in 2020 was determined by conducting an unpaired samples t-test (RQ2). A linear regression using the enter method was performed to examine how infant mortality, residential segregation (Black/White), and food insecurities account for the variance in children poverty in Tennessee counties in 2020 (RQ3). To establish the relationship between low birthweights and children poverty by county in Tennessee in 2020, a Pearson/Spearman correlation was conducted (RQ4). To account for the variance in children poverty due to teen births in Tennessee counties in 2020, a stepwise linear regression was performed (RQ5). The association between child mortality and children poverty in Tennessee in 2020 by county was determined by performing a Pearson/Spearman correlation (RQ6). To examine the relationship between premature death and children living in poverty in Tennessee

counties, a Pearson/Spearman correlation was conducted (RQ7). To determine the association of access to healthy foods and childhood poverty in Tennessee counties, a Pearson/Spearman correlation was conducted (RQ8). To determine how the percent of uninsured children in Tennessee counties account for variance in children poverty, a Pearson/Spearman correlation was performed (RQ9). To determine the association between drug overdose deaths and children living in poverty in Tennessee counties in 2020, a correlation analysis was performed (RQ10).

Results

Comparing the prevalence of child poverty in Tennessee counties between 2015 to 2020 (RQ1), we found that the prevalence significantly decreased from 29.11% in 2015 to 24.01% in 2020 ($t = -15.69, p < 0.001$) (Table 1).

Table 1: Child Poverty Prevalence in Tennessee

Year	n	Mean	SD
2015	95	29.11%	6.32%
2020	95	24.01% ^a	6.27%

Abbreviation: SD, Standard Deviation

^aStatistically significantly different from 2015 ($p < .001$)

Rates of child poverty (RQ2) were significantly different between Tennessee (24.01%) and Kentucky (26.86%) counties in 2020 ($t = -2.60, p = 0.01$) (Table 2).

Table 2: Child Poverty in 2020 Among Two States

State	n	Mean	SD
Tennessee	95	24.01%	6.27%
Kentucky	120	26.86% ^a	0.83%

Abbreviation: SD, Standard Deviation

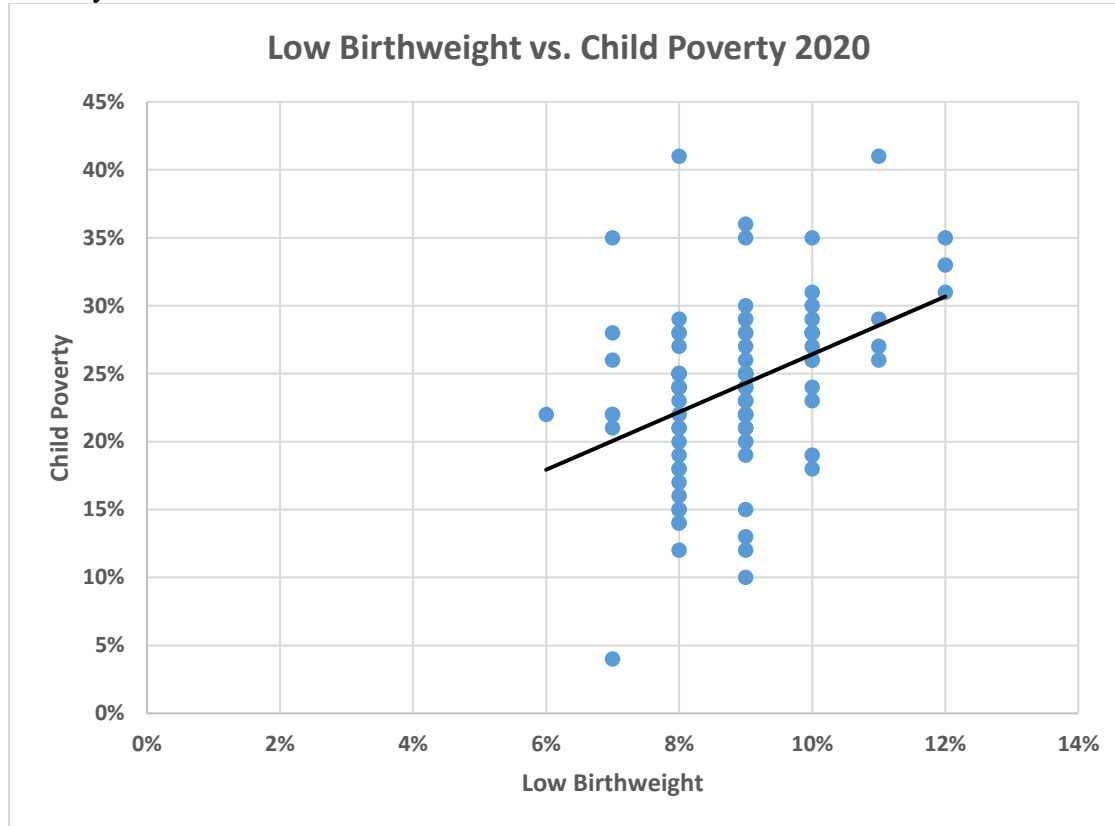
^aStatistically significantly different from Tennessee ($p = 0.01$)

The research question (RQ3) investigated how infant mortality, residential segregation (Black/white), and food insecurity accounted for child poverty in Tennessee counties in 2020. A linear regression using the enter method indicated that the best fitting model was significant ($F_{3,40} = 24.14, p < 0.001$), accounting for 64.4% of the variance in childhood poverty. Food insecurity contributed the most to the model ($B = 1.67, t = 4.94, p < 0.001$), but infant mortality ($B = 0.71, t = 1.57, p > 0.05$), and residential segregation (Black/White) ($B = 0.06, t = 1.26, p > 0.05$), did not contribute significantly.

When investigating how low birthweights correlate to child poverty in Tennessee counties in 2020 (RQ4), a Pearson correlation indicated a weak significant correlation ($r = 0.38, p < 0.001$).

This indicates that as the percentage of low birthweight cases increases, the percent of children living in poverty also increases (Figure 1).

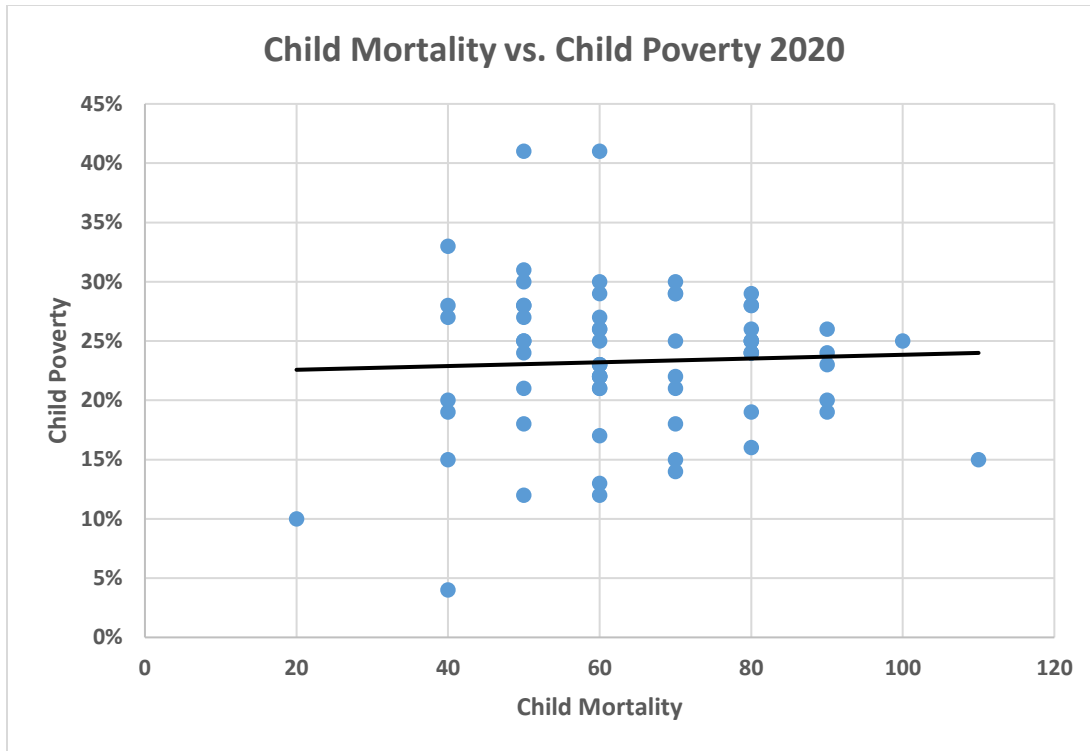
Figure 1: Correlation Between Percent of Low Birthweight Cases and Percent of Childhood Poverty in Tennessee 2020



When investigating how teen births accounted for the variance in child poverty in Tennessee 2020 (RQ5), a stepwise linear regression indicated that the model was significant ($F_{1,93} = 79.32$, $p < 0.001$), accounting for 46% of the variance in child poverty. Teen births contributed to the model ($B = 0.45$, $t = 8.91$, $p < 0.001$).

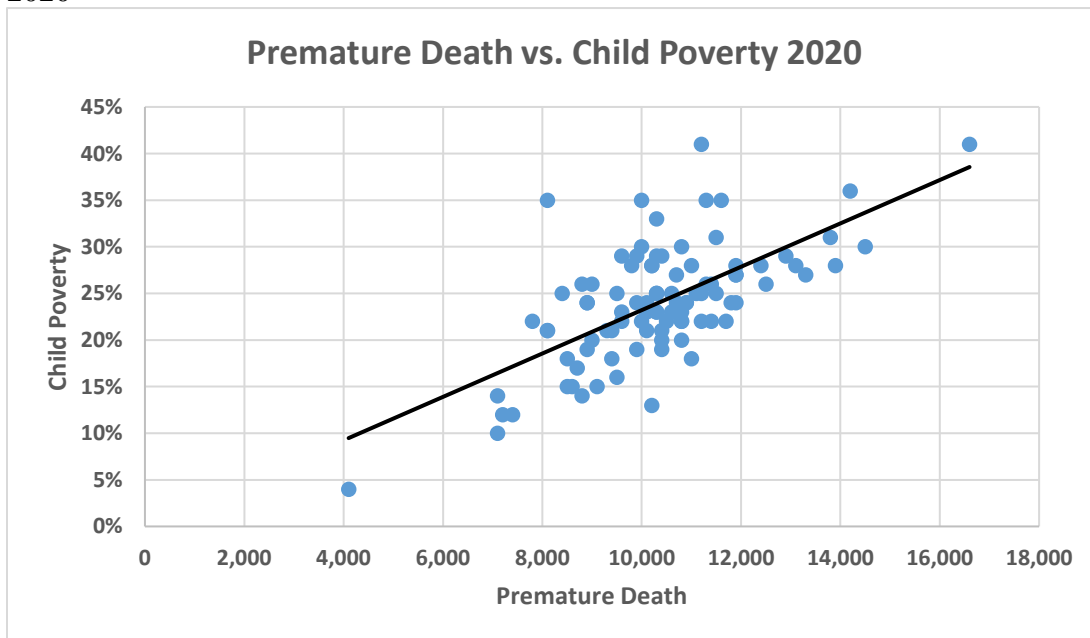
When examining how child mortality correlated to child poverty in Tennessee counties in 2020 (RQ6), a Pearson correlation indicated a moderate significant correlation ($r = 0.439$, $p < 0.001$). This indicates that as the number of child mortality cases increases, the percent of child poverty also increases (Figure 2).

Figure 2: Correlation Between Child Mortality Cases and Percent of Childhood Poverty in Tennessee 2020



When determining how premature death correlated to child poverty in Tennessee counties in 2020 (RQ7), a Pearson correlation indicated moderate significant correlation ($r = 0.657$, $p < 0.001$). This indicates that as the number of premature death cases increases, then the percent of child poverty also increased (Figure 3).

Figure 3: Correlation of Premature Death Cases and Percent of Childhood Poverty in Tennessee 2020



In investigating how limited access to healthy foods correlated to child poverty in Tennessee counties in 2020 (RQ8), a Pearson correlation indicated that the model was not significant ($r = -0.086$, $p = 0.409$).

In determining how uninsured children accounted correlated to in child poverty in Tennessee using county-level data from 2020 (RQ9), a Pearson correlation indicated that the model was not significant ($r = 0.119$, $p = 0.250$).

When investigating how drug overdose deaths correlated to child poverty in Tennessee counties in 2020 (RQ10), a Pearson correlation indicated no significant correlation ($r = 0.023$, $p = 0.843$). There was no correlation between drug overdose deaths and child poverty.

Discussion

There is compelling evidence that child poverty is an important issue within the United States as a whole. While there are several national programs that focus on reducing the high rates of childhood poverty, this study focused on filling in the gaps between various factors and their relationship to child poverty in the state of Tennessee. Identification of how the different variables impact childhood poverty might help in creating specific programs that target these factors and aid in reducing the rates of child poverty. Using data from Tennessee counties, statistical analyses allowed for the comparison and further study of the different variables in relation to child poverty. However, none of these factors can estimate the burden and social, physical, and mental hardship experienced by children living in poverty.

Overall, it was found that the percent of children living in poverty has significantly decreased in Tennessee between the years of 2015 to 2020. This was an important finding because the rates of child poverty have reduced over the years in Tennessee, which indicates that Tennessee may have implemented certain programs to aid in reducing these rates and that the state might be improving its economic and financial stability. A previous study demonstrated that the United States spends approximately 28% on child poverty in the federal budget.⁶ With lower

rates of poverty in Tennessee in comparison to previous years, the state and possibly the United States might be able to adjust the federal budget to better target the needs of this population.

Programs created in Tennessee to reduce rates of child poverty may also be implemented in other areas of the United States to reduce the overall number of children living in poverty.

Another finding was that Kentucky had a significantly higher rate of childhood poverty compared to Tennessee. Previous literature has found that the percentage of children living in poverty in Kentucky and Tennessee were equal at 25% for the state level and at 19% for the national level.^{7,8} However, this study found that Kentucky had significantly higher rates of childhood poverty in comparison to Tennessee in the year of 2020. This was an unexpected finding since Tennessee and Kentucky had been found to have similar rates of child poverty in the past. This might indicate that Kentucky has an economy that is more unstable compared to Tennessee. It may also be that Kentucky allocates fewer resources or a smaller state budget to reduce child poverty.

This study found that food insecurities was significant in accounting for child poverty in Tennessee in 2020, which is supported by previous literature that food insecurities is experienced by many people living in poverty. As noted before, about 35.4% of single mothers with children faced food insecurities.¹⁰ The finding of this study suggests that children living in poverty reside in areas that have poor access to food, which can affect their health. It was unexpected to find that infant mortality and residential segregation (Black/White) did not have an association with child poverty. Previous literature had found that there were higher rates of infant mortality in areas with increased poverty levels.¹² It was also unforeseen that residential segregation (Black/White) would have accounted for some of the variance in child poverty because prior studies had found that Tennessee had increased rates of Black segregation.¹⁴ This relationship

had a gap in the literature since there were no studies that focused specifically on residential segregation (Black/White) and child poverty. Previous studies contrasted the relationship of child poverty with segregation in school. As stated earlier, it was found that Black students had attended schools with high rates of poverty.¹⁵ It was anticipated that children living in poverty would have experienced higher rates of residential segregation (Black/White) because of poorer access to well-performing public schools.

Many studies have demonstrated that poverty during pregnancy can have a detrimental impact on the baby being carried by the mother.⁹ It was found previously that many single mothers in the United States have a high probability of living in poverty during their pregnancy.⁵ This study found that there was a positive correlation among babies born with low birthweights and child poverty. This study indicates that mothers living in poverty have more difficult access to prenatal care, resulting in more children being born at lower birthweights. It also suggests that single mothers living in poverty during their pregnancy might continue to live in poverty after they have given birth to their child, furthering the difficulty to break the cycle of living in poverty. This could potentially increase the total number of children living in poverty.

In the previous literature, there were gaps found in determining the relationship between teen births and child poverty. This study found that teen births significantly accounted for the variance in child poverty. This finding is likely due to multiple reasons. For example, children living in poverty may have poorer education about sex if they do not attend a well-educated school system and may engage in sexual intercourse at earlier ages compared to other populations. This could lead to a higher number of teen pregnancies. Another explanation is that children living in poverty may come from unstable families. This could affect the children's lives

in such that they may participate in more dangerous or consequential activities at a younger age, especially if they learn certain behaviors from the people in their surrounding environments.

This study also found a positive correlation between child mortality and child poverty, which was another gap in the literature. There was a significant positive correlation found between premature death and childhood poverty. These findings likely occurred because children living in poverty may be exposed to areas that are not as safe, which may be dangerous to their health. Additionally, children living in poverty may not have access to resources that could benefit their health, such as insurance or have enough money to buy medications or treatments; this could ultimately hurt their health if they are unable to obtain these if necessary. If children are unable to schedule appointments with doctors, they may not be aware of any chronic conditions that they may have, which could lead to their death if left untreated.

In another attempt to address a gap in the literature, it was found that limited access to healthy foods was not significantly correlated to child poverty. This was surprising because it was predicted that children living in poverty would be more likely to live in areas with poor food choices and thus have a limited access to healthy foods. However, this finding might not have been significant because it is possible that the overall population of children living in poverty might be well distributed among different neighborhoods. Among this distribution of children living in the state of Tennessee, many might have been living in areas that were well populated with food resources.

It was also found that uninsured children did not significantly correlate to childhood poverty. Previous studies had found that socioeconomic adversity was impacted by publicly funded or lack of health insurance in Tennessee and within the United States.¹⁶ This was an unexpected finding because it contrasted with the thought that children living in poverty would

have more difficulty obtaining insurance due to having more financial instability. Lastly, another gap in the literature was identified by the finding of no significant correlation between drug overdose deaths and child poverty. This was also unpredicted because previous studies found that people between the ages of 10 to 19 accounted for 8.8% of opioid overdose fatalities.¹⁷ This may not have been a significant correlation because the population for drug overdose deaths included the whole population and not only children.

Overall, the study had several important findings. It is important to address these factors in order to reduce the number of children living in poverty. By identifying these factors, more studies can be conducted that further explore these relationships. Many previous studies had only examined some of these relationships generally within the United States, but it is crucial to investigate each state on its own. Tennessee has had reduced levels of child poverty in comparison to previous years, but it is important to continue this trend and further decrease the rates of childhood poverty because children constitute a large and important part of the population.

Conclusion

In conclusion, this study has provided several findings that might be helpful in reducing the rates of child poverty in Tennessee. Although several limitations have been discussed in the data collection section of this paper, there might be additional limitations in this study. Data collected in this study utilized publicly available data, resulting in a possibility of insufficient sample collection and selection. Though reliable resources were used for the entirety of data collection, there remains the possibility that the presented public data is not completely accurate. These limitations could potentially disrupt the significance of the presented findings. For many of the statistical analyses, data was collected only from the year 2020, rather than using a longer time

period. This study also did not examine and analyze every factor that could possibly be associated with child poverty. Factors studied were based upon the availability of sample size and information provided through publicly presented websites. However, this study had a generalized concentration on the variable factors and did not have a narrowed emphasis, which could potentially decrease the focus of the study. Additionally, due to collected data focusing on Tennessee counties, it is difficult to extrapolate results to the national level and for the findings to represent the general population in the United States.

Future studies should focus on reducing exposures to these limitations. It would be beneficial to gain access to more data and samples to ensure that data collection is accurate, and representative of the population being studied. Further studies could also examine longer time periods while analyzing similar variables to determine if the associated factors have changed over time in relation to child poverty. It may also prove to be valuable if there are studies that further explore these factors individually with child poverty, resulting in studies with an increased focus. This would aid in determining specific relationships and diving deeper into the literature, which could provide critical information in creating methods and strategies to reduce child poverty. Performing these studies on all the states and conducting further analyses that are representative of the entire United States will be incredibly important in reducing child poverty at the national level because specific factors will have been identified that are associated with children living in poverty.

As previously discussed, child poverty is a national crisis that is affected by many different factors and varies across the United States. It is a crisis without a solution. Child poverty exists in every state and in almost every community; it has long lasting effects on the children and their futures, as well as the economy. Though many studies exist on child poverty, it is important to

identify its associated risk factors, so that the information can be used to implement federal and state resources and policies to reduce the number of children living in poverty.

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