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**Community Strain and Familial Dysfunction: The Influence of County  
Characteristics on Child Maltreatment**

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Departmental Honors Thesis

The University of Tennessee at Chattanooga

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## Abstract

Child maltreatment does not happen equally across communities. Instead, in some places it is nearly non-existent (less than 1 out of every 11000 children) while in others it is experienced by nearly 10% of the population. This research examined how demographic factors relate to the rate of child abuse and neglect at the county level and found that a decline in economic stability, lack of post-secondary education, an inability to reach financial stability, and the rate of drug usage in a county significantly contributed to the child maltreatment rate. Durkheim's Theory of Anomie and Merton and Agnew's Strain Theories were used to describe how these four community factors cause individuals to experience strain, and eventually anomie and dysfunction which can lead to familial abuse or neglect. When these four factors, which inhibit individuals to adhere to culturally defined goals and expectations, are concentrated in a community, as opposed to being experienced by a handful of families within a community in which they are not present, then social strain within the community increases, social support decreases, and child maltreatment is more prevalent.

## Introduction

Child abuse and neglect, grouped under the umbrella term child maltreatment, includes physical, emotional, and sexual abuse, and physical and emotional neglect. The national rate of child maltreatment is 9 out of every 1,000 children, or 0.9% of the child population. Across states, the rate of child maltreatment ranges from 1 out of every 1,000 children in Pennsylvania to 22 out of every 1,000 children in Massachusetts and Kentucky. However, when considered at the county level the rate of child maltreatment ranges from 0 out of every 1,000 children to 97 out of every 1,000 children (Anne E. Casey Foundation 2015, NDACAN 2015). Analyzing child maltreatment at the county level can expose community level pockets in the nation that fall outside of the norm with either higher or lower rates of maltreatment. Locations in the United States with outlying child maltreatment rates can be identified in figure 1. These communities can be important resources in studying factors that contribute to child maltreatment.

Child maltreatment is present in widely varying families and can potentially happen to any family, however, child maltreatment disproportionately affects impoverished families and families experiencing a heightened level of social strain (Child Welfare Information Gateway 2018). Looking at child maltreatment at the county level along with demographic characteristics of counties can identify additional characteristics of families that are more affected by child maltreatment.

Identifying demographic characteristics that are associated with higher rates of child maltreatment can allow for more targeted methods of prevention and intervention by leading to a better understanding of the root causes of child maltreatment. Better prevention tactics can also serve to stop child maltreatment from happening in the first place rather than intervening after the abuse or neglect has already taken place, thus eliminating the need to rely solely on intervention. While intervention is necessary in many cases, in an ideal society the families in which abuse and neglect is likely to occur could be identified before abuse or neglect happens, and support systems could be put in place to target abuse and neglect earlier. The first step to doing this is identifying aspects of a community that are significant predictors of child maltreatment.

In addition to identifying characteristics that put families at a greater risk of child maltreatment, research on the topic is necessary in order to gather more updated information on child maltreatment. Much of the existing information comes from the 1960s and 1970s when child abuse and neglect research rose after the publication of *The Battered Child* (Helfer and Kempe 1969). This information does not include relevant aspects of today's society that effect child welfare, such as the opioid crisis or the decline of blue collar job industries (BLS 2016. Kohomban, Rodriguez, and Haskins 2018). Research and information that reflects today's society and child maltreatment rates of the present day is necessary to understand the problem as it persists now.

## Literature Review

### Background

One of the most common statements about child abuse and neglect is that it can happen in any family regardless of the characteristics of the family (Kids Health 2017; Peace Creations 2017; AAP 2017). These types of statements are generally made when attempting to heighten awareness of child abuse and neglect. While it is technically true that child abuse and neglect can happen in any family, it is also true that it is more prevalent in some places over others (Daley et al 2016; Garbarino and Crouter 1978; Garbarino and Ebata 1983; Garbarino and Sherman 1980; Kruttschnitt, McLeod, and Dornfeld 1994). It is necessary to determine where and to whom child maltreatment is most likely to occur in order to develop more targeted and effective preventative measures and resources for child maltreatment.

### Demographic Influences on Child Maltreatment

Poverty is one of the most studied influences on child abuse and neglect. More child maltreatment reports are for children in poverty even though there are more families and children who are not in poverty nationwide (Garbarino and Ebata 1983; Kruttschnitt et al 1994). Even when bias is controlled for by conducting in-depth longitudinal studies rather than relying on reports of maltreatment, there is still an association between poverty and child maltreatment (Steinberg et al 1981). There is also a correlation between severity of poverty and severity of abuse. cases of extreme poverty in which

families lacked material possessions necessary for survival yielded more severe cases of abuse (Kruttschnitt et. al. 1994).

Other demographic factors that are associated with child maltreatment include substance abuse, unemployment, negative economic change or economic instability, and intimate partner violence or domestic violence (Daley et al 2016; Steinberg et. al. 1981; Wolfner and Gelles 1993). Studies on substance abuse and child maltreatment have shown that children in families where substance abuse is present are five times more likely to be abused and nine times more likely to be neglected than a child from a family where substance abuse is not present (Daley et al 2016). Children in a household where intimate partner violence or domestic violence is present are two times more likely to be abused by their mother than other children (Daley et al 2016).

Parents' occupation influences child maltreatment in a number of related ways. Unemployment and negative change in economic status, whether or not the family was in poverty before or after the change, contributes to child maltreatment, as well as fear of negative economic change or losing one's job (Steinberg et al 1981). Economic instability, such as repeated job changes or declines in economic status makes a family more likely to experience abuse or neglect. Abuse and neglect is also more common among families in which the parents are blue-collar workers. (Steinberg et al 1981; Wolfner and Gelles 1993).

#### Sociocultural Influences on Child Maltreatment

Studies on the sociocultural influences on child abuse and neglect are fewer in number, but one primary focus among them is race. Rates of child

maltreatment are constant between different races, but there are differences in what type of maltreatment is most prevalent for different races (Garbarino and Ebata 1983). Both race and income can influence which form of maltreatment is the most prevalent. For example, one study found that maltreatment among black families in poverty was most likely to be physical neglect while maltreatment among white families in poverty was most likely to be emotional abuse (Hampton 1987). Child abuse and neglect rates are higher among white families in poverty than black families in poverty. It may be that black families are more equipped to manage the stress associated with poverty than white families, or turn to alternative outlets for stress management (Garbarino and Aaron 1983).

A factor strongly associated with lower rates of child maltreatment is reciprocity, and especially reciprocity with regards to child care. Conversely, social isolation and no reliance on reciprocity among group members is associated with higher rates of maltreatment. Groups in which members rely on reciprocity among each other to fulfill certain needs have stronger social support networks and less social isolation (Garbarino and Crouter 1978; Garbarino and Sherman 1980). Family life and child rearing is less private and norms and values regarding child care are developed and enforced in groups practicing reciprocity frequently (Garbarino and Crouter 1978). The effects of reciprocity are exemplified by Puerto Rico and Guam where the median income is significantly lower than that of the states, but the rate of child maltreatment is also significantly lower (Anne E. Casey Foundation 2017). The culture of both groups values reciprocity and interdependence among families and communities,

making child rearing less of a private nuclear family matter and more of an extended family effort, which is contrary to the value of individualism among the states (Schultz 1970; Taimangle 201

### Geography and Child Maltreatment Rates

Demographic factors associated with child maltreatment are strongly related to the variation in child maltreatment rates across different regions. The question then becomes why are certain demographic features such as poverty, unemployment, economic instability, or prevalence of blue-collar workers more common in some regions over others? Unemployment is associated with child maltreatment, and places with the highest rates of unemployment, reaching 10% to 14%, are found in the Appalachian region, where the decline of coal mining has left many communities with few job availabilities (ARC 2014; Hendryx and Ahern 2009). The Rust Belt, the Midwest, and the South have experienced job decline since the decline of manufacturing jobs in the 1980's and the collapse of the oil industry's economy in 1986 (Lee and Mather 2008). Blue collar jobs are associated with child maltreatment in multiple ways. Families in blue collar occupations are more likely experience abuse or neglect, and opioid abuse is associated with the use of prescription pain killers in blue collar jobs (CNA 2015; Wolfner and Gelles 1993). Blue collar jobs are most commonly held in the Rust Belt, the Midwest, and the Southeast, and with the exception of four Midwestern states, all of these regions are located on the Eastern half of the country, where child abuse and neglect is more prevalent than in the western half (Buffie and McInnis 2017; CNA 2015; Wolfner and Gelles 1993). Easier access to social

service resources, especially child welfare resources, is associated with lower rates of child maltreatment while being farther away from these resources is associated with higher rates of child abuse (Freisthler 2011). The Southeast has the places with the lowest concentration of social service workers while the Northeast and Northwest have the areas with the highest concentration (BLS 2016).

#### Theoretical Explanations Behind Trends in Child Maltreatment

Child maltreatment is one form of dysfunction in an individual or a family. Therefore, this research is considered from the perspective of Emile Durkheim's strain theory and theory of anomie, Robert K. Merton's General Strain Theory, and Robert Agnew's continued work in General Strain Theory.

Emile Durkheim is most notably known for his development of the structural functionalist perspective in sociology. Within structural functionalist theory is his Theory of Anomie (Collins 2010, Marks 1974). Anomie is defined as the occurrence of instability due to a loss of norms and values within an individual, a group, or a society (Collins 2010, Marks 1974, Merriam-Webster 2018). Anomie results from a breakdown in the structure provided by group ideals, norms, and values. The set of ideals, norms, and values that a society considers to be true, which together dictate group behavior, is the collective conscience. The collective conscience also includes culturally defined goals, or other words goals that all members are expected to have and socialized to value and strive for. The collective conscience in a society allows a society to function smoothly by dictating behavior. The loss of the collective conscience, either in a

group or in an individual, leads to anomie and then to dysfunction (Collins 2010, Marks 1974).

Robert K. Merton expanded on Durkheim's Theory of Anomie with the development of the General Strain Theory, micro level theory regarding anomie that focuses largely on individuals' reactions to situations (Merton 1938). The Structural Strain Theory states that strain is the root cause that leads to anomie and eventually to dysfunction, and there are different scenarios that cause a person to experience strain. Additionally, the theory included that the collective conscience of a society not only includes culturally defined goals, but also defines the acceptable methods of achieving these goals (Merton 1938). Merton identified three key areas of an individual's life that can produce significant strain: their culturally defined goals, the acceptable methods of achieving one's culturally defined goals, and the balanced concern for the end goal and the method used to achieve that goal. Too much focus on the end goal and not enough concern for the method of achieving the goal can cause an individual to turn to unacceptable methods of achieving the goal (Merton 1938). For example, if the culturally defined goal is financial stability and the acceptable method of achieving that goal is through a job, then unemployment can cause strain by creating a barrier between an individual and the goal, and too much focus on the goal can lead the individual to seek financial stability through illegal routes.

Robert Agnew's General Strain Theory, which was developed out of Robert Merton's strain theory, states that certain types of strain are more likely to lead to violent or deviant responses (Agnew 2001). In Merton's theory he

identified five methods of adaptation that people turn to when strain is introduced: conformity, innovation, ritualism, retreatism, or rebellion (Merton 1938). The type of strain that is introduced effects the method of adaptation that an individual is more likely to turn to, and there are four types of strain that are more likely to lead to a criminal response. When an individual feels the situation causing strain is unjust, when the strain comes from a situation in which there is already low social control, when the strain is related to something of high importance to the individual, and when there is incentive to commit a criminal act, the likelihood that an individual under strain will respond criminally increases (Agnew 2001).

Furthermore, Agnew identified three sources of strain that are more likely to cause an individual to respond criminally: strain from a loss of positive or introduction of negative stimuli, strain from the failure to achieve one's goals, or strain resulting from some force hindering one from achieving their goals (Agnew 2001). Strain caused by goals being unattainable is more likely to trigger violent or deviant responses, instead of retreatism or conformity, and the likelihood is heightened when the unattainable goal is a culturally defined goal (Harry and Sengstock 1978; Hoffmann and Ireland 2004). In a capitalistic society such as the United States there is an individual goal to make as much monetary gain as possible and thus attain the highest possible social status, which causes people to search for the most efficient system for making money. This goal is in conflict with the system's goal of employment for every member, since increasing efficiency leads to paying less people to work (Murray 2010). In Western society culturally defined goals revolve around being successful, and this success if

measure in terms of monetary gain (Goode 2016). In the United States Specifically, competitiveness, along with the desire to increase one's profits, is valued (Fleisher 1979). Between the capitalistic system in the U.S., the Western ideal of measuring success in wealth, and the value of competing to continuously rise in position in the U.S., culturally defined goals in the United States primarily revolve around money, making such factors as unemployment, poverty, and economic instability significant contributors to strain, which can lead to anger, abuse, and neglect within families (Agnew 2001; Fleisher 1979; Goode 2016; Harry and Sengstock 1978; Hoffmann and Ireland 2004; Murray 2010).

#### Child Maltreatment at the County Level

When compared at the state level child maltreatment ranges from 0.01% of the child population to 1.7% of the child population. However, when compared at the county level that range grows significantly with counties falling anywhere on a scale from 0% of the child population to over 5% of the child population (Anne E. Casey Foundation 2017). Furthermore, the characteristics of one region of a state do not necessarily apply to the entire state meaning that the factors contributing to the child maltreatment rate and ways to combat maltreatment will not be the same for an entire state. For example, the high unemployment rates caused by the coal industry decline in Eastern Kentucky are not characteristic of Western Kentucky (ARC 2014). By comparing child maltreatment rates at the county level more specific areas with similar maltreatment rates can be found and the aspects of that area that contribute to the child maltreatment rate can be identified. It will also allow for the identification of when these areas cross state

boundaries. The unemployment left behind by the coal industry in Eastern Kentucky does not apply to Western Kentucky, but it does apply to parts of southern West Virginia, northern Tennessee, and even northeast Mississippi, a connection that is lost when considering only state level data (ARC 2014). By studying child abuse and neglect at the county level, one can address the question of why some geographical areas have such high rates of child maltreatment while others are remarkably low, and what aspects of an area influence the rate of child maltreatment.

## Methodology

This project consists of secondary data analysis, which was used to analyze data collected by both government agencies and private research foundations. The dependent variable, the rate of child abuse and neglect at the county level, was collected from two sources in order to maximize the number of counties included in the project. The National Data Archive on Child Abuse and Neglect (NDACAN), maintained by Cornell University, collects counts of child abuse and neglect reports from counties in the United States and provides researchers with the information in order to aid in the study of child abuse and neglect. For this project the 2015 Child File was requested and downloaded after approval from both NDACAN and the IRB was granted. The file provided the rate of abuse and neglect for all counties that had at least 1,000 reports of abuse and neglect. Rate of child maltreatment was measured in number of substantiated cases of abuse or neglect per 1,000 children.

The KidsCount Data Center, published and managed by the Anne E. Casey Foundation, provided the additional data on the rate of child maltreatment at the county level. Data for all counties in 27 states as well as Washington D.C. were collected from this source. The necessary data files were identified using the site's data finding tool, which allows users to search for data files by geographic location. Once identified, the data files were downloaded as excel files and then combined into one spreadsheet with the NDACAN data files as well as all data for the independent variables. The rate of child maltreatment was again measured in the number of substantiated cases per 1,000 children.

The data from the Anne E. Casey Foundation and from NDACAN were combined into one spreadsheet in order to maximize the number of counties for which data were available in the analysis. In total, data were available for 2,073 counties in the United States. For counties in which both NDACAN and the Anne E. Casey Foundation had data available, but the rate of child maltreatment was different, then the rate from the NDACAN data was used in the analysis.

Data for the independent variables were collected from three sources. The U.S. Census Bureau provided county level information on unemployment and employment rates, total population and child population, children enrolled in school, the percent of families living below the poverty line, educational attainment of adults in the county (broken into seven ordinal categories), the number of households, the mean household income, and the population density. The relevant data files, which included data from the American Community Survey (ACS), were identified through the Census Bureau's American Fact Finder online resource. Once identified, the raw data were downloaded as an excel file. This process was repeated for each variable mentioned above.

The Bureau of Labor Statistics (BLS) provided the data on the prevalence of a particular industry in each county, information which is gathered through the Quarterly Census of Employment and Wages (QCEW). The service, agriculture, construction, mining, and manufacturing industries were chosen from an extensive list of industries and professions, as categories indicative of the

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<sup>1</sup> There are 3,142 counties or county equivalents in the U.S.

economic status and culture of a community. Selecting these overarching industry categories also served as a way to combine many smaller, more specific industries into a smaller and more manageable number of independent variables. The raw data files containing the location quotient for each of these industries were downloaded from the Bureau of Labor Statistics' website. Industry location quotient is a method of measuring the presence of a particular industry in a geographic location as it compares to a broader geographic location. For the purpose of this project location quotients compared the prevalence of an industry in a county to the prevalence of that industry in the United States as a whole. Location quotient is a measure of how much more concentrated an industry is in the region than in the nation, so a location quotient of 1.5 indicates a concentration 1.5 times higher than the national rate. A location quotient of 0.3 would be 0.3 times the national average, meaning that the county would have a lower concentration of that industry than the nation does on average.

County Health Rankings and Roadmaps is an online resource published and managed by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. It provides information on various factors relating to the health of people in a community. Data on the number of drug overdoses in each county were collected by downloading data files in excel format for each state and its counties and then combining them into one file that included every county in the United States.

The independent variables included in the study were chosen based on three factors. Variables related to economic status (mean income,

unemployment, and percentage of families in poverty) were used because of years of data showing that child maltreatment reports are disproportionately concentrated among low income families. Some variables were chosen because they are known to be reliable predictors of the quality of life in a community and within families, and yet have been under studied in child maltreatment research. These variables include education level and the rates of drug usage in counties. The rate of drug usage was of particular interest both because it can reveal much information about the quality of life in a community, and also because the present day opioid crisis is not included in the bulk of child maltreatment research (which was conducted decades before the opioid crisis) and yet opiate use has greatly impacted families and lead to an increase in grandparents raising grandchildren and to children entering the foster system (Calman 2017, Kohomban, Rodriguez, and Haskins 2018). Thirdly, the location quotient variables were chosen based on trends noticed in the child maltreatment data from NDACAN and the Anne E. Casey Foundation, and to determine how a prevalence of a particular industry may affect other aspects of a county.

Statistical analysis was done with the statistical software, IBM SPSS. Correlation tests were done to determine which demographic factors had a statistically significant association with the rate of child maltreatment. Correlation tests between each independent variable were run first, in order to test for multicollinearity. No variables indicated having a high rate of multicollinearity. Since the rate of child maltreatment is not normally distributed, but instead is skewed left, the natural log of the child maltreatment rates was taken and used

for analysis. The natural log of child maltreatment rates is more normally distributed. Correlation tests were then run with each independent variable and the variable for the rate of child maltreatment, created by combining the data from NDACAN and the Anne E. Casey Foundation.

Six multivariate regression models were created. The first consisted of the combined NDACAN Anne E. Casey Foundation data sets as the dependent variable, and unemployment, poverty rate among families, percentage of high school graduates, percentage of bachelor's degree holders, mean household income, and the drug mortality rate as the independent variables. Non-significant variables were removed until the final model consisted of the independent variables unemployment, the percentage of people with a bachelor's degree, mean household income, and the drug overdose mortality rate. A second model was made in which the independent variables unemployment rate, the percentage of people with a bachelor's degree, mean household income, the drug mortality rate, and the service industry location quotient were used. In the fourth model the mining industry location quotient replaced the service industry location quotient. In the fifth the agricultural industry location quotient was used in place of the mining industry location quotient, and in the sixth model the manufacturing industry location quotient was used. The location quotient for the construction industry was not used in regression models because it did not have a statistically significant coefficient.

The results of the statistical analysis were further considered from the perspective of Emile Durkheim's Theory of Anomie, Robert K. Merton's Structural

Strain Theory, and Robert Agnew's General Strain Theory. These three interrelated sociological theories were used to explain how the results of statistical analysis are a reflection of larger sociological phenomena.

## Results

Eight independent variables had a statistically significant correlation with the rate of child maltreatment (see table 1). The strongest of these correlations was the mean household income, with a correlation of -0.292, indicating that as mean household income rises the rate of maltreatment falls. This is in line with previous research that has found that poverty can contribute to child maltreatment (CDC 2014, Child Welfare Information Gateway 2017). The percent of families below the poverty line in a county had a similar correlation value, with a correlation of 0.206. As the percentage of families living in poverty increases then the rate of child maltreatment increases as well, which also corresponds to the established link between child maltreatment and poverty.

The rate of people with a bachelor's degree had a correlation of -0.282, indicating that as the rate of people who were college educated increased the child maltreatment rate decreased. The rate of people with a high school diploma has a similarly strong correlation, with a correlation of 0.151. However, it is not contradictory that the percentage of high school graduates has a positive correlation with child maltreatment while the percentage of college graduates has a negative correlation, since there is a statistically significant correlation of -0.479 between the percentage of high school graduates and the percentage of people with a bachelor's degree. So as the percentage of people with a bachelor's degree increases then the percentages of people who have graduated high school but not completed any additional education decreases. This is because the variables for the percentage of people with a high school diploma does not

include those who also have completed post-secondary education, but instead only includes the percentage of people for whom a high school diploma is their highest level of education.

The unemployment rate had a correlation of 0.086 with child maltreatment, indicating that counties which suffer from high rates of unemployment are also more likely to experience higher rates of child maltreatment. The drug overdose mortality rate in a county was similarly correlated with child maltreatment, with a correlation of 0.079. As the rate of deaths from drug usage increased then the rate of child maltreatment increased. Data on the rate of drug usage in a county are hard to gather and find, as drug usage is harder to measure and quantify than deaths from overdoses are to count. However, it is likely that the counties with the most deaths from drug overdoses are also the counties with the highest rates of drug usage. Therefore, it is likely that drug usage is an indicator of child maltreatment.

Two industry location quotients, that of the mining industry and that of the construction industry, had statistically significant correlations with child maltreatment. The location quotient for the mining industry had a positive correlation of 0.071, so as the concentration of mining jobs increased, as did the rate of child maltreatment. The construction industry location quotient had a negative correlation of -0.083 with the rate of child maltreatment, so as the concentration of construction jobs increased the rate of child maltreatment decreased.

**Table 1**  
**Correlation of Independent Variables with the Natural Log of the Rate of Child Maltreatment**

	Unemploy- ment	Percent- age of Families Below the Poverty Line	Percent- age of people who did not graduat e high school	Percent- age of people who graduat- ed high school	Percent- age of people with an associate degree	Percentage of people with a bachelor's degree	Mean Household Income
<b>Correla- tion</b>	0.086	0.206	0.038	0.151	-0.069	-0.282	-0.292
<b>Signifi- cance</b>	0	0	0.081	0	0.002	0	0
	Popula- tion Density	Drug Over- dose Mortali- ty Rate	Service Industry Location Quo- tient	Mining Industry Location Quo- tient	Agricultur- al Industry Location Quotient	Construc- tion Industry Location Quotient	Manufac- turing Industry Location Quotient
<b>Correla- tion</b>	-0.014	0.079	0.017	0.071	-0.017	-0.083	0.005
<b>Signifi- cance</b>	0.537	0	0.429	0.003	0.439	0	0.829

\*a level of significance of 0.001 is the lowest recorded level of significance when doing analysis with SPSS.

In building a multivariate regression analysis model, four variables had statistically significant coefficients and contributed to predicting the rate of child maltreatment in a county (see table 2 and table 3). The standardized coefficient values were used since the variables had different units of measurement. Mean household income had the greatest influence, with a standardized coefficient of -0.211, which, once again, corresponds to the relationship between poverty and child maltreatment that has been identified. As the mean household income of a county increases fewer families are likely to be impoverished to some degree, and so are less likely to experience abuse or neglect.

The percentage of the population with a bachelor's degree followed mean household income, with a standardized coefficient of  $-0.139$ . Like the results of correlation testing, this indicates that a higher percentage of people with post-secondary education in a county may put the county at a lesser risk for having higher rates of child maltreatment.

The rate of deaths due to drug overdoses had a standardized coefficient of  $0.089$ , so the rate of deaths due to drug overdoses, and ultimately the rate of drug usage in a county, does not contribute as strongly to the rate of child maltreatment as income or education in a community, but nonetheless still has an effect on the rate of child maltreatment. Counties where higher rates of drug usage are present are likely to experience higher rates of child maltreatment. It is also worth noting that in many states drug usage itself, regardless of whether or not a child is harmed, is considered abuse or neglect (Child Welfare Information Gateway 2017).

The unemployment rate of a county had an unexpected negative coefficient value of  $-0.068$ . There was a positive statistically significant correlation between the county unemployment rate and child maltreatment rate, so a negative coefficient is contradictory to the findings of the correlation tests. However, the coefficient is a very small coefficient, and therefore has only marginal influence on the rate of child maltreatment.

### Preliminary Regression Analysis Model (Table 2)

Model		Coefficients				Sig.
		Unstandardized Coefficients		Standardized Coefficients	t	
		B	Std. Error	Beta		
1	(Constant)	3.477	.271		12.848	.000
	Unemployment rate	-.027	.008	-.087	-3.226	.001
	Poverty Rate for Families	.004	.006	.023	.629	.530
	Percentage of people who graduated high school	-.001	.001	-.043	-1.504	.133
	Percentage of people with a bachelor's degree	-.038	.009	-.158	-4.123	.000
	Mean household income	-1.285E-5	.000	-.210	-5.356	.000
	Drug overdose mortality rate	.007	.002	.091	4.308	.000
Dependent variable: natural log of the rate of child maltreatment						

### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	190.619	6	31.770	39.866	.000 <sup>b</sup>
	Residual	1646.447	2066	.797		
	Total	1837.066	2072			

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.322 <sup>a</sup>	.104	.101	.892706417000000

### Final Regression Analysis Model (Table 3)

Model		Coefficients				Sig.
		Unstandardized Coefficients		Standardized Coefficients	t	
		B	Std. Error	Beta		
1	(Constant)	3.275	.127		25.854	.000
	Unemployment rate	-.021	.007	-.068	-2.923	.004

Percentage of people with a bachelor's degree	-.034	.008	-.139	-4.050	.000
Mean household income	-1.293E-5	.000	-.211	-5.974	.000
Drug overdose mortality rate	.007	.002	.089	4.228	.000
Dependent variable: natural log of the rate of child maltreatment					

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	187.469	4	46.867	58.755	.000 <sup>b</sup>
	Residual	1649.596	2068	.798		
	Total	1837.066	2072			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319 <sup>a</sup>	.102	.100	.893127696000 000

When the location quotients for four different industries (location quotient for the construction industry was insignificant and therefore excluded) were included in the regression analysis, then the coefficients changed. The concentration of the mining industry had the most impact on the child maltreatment rate. When the mining industry location quotient is considered then the influence of all other independent variables decreases except for the mean household income (see table 4). The percentage of people with a bachelor's degree and the drug overdose mortality rate are still stronger indicators of child maltreatment than the concentration of mining jobs, but the influence of the concentration of mining jobs is strong enough to offset the effects of all independent variables except for mean household income, which increases in importance in predicting child maltreatment. The mining industry location quotient

is a stronger indicator of child maltreatment in a county than the drug overdose mortality rate.

When the service industry location quotient was included in the model the independent variables unemployment rate and percentage of people with a bachelor's degree had an increased influence, while the variables mean household income and the drug overdose mortality rate had a decreased influence on the child maltreatment rate (see table 5). These findings indicate that the prevalence of service industry jobs in a county is strong enough to offset some of the influence of both the mean household income and drug usage. The rate of people with a bachelor's degree and the unemployment rate increases in importance in predicting child maltreatment rates when the concentration of service jobs is considered.

Adding the location quotient for the agricultural industry to the analysis model had a similar effect as the location quotient for the service industry (see table 6). The coefficients for the unemployment rate and the percentage of people with a bachelor's degree increased in strength and the coefficients for mean household income and drug overdose mortality rate decreased in strength. The prevalence of the agricultural industry in a county is a strong enough indicator of the child maltreatment rate to offset some of the influence of household income and drug usage.

The manufacturing industry location quotient, when included in the regression model, caused the influence of all other independent variables to increase, except the mean household income (See table 7). This finding, along

with the very small coefficient for the manufacturing industry location quotient, indicates that the influence of the prevalence of manufacturing jobs in a county is not a strong indicator of the rate of child maltreatment.

### Regression Analysis Models with Location Quotients

**Table 4**  
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.283	.141		23.328	.000
	Unemployment rate	-.014	.008	-.043	-1.691	.091
	Percentage of people with a bachelor's degree	-.025	.009	-.102	-2.611	.009
	Mean household income	-1.498E-5	.000	-.244	-6.307	.000
	Drug overdose mortality rate	.005	.002	.068	2.923	.004
	Mining industry location quotient	.005	.003	.049	2.034	.042
Dependent variable: natural log of the rate of child maltreatment						

### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	173.877	5	34.775	42.530	.000 <sup>b</sup>
	Residual	1427.649	1746	.818		
	Total	1601.526	1751			

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.329 <sup>a</sup>	.109	.106	.904250134000 000

**Table 5**  
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.497	.144		24.242	.000
	Unemployment rate	-.026	.007	-.084	-3.530	.000
	Percentage of people with a bachelor's degree	-.044	.009	-.180	-4.919	.000
	Mean household income	-1.211E-5	.000	-.198	-5.568	.000
	Drug overdose mortality rate	.007	.002	.082	3.883	.000
	Service industry location quotient	-.095	.030	-.074	-3.190	.001

Dependent variable: natural log of the rate of child maltreatment

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	195.551	5	39.110	49.248	.000 <sup>b</sup>
	Residual	1641.515	2067	.794		
	Total	1837.066	2072			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.326 <sup>a</sup>	.106	.104	.89115286200000

**Table 6**  
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.313	.129		25.619	.000

Unemployment rate	-.023	.007	-.074	-3.120	.002
Percentage of people with a bachelor's degree	-.036	.008	-.147	-4.238	.000
Mean household income	-1.277E-5	.000	-.207	-5.820	.000
Drug overdose mortality rate	.006	.002	.081	3.771	.000
Agricultural industry location quotient	-.010	.005	-.045	-2.079	.038
Dependent variable: natural log of the rate of child maltreatment					

## ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	181.304	5	36.261	45.737	.000 <sup>b</sup>
	Residual	1609.391	2030	.793		
	Total	1790.695	2035			

## Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.318 <sup>a</sup>	.101	.099	.890395009000 000

## Table 7

## Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.398	.135		25.253	.000
	Unemployment rate	-.023	.007	-.073	-3.100	.002
	Percentage of people with a bachelor's degree	-.039	.009	-.161	-4.596	.000
	Mean household income	-1.266E-5	.000	-.207	-5.812	.000
	Drug overdose mortality rate	.007	.002	.091	4.271	.000
	Manufacturing industry location quotient	-.056	.018	-.068	-3.165	.002

Dependent variable: natural log of the rate of child maltreatment

## ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.340	5	38.668	48.736	.000 <sup>b</sup>
	Residual	1624.907	2048	.793		
	Total	1818.247	2053			

## Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.326 <sup>a</sup>	.106	.104	.890736616000 000

## Discussion

Child maltreatment is example of an individual (the abuser) or a group (usually the family) becoming dysfunctional. The collective conscience around child rearing and family life is no longer in control of an individual or group. However, the question still remains as to what causes the anomic situation leading to dysfunction. The results of this study identified four variables that consistently had a statistically significant influence on child maltreatment: unemployment, post-secondary education, mean household income, and drug prevalence. these four variables, and especially the first three are closely tied with culturally defined goals and cultural values in American society, and therefore also have the potential to cause strain that people respond to criminally, as explained by the theories of Durkheim, Merton, and Agnew.

In American society individualism and independence are strongly valued. Americans are socialized to believe that they are responsible for their successes in life including financial stability, having a career, raising and providing for a family, etc. (Grove 1984). A great deal of the measuring of success in achieving these goals is done in terms of wealth. Measuring independence, individuality, and success in terms of wealth is a result of the capitalistic system in which Americans operate (Marx 1859, Murray 2010). Other American values that result from this include efficiency, competitiveness, and a focus on one's future and their ability to rise in the social hierarchy, which is primarily defined by wealth accumulation (Kohls 1984, Murray 2010). In American society, individualism and independence, and the many factors that are a part of that, some of which are

mentioned, make up a culturally defined goal. Americans are socialized to reach for the goal of being financially stable and independent. Therefore, failure to reach this goal, characterized by having a lower household income, is a trigger of strain in individuals. This strain is related to something of high importance, since it is related to a culturally defined goal and an expectation put on individuals, and therefore is going to have a larger effect on an individual and is also more likely to lead to a rebellious adaptation.

The relationship between low income families and higher rates of child maltreatment rates has been recognized since the rise of child maltreatment research in the late twentieth century. The results of this study offer some explanation for why that relationship exists. A lack of material wealth does not make for bad parenting. However, a lack of material wealth is viewed in American society as a failure to meet a culturally defined goal and creates strain in an individual that is related to an aspect of life that individuals in American society hold to be very important. It is not the lack of material wealth that leads to abuse and neglect, but the strain it puts on individuals and families that causes anomie and eventually disfunction in those individuals and families.

Both hard work and work ethic are also highly valued in American society, and influence the culturally accepted methods of reaching the goals of individualism and independence (Grove 1984, Merton 1938). In American society it is believed and taught that financial stability should be achieved with a job, a value that contributes to the stigma and stereotypes surrounding people receiving welfare, food stamps, or unemployment benefits. It is also believed and

taught that one's job should be through legal and honest employment. Selling drugs, committing fraud, conning others, or being involved in a gang may all lead to financial stability and require one to do work, and yet none of them are acceptable ways of reaching culturally defined goals (Grove 1984, Kohls 1984).

In American society where success is valued, and this success is largely defined by one's monetary wealth, being from a lower income household, whether or not the household is under the poverty line, can lead to the strain that comes with failing to achieve a culturally defined goal. The poverty rate for families had an insignificant influence on the child maltreatment rate when used in regression analysis, but the mean household income had a significant influence. A family does not have to technically meet the requirements to be considered under the poverty threshold to experience the strain from and effects of lacking in monetary wealth.

Another American cultural value is that men are socialized to be authoritative, a trait that carries over to their career, family, and social life. For men, achieving power and authority is a culturally defined goal that is not always shared by women. In other words, it is more acceptable, and even encouraged, for women to be in a position of little power and authority while for men the expectation is reversed (Newman 2002). Too much focus on the end goal, power and authority, and not enough focus on the methods of achieving power and authority can potentially lead to anomie and dysfunction within the family, resulting in abuse within the family (Fontana 1973). A study in Australia found that fathers or step-fathers were responsible in just over twice as many cases of

physical abuse as mothers or step-mothers. In 56% of cases studied the perpetrator was a father or step-father versus the mother or step-mother being responsible in 26% of cases. Women, on the other hand, are socialized to be the caregiver and are more likely to be held responsible for neglect, even in two-parent households (Australian Institute of Family Studies 2014). Being a caregiver is a culturally defined goal for women in American society. Therefore an inability to do this can create strain in mothers and female caregivers. This is particularly relevant to mothers who have mental illnesses making it harder for them to provide for children, both physically and emotionally. These mothers may then experience additional strain as a result of being unable to fulfill their caregiving expectations (Blanch, Nicholson, and Purcell 1994).

A hinderance to an individual achieving a goal is another source of strain that can cause even more strain when that goal is a culturally defined goal, and therefore a goal of high importance to an individual. Higher unemployment rates and a lack of higher education are factors that can prevent people from finding employment and financial stability, which offers an explanation as to why both unemployment and education level can be predictors of child maltreatment rates in a community. While correlation tests showed a positive correlation between unemployment and child maltreatment, multivariate regression analysis showed a negative relationship between unemployment and child maltreatment. This happens when the influence of the other independent variables cancels out the influence of the unemployment rate, which is done when there is a correlation between two of the independent variables. Even though no independent

variables showed high rates of multicollinearity when tested for multicollinearity, there is still a relationship present. Because the nature of child maltreatment rates creates variables with very small rates and percentages, and therefore very small correlation values and coefficient values, it is possible for there to be a low correlation and yet enough of a correlation to negate the influence of unemployment. In other words, while unemployment does influence the rate of child maltreatment, the influence of mean household income, education level, and drug usage is strong enough that the influence of unemployment is unimportant in comparison. A county may have a high rate of unemployment and a high mean household income, low drug usage rate, or high percentage of people with a bachelor's degree, and the unemployment rate will have little effect on the rate of child maltreatment.

Drug usage is a variable that does not fit as neatly into an explanation based on strain theory. Drug usage itself is an adaptation to strain that falls into the retreatism category. However, it can also lead to addiction which creates an environment in which abuse and especially neglect can easily occur (CDC 2014, Child Welfare Information Gateway 2014, Kohomban et al 2018). Substance abuse of any kind is a risk factor for child maltreatment that has been identified, but the relationship between drug usage and child maltreatment is both a direct causal relationship as well as a relationship that is influenced by multiple other factors (Child Welfare Information Gateway 2014). Drug usage, in many states, is considered a form of abuse or neglect and children are removed from a home for the presence of substance abuse, which creates a direct relationship between

substance use and substantiated child maltreatment cases (Child Welfare Information Gateway 2014, Kohomban, Rodriguez, and Haskins 2018). Drug usage is also correlated with mental illness, poverty, and domestic violence, all of which are known to be risk factors for child maltreatment. Additionally, domestic violence, like drug usage, is considered a form of child abuse or neglect just by being present in a home (Child Welfare Information Gateway 2014).

The mining industry location quotient had enough of an influence on child maltreatment to lessen the strength of the coefficients for drug overdose mortality rate. The mining industry has experienced a net decline in jobs since the early 1980's and this overall decline in the mining industry is largely due to the rapid decline in coal mining jobs, of which there are fewer than sixty thousand jobs left. The coal mining jobs in the nation are concentrated in the same places as the highest rates of drug overdose deaths. This area, primarily consisting of central and northern Appalachia, is also one of two regions of the country with the highest unemployment rates (BLS 2016, CEPR 2017). Because one area has such a high concentration of two adverse community aspects (unemployment and drug overdose deaths), coupled with a large loss in jobs in a primary industry in the region, there is likely to be overlap among the independent variables within that region that does not exist for the nation as a whole. Additionally, with this combination of factors that contribute to strain, there is likely to be more people under strain working in the mining industry than in comparable industries. As highlighted in the literature review, a negative change in economic status, or instability in employment are two factors that have been found to contribute to

child maltreatment (Steinberg et al 1981). Regions where one of the primary industries is in rapid decline have a large percentage of people who are experiencing either a loss of income or the threat of loss of income, two more factors contributing to strain on individuals and families.

Manufacturing jobs, like mining jobs, have fallen significantly since the 1980's, but this decline has happened more quickly within the past two decades. The recent and slower decline in these jobs, compared to the longer and more rapid decline in mining jobs, may explain why the addition of the manufacturing industry location quotient had a lesser effect on the coefficients of the model than did the addition of the mining industry location quotient.

The mining, manufacturing, agricultural, and service industry location quotients had statistically significant coefficients, but the construction industry location quotient did not. The construction industry does not have a large concentration of jobs in any one area of the country, but instead has many very localized concentrations across the nation (BLS 2014). The widespread nature of the construction industry may contribute to lack of influence that the industry location quotient has on the regression analysis model for child maltreatment. The construction industry has also not experienced the same long term decline that other industries have experienced. There has been some decline since the fall of the housing market, but the industry is recovering and has not seen a large net decline (BLS 2016). Therefore, the results regarding the location quotients can be summarized to be that industries which are highly concentrated in a particular area and have seen a significant decline in recent years are likely to

cause strain in a county or region that can lead to anomie in individuals and families, and eventually to dysfunction.

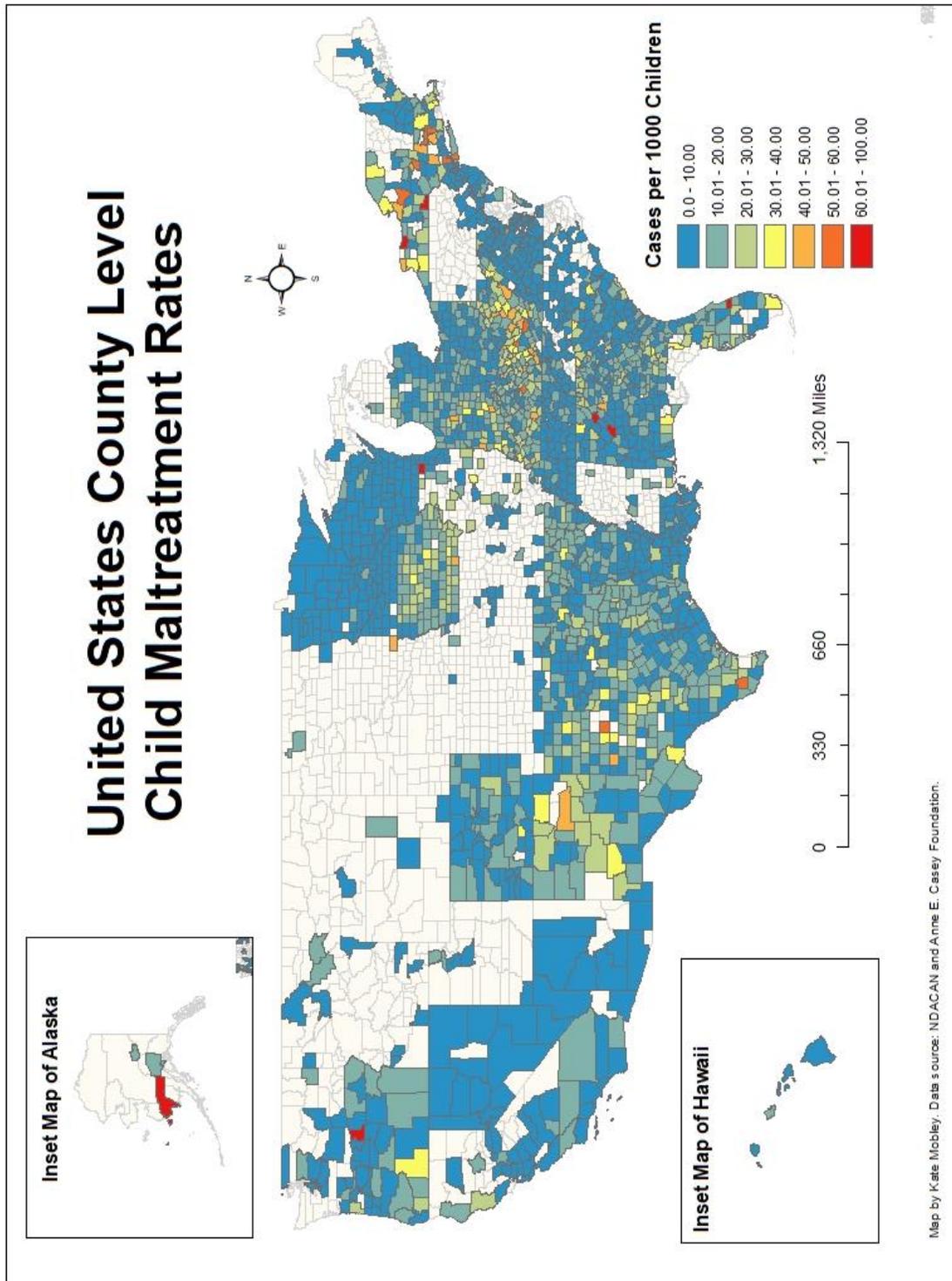
## Conclusion

The results provide insight into where child maltreatment prevention techniques need to be focused. Communities in which is a significant decline in either jobs or a prominent local industry, a lower mean household income, a higher rate of drug usage, and barriers to post-secondary education are in position of higher need for child maltreatment prevention. Industry location quotient information indicated that a negative change in economic status or job stability of a community is a stronger indicator of child maltreatment than stable unemployment. Communities characterized by this combination of factors have potential for individuals to be under more strain than individuals in other communities, and are at a higher risk for child maltreatment.

Since child maltreatment is known to be more common among communities in which there is little social support and dependency among neighbors and community members, families that experience risk factors such as a low income and drug usage, but are in a community where these factors are less likely, are less likely to experience child maltreatment (Child Welfare Information Gateway 2018, CDC 2014). Communities in which these risk factors are prevalent across the entire community and a high percentage of families experience strain are at a higher risk for child maltreatment because they have less capacity for the social support that deters child maltreatment and adverse responses to strain. Resources are necessary in communities where indicators of child maltreatment are more present, as the members of those communities, especially if they themselves experience risk factors for child maltreatment, are at

a higher risk of child maltreatment. Communities in which the drug epidemic is especially present, the mean household income is low, or job decline is more present are at a particular risk.

Figure 1



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