



**CHILDHOOD
BULLYING
IN RURAL
MISSOURI**

Office of Primary Care
and Rural Health

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What is Bullying?

Bullying, according to the American Psychological Association, is defined as “a form of aggressive behavior in which someone intentionally and repeatedly causes another person injury or discomfort. Bullying can take the form of physical contact, words or more subtle actions.”¹

In recent years, this definition has been expanded to include “cyberbullying.” Cyberbullying according the National Crime Prevention Council “is similar to other types of bullying, except it takes place online and through text messages sent to cell phones. Cyberbullies can be classmates, online acquaintances, and even anonymous users, but most often they do know their victims.”²

It is estimated that every 7 minutes a child is a victim of bullying.³



TYPES OF BULLYING:



Below are the most common types of bullying children endure:



PHYSICAL

The use of physical force (hitting, pushing, shoving, kicking, tripping etc.) to gain power and/or control over the victim.

<https://www.stopbullying.gov>



CYBER

The use of social media sites and technology to send mean text messages or emails, rumors sent by email or posted on social networking sites, and embarrassing pictures, videos, websites, or fake profiles.

<https://www.stopbullying.gov>



VERBAL

Using demeaning language, such as name calling, unwanted teasing, and making threats.

<https://www.stopbullying.gov>



SOCIAL

The intentional exclusion of a person, the spreading of malicious gossip and rumors, public embarrassment, and convincing others not to hang out with a specific person.

<https://www.stopbullying.gov>



1 out of **4**

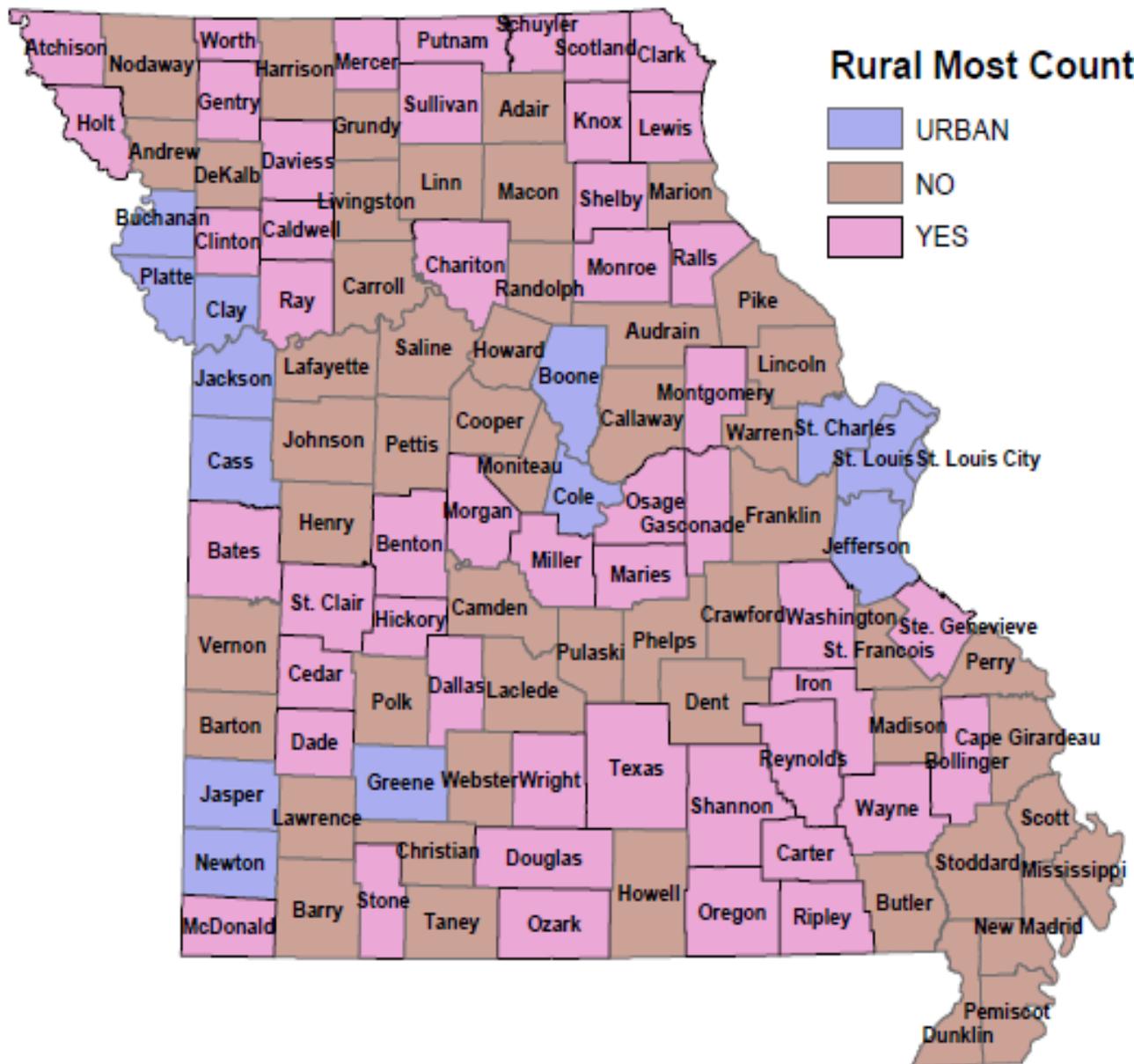
children in the United States will be bullied this year

What is Rural?

There are many different definitions for what defines rural and urban populations. For the purpose of this report, rural is defined as any county that does not have a population density over 150 persons per square mile.⁴ The maps below show the counties classified as either rural and urban.

Some maps will narrow the rural population down further by selecting counties that are classified as 75% or more rural. This measure is determined simply by the amount of the population per county that lives in rural areas. There are 49 counties in Missouri who would be classified as 75% or more rural.

Rural v. Urban Missouri, 2017



HOW MANY CHILDREN ARE IN RURAL MISSOURI?

The following maps show the percentage of children in all Missouri counties. Of the 20 counties with 24.6% or more of the population composed of children under the age of 18, 16 are classified as rural counties, and 5 are classified as being 75% or more rural. Scotland has the highest percentage of children at 28.3%.

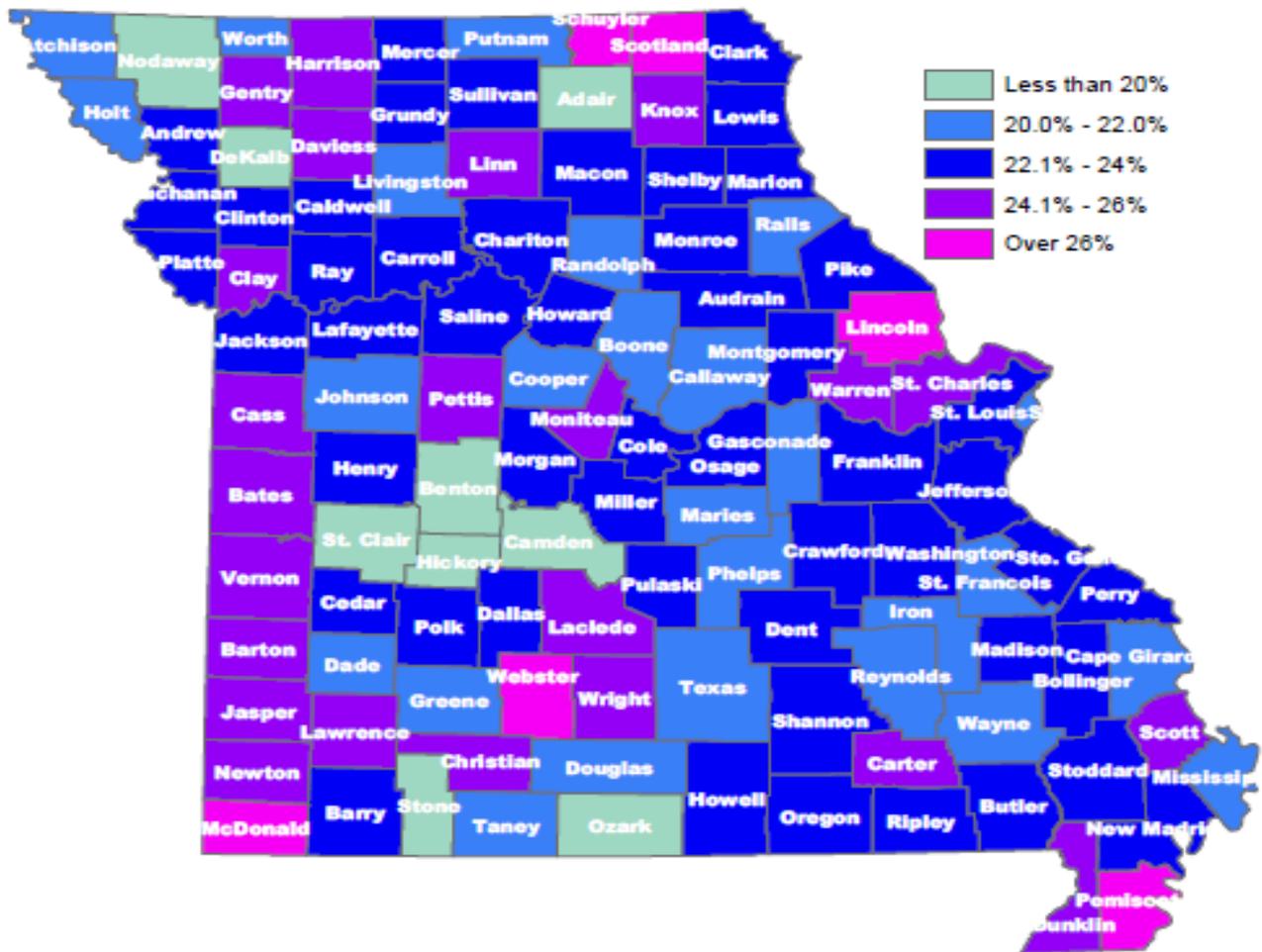
Figure 1: Counties with the **highest** percentages of Children within the Population

Name:	Percentage:
Scotland	28.3%
Webster	27.2%
Pemiscot	26.9%
Lincoln	26.4%
McDonald	26.3%

Figure 2: Counties with the **lowest** percentages of Children within the Population

Name:	Percentage:
DeKalb	16.8%
Nodaway	16.9%
Hickory	17.0%
Stone	17.6%
Benton	17.6%

Percentage of Children in Missouri, 2017



WHY IS BULLYING A RURAL CONCERN?

Studies have shown that rural children are 3-5% more likely to experience bullying than urban children.⁵ This number can vary based on the survey and the type of study. This paper will focus on The Health Behavior in School-Aged Children (HBSC), 2009-2010. study for data analysis. While the overall average among studies shows a 3-5% increase, the HBSC shows a slightly larger percent increase for rural students and bullying rates.

Geography is not the only factor that influences the likelihood of a child to engage in bullying. There is a higher prevalence among males to engage in bullying than females.⁶ Bullying rates also vary by age. The younger a child is the less likely they are to engage in bullying, but the more likely they are to be victims.⁵ There is also an increase in bullying rates the higher the BMI of the child. Overweight and obese children are at a greater risk for being bullied than normal or underweight children.⁷ Figure 3 shows the victimization rates and factors for bullying in schools.

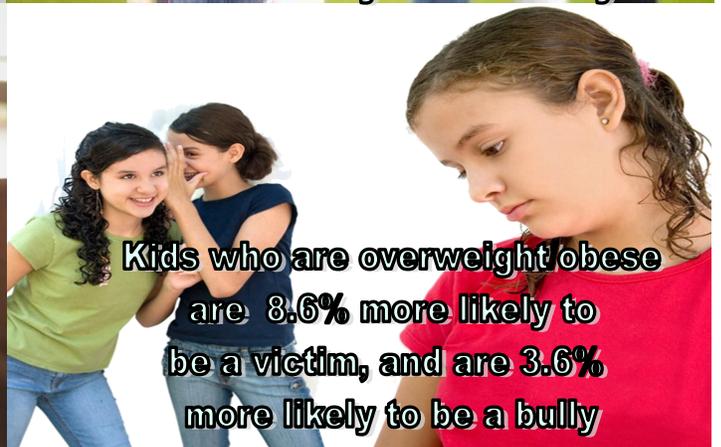
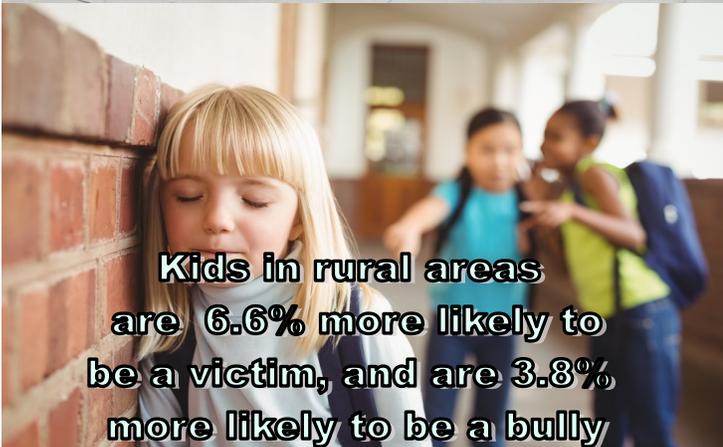
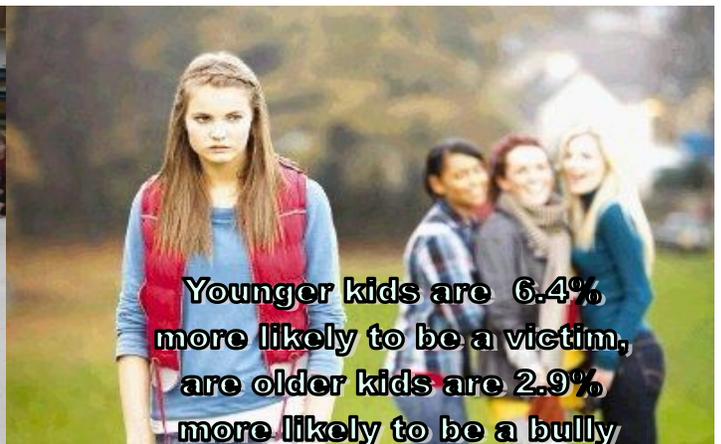
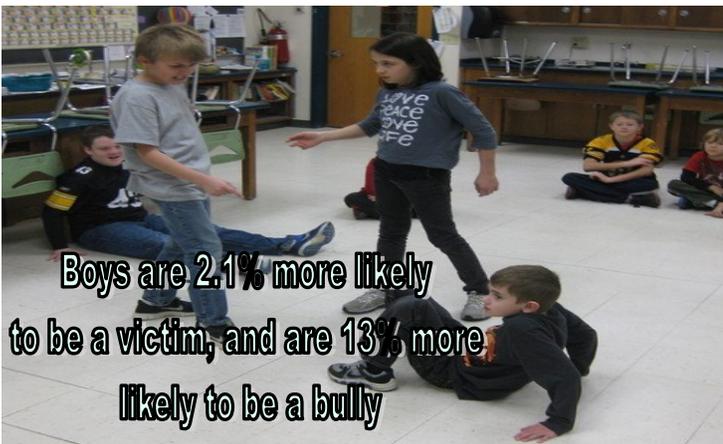
There is an increase in children who bully others in school if they reside in rural areas. Female students are less likely to bully in school than male students. There is an increase in students who have reported to have bullied another student as their grade level increases as well as when their BMI increases. Older students, and overweight and obese students, are reporting higher rates of in school bullying than their counterparts. Figure 4 uses the same variables as Figure 3, but Figure 4 uses how often a child is a bully where Figure 3 uses how often a child is a victim.

Figure 3: How often is a child bullied in school

Variable:	Impact:	Significance:
Rural Area	.066	.002*
BMI	.086	.0001*
Gender	-.021	.267
Grade Level	-.064	.0001*

Figure 4: How often has a child bullied another child in school

Variable:	Change:	Significance:
Rural Area	.038	.039
BMI	.036	.001*
Gender	-.130	.0001*
Grade Level	.029	.0001*



WHAT ARE THE MOST COMMON TYPES OF BULLYING IN RURAL AREAS?

Residing in a rural area increases a child's chance of being bullied by 0.155 (15.5%) based on The Health Behavior in School-Aged Children (HBSC), 2009-2010. While cyberbullying tends to show a decrease in rural areas when compared to the other forms of bullying, it is still a fairly significant concern when compared to the age of the child. Figure 5 shows that if a child is bullied, there is a 0.686 (68.6%) increase in cyberbullying. What this number shows is cyberbullying is often used as an extension of in school bullying, which would be physical, social, or verbal bullying, where the numbers are much higher (Figure 6). Cyberbullying is more likely to occur outside of school, rather than during. The most common form of in school bullying likely to occur in rural settings is physical bullying.

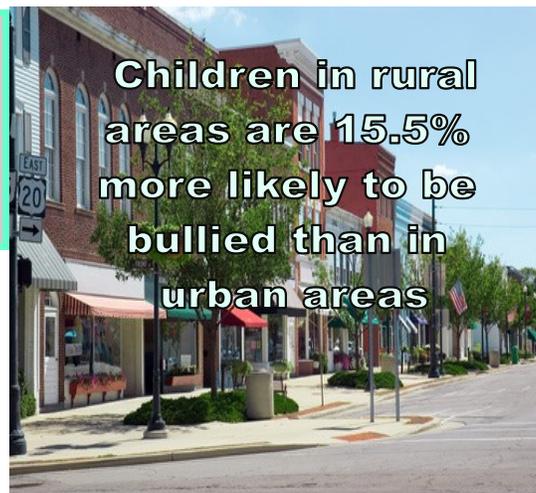


Figure 5: How often a child is bullied at school broken down by the four types of bullying in Rural Areas

Variable:	Impact:	Significance:
Rural Area	.155	.036*
Cyber	-.252	.0001*
Physical	.801	.0001*
Social	.143	.007*
Verbal	.366	.0001*

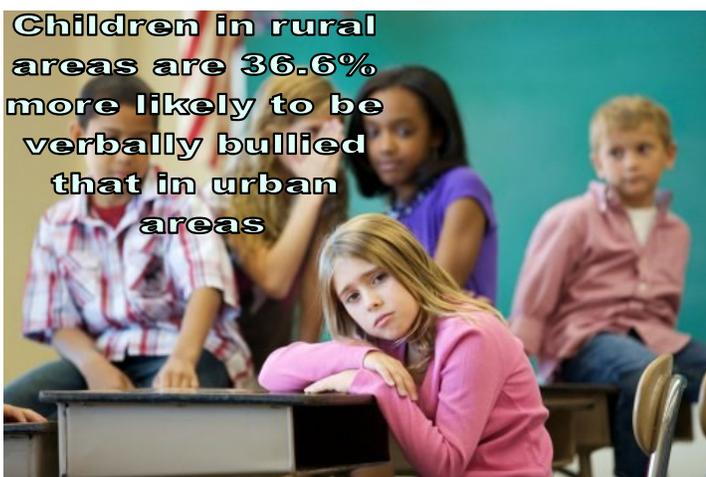
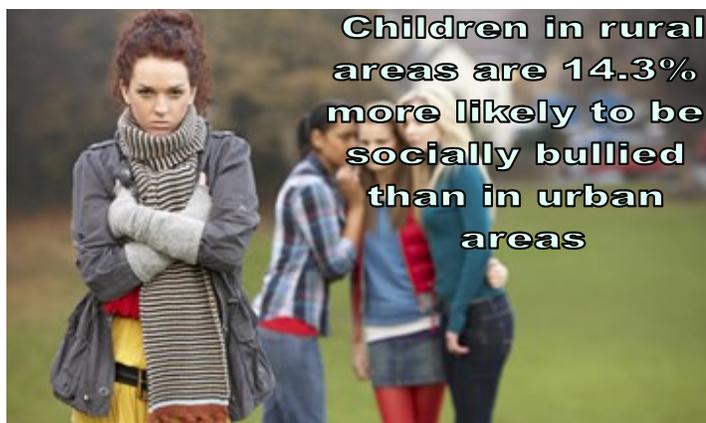


Figure 6: How often a child is bullied focusing on cyberbullying only

Variable:	Impact:	Significance:
Rural Area	.067	.001*
Cyber	.686	.0001*
Age	-.055	.0001*

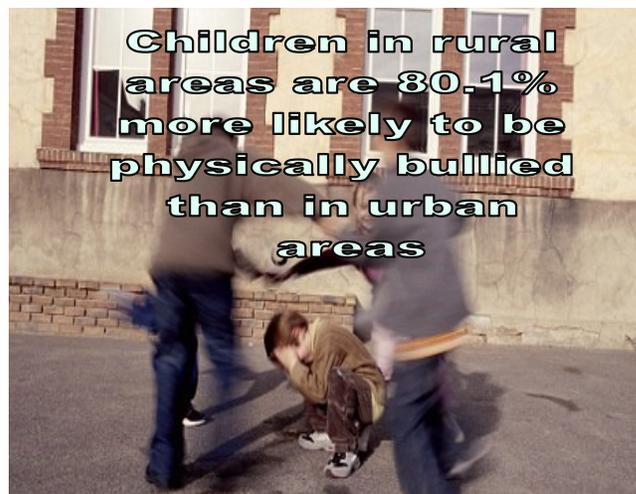
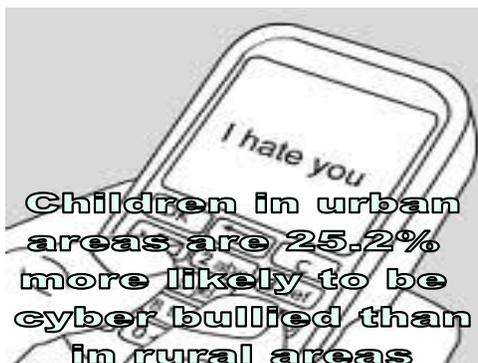


Figure 7: How often a child is cyberbullied in rural areas

Variable:	Impact:	Significance:
Rural Area	-.008	.317
BMI	.006	.151
Age	.006	.002*

RISK FACTORS FOR BULLYING?

As the data from the Health Behavior in School-Aged Children (HBSC), 2009-2010 survey suggests, gender, age, and BMI are all factors that influence bullying. The biggest factor that has recently been discovered is geography; rural areas often have higher rates of bullying than urban ones.⁵ Studies have shown the following to be the best predictors as to whether or not a child will be bullied: overweight and obesity, gender, age, school size, and geographic location. It is important though to remember that the predictive factors will change depending on the type of bullying. For example, boys are more likely to engage in physical bullying, and girls are more likely to engage in verbal.

CHILDHOOD OBESITY:

When a child's Body Mass Index (BMI) increases, the likelihood that child will be bullied also increases.⁷ To be considered obese, a child's BMI is 30 or greater.⁸ 31.9% of children in the United States are classified as obese. 31.1% of children in Missouri are classified as obese.⁹

In Missouri, 74,666 children ages 0-4 are obese, 137,311 children ages 10-17 are obese, 31,413 children in High School are obese. In total 494,949 children are estimated to be obese based on the Missouri state average, or 1 in 3 children.⁹

80% of adults who are classified as obese were classified as obese are children.¹⁰ Using the adult obesity rates by county in Missouri, an inferred estimation can be made on how many children are likely to be obese within those counties.

Obese v. Overweight:

Overweight:

A child is classified as being overweight when their Body Mass Index (BMI) is above the **85th** percentile, but below the **95th** percentile for children and teens of comparable age and sex.

Obese:

A child is classified as being obese when their Body Mass Index (BMI) is greater than or equal to the **95th** percentile of children and teens of comparable age and sex.



Figure 8: Childhood obesity estimation based on Adult obesity percentages in the six most obese counties

County Name:	Percentage of Obese Adults:	Approximate Number of Obese Children:
Caldwell	39%	860
DeKalb	39%	847
Saline	38%	2040
Dade	37%	606
Washington	37%	2156
Butler	37%	3700

10,209 Children are estimated to be obese based on the adult obesity rates in the above counties, and the population of children under the age of 18.

Childhood Obesity and Bullying:

16.8% of students who had a BMI of 30 or greater reported being bullied before. Studies have shown that being overweight or obese was the primary reason the child was the target of bullying.⁷

Rural areas have higher percentages of obese children than urban and suburban areas as seen in Figure 6. In rural areas, there is a sharp increase in the number of overweight and obese kids. Only the outskirts of large urban areas show similar rates of obese children as reported in rural areas. When analyzing bullying and victim rates to other geographic areas, rural children are among the highest in the overall categories for reporting obese children and bullying.

Figure 9: Obesity rates by geographic area

Area:	Percentage:
Large City	20%
Mid Size City	11%
Urban Fringe of a Large City	29%
Urban Fringe of a Mid Size City	6%
Large Town	1%*
Small Town	4%
Rural:	29%

Figure 10: Obesity rates and Bullying by geographic area

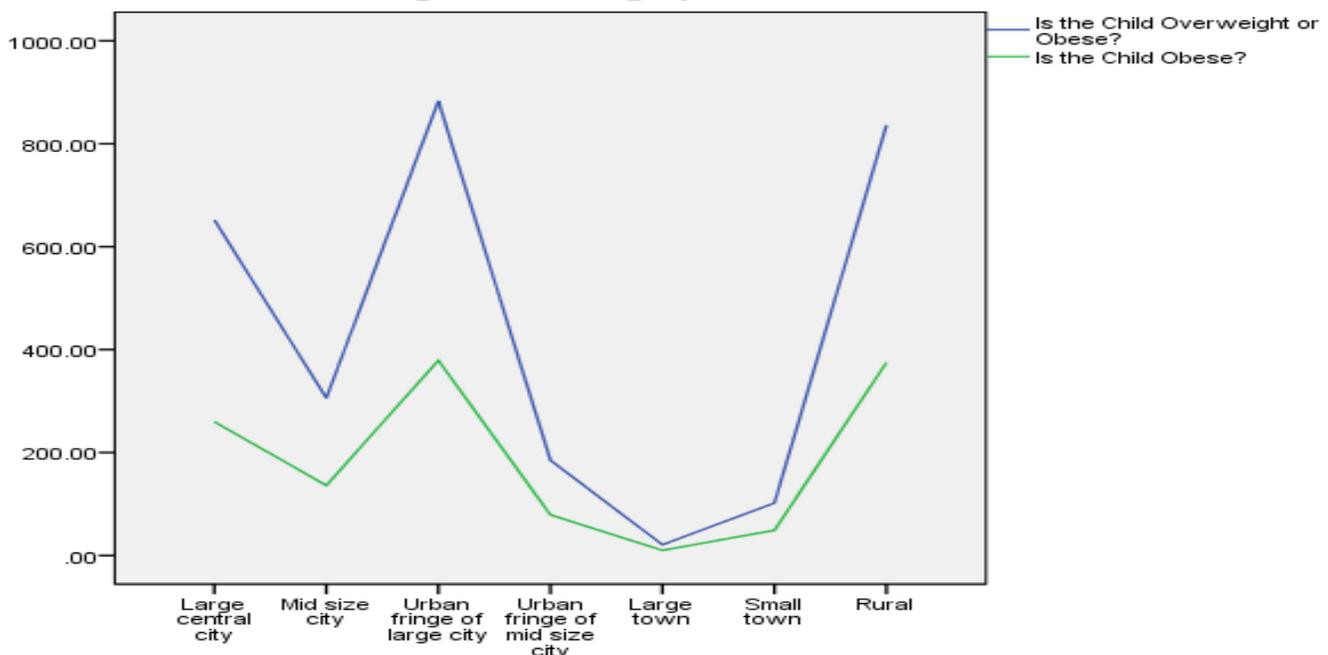
Area:	Percentage of obese children who are victims (Within Region):	Percentage of obese children who are victims (Overall):
Large City	35%	7%
Mid Size City	36%	4%
Urban Fringe of a Large City	33%	10%
Urban Fringe of a Mid Size City	30%	2%
Large Town	39%*	< 1%*
Small Town	30%	1%
Rural:	32%	9%

Figure 11: Obesity rates and Victimization by geographic area

Area:	Percentage of obese children who bully (Within Region):	Percentage of obese children who bully (Overall):
Large City	12%	2%
Mid Size City	11%	1%
Urban Fringe of a Large City	7%	2%
Urban Fringe of a Mid Size City	8%	< 1%
Large Town	54%*	< 1%*
Small Town	9%	< 1%
Rural:	9%	3%

* Percentage is not reliable since the sample size was less than N= 30

Weight and Geographic Location



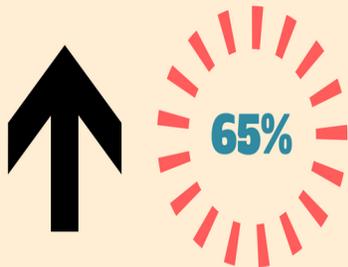
MORE SPECIFIC RESIDENCE CLASSIFICATION

Mental Health, Childhood Obesity, and Bullying:

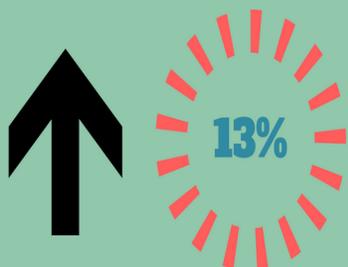
OBESITY AND BULLYING



Percentage of obese children broken into age groups

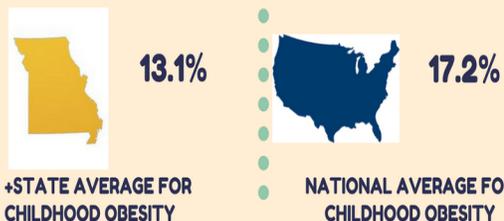


Obese children are 65% more likely to be bullied than normal weight children.



Overweight children are 13% more likely to be bullied than normal weight children.

MISSOURI AVERAGE
VS.
UNITED STATES AVERAGE



Studies indicate that obese girls ages 13-14 are four times more likely to have self-esteem issues than girls of the same age at normal weight. Boys who rank between the 90th and 100th percentiles for obesity are 20% more likely to be diagnosed with major depression. Girls who rank between the 90th and 100th percentiles for obesity are 30% more likely to be diagnosed with major depression. Obese children also have higher rates of academic difficulties, self-esteem issues, and higher rates of suicide.⁷

The third leading cause of death of people ages 10-24 is suicide.¹² An estimated 8% of teenagers have attempted suicide.¹² Over 50% of teenagers attributed their attempted suicide to body image struggles, including obesity.¹² It has also been shown that rural youths are twice as likely to commit suicide.¹² Suicide ideation is when the individual has thoughts of engaging in a behavior that would ultimately end their life.¹³ A suicide attempt is the actual engagement in such an act with the intent to take one's life.¹³

In Missouri, suicide is the second leading cause of death for individuals ages 10-24.¹² Males are more likely to commit suicide than females, and white males accounted for 68% of all suicides in Missouri in 2013.^{12,14} Studies have shown that living in rural areas have been linked to poorer mental health outcomes and higher rates of suicide.^{12,13,15}

Bully victims are between 2-9 times more likely to contemplate suicide than non-bullied children.¹⁶ Figure 12 shows suicidal thoughts, rural settings, grade level, and BMI score and the impact bullying has on them. Youths who were bullied for being overweight were at an increase risk for: depression, anxiety, low self-esteem, suicidal ideation, self-harm, substance abuse, eating disorders, avoidance of exercise, and avoidance of school.⁷

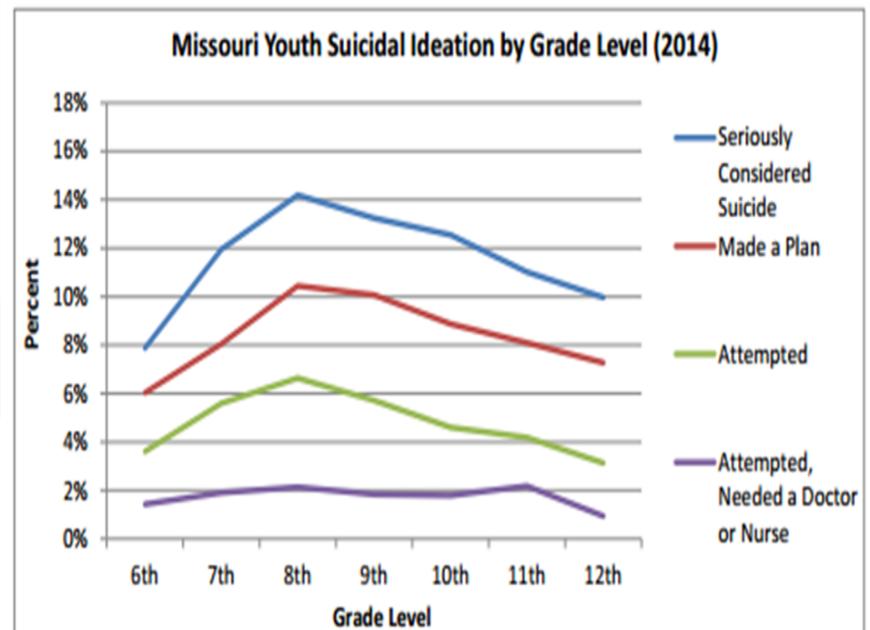


Figure 12: Factors that influence bullying rates

Variable:	Impact:	Significance:
Rural	.073	.001*
Grade	-.079	.0001*
BMI	.032	.015*
Feeling Sad and Lonely	-.224	.0001*
Feelings overall toward life	-.047	.0001*
Overall Health Ranking	.035	.016*
Hate Body	.067	.0001*



Figure 12 shows that the more depressed and lonely a child feels, the more likely they are to report having been bullied. The same for children who have a negative view on life; they are more likely to report having been bullied. For children whose overall health ranking is poor, they are also more likely to have reported bullying. The more a child hates their body, the more likely they are to have reported being bullied. Bullying has an important influence of a child's self esteem, and overall mental wellbeing. Repeated bullying can, and has, resulted in children attempting suicide.

The graphs below show a significant difference in mental health issues between obese children who have experienced bullying in the past and those who are not obese or have not experienced bullying in the past. Most of the obese students that have been bullied in the past have a greater propensity to say they do not like school, they feel lonely, and they do not like their life.

An estimated 7% of adolescents have attempted suicide in the past year. For every 100-200 attempts, one will succeed. ¹⁷

Weight, Bullying, and Mental Issues

Have you ever bullied another student?

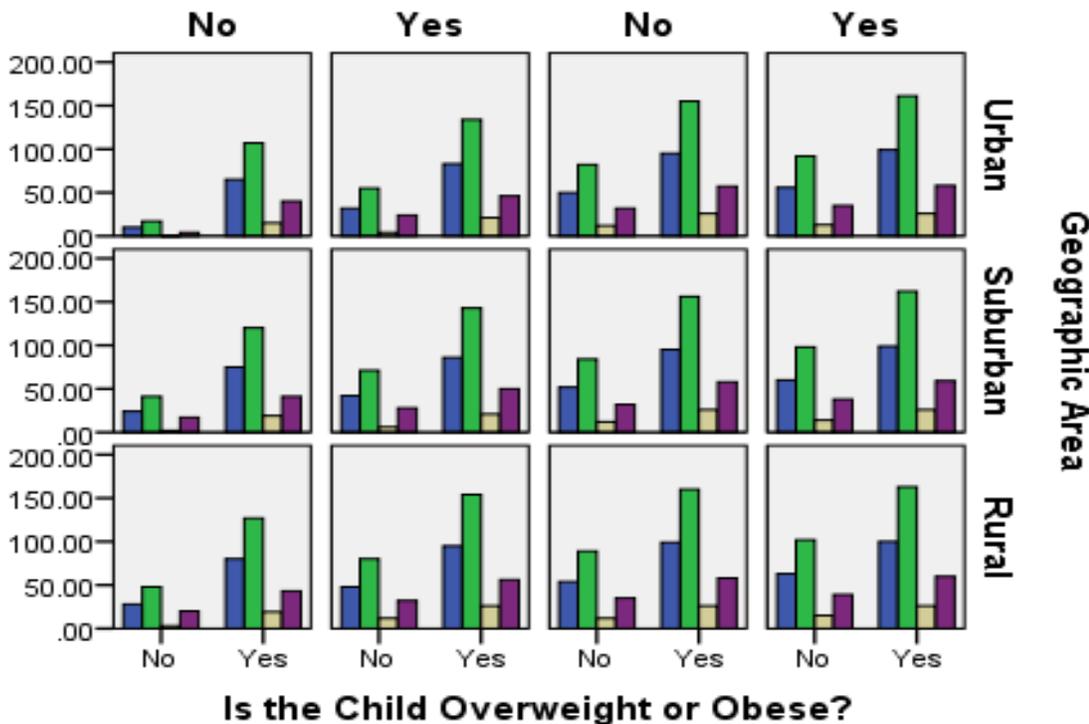
No

Yes

Have you ever been bullied by another student?

Have you ever been bullied by another student?

- Do you feel lonely?
- Do you like school?
- Do you have friends?
- Do you like your life?



Is the Child Overweight or Obese?

* Based on Answers:
Lonely: yes; School: no; Friends: no; Life: no

GENDER AND BULLYING

BULLY



43.3%

have bullied another child at school in the past

56.7%



VICTIM



48.8%

have been bullied by another child at school in the past

51.2%



CYBERBULLY



41.7%

have cyberbullied another student in the past

58.3%



CYBERVICTIM



52.3%

have been cyberbullied by another student in the past

47.7%



GIRLS



are more likely to engage in **verbal** bullying than any other form of bullying

BOYS

are more likely to engage in **physical** bullying than any other form of bullying



GENDER:

Gender plays a role in the type of bullying most likely to be encountered. Girls have higher rates of cyberbullying and verbal bullying than male students, but male students have higher rates of physical and social bullying than the female students. Male students are also more likely to bully a victim several times a week (68.9%) during school. Females are more likely to report using cyberbullying tactics outside of school than males, particularly with the use of cellphones. One reasoning that females are more likely to engage in cyberbullying than males is that cyberbullying is a continuation of the verbal bullying that occurs during school hours.

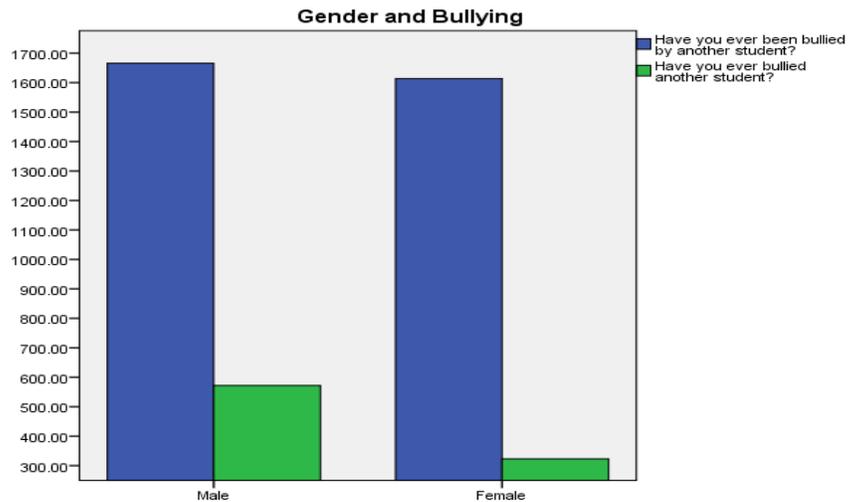


Figure 13: How Often a Student has been bullied by another student at school

Figure 14: How Often a Student has bullied another student at school

Gender:	Frequency:	Percent:	Gender:	Frequency:	Percent:
Female:	Never	49.1%	Female:	Never	51.3%
	Once or Twice	51.2%		Once or Twice	46.2%
	2-3 times per month	44.5%		2-3 times per month	36.8%
	Once a week	45.4%		Once a week	38.4%
	Several times a week	46.0%		Several times a week	31.1%
Male:	Never	50.9%	Male:	Never	48.7%
	Once or Twice	48.8%		Once or Twice	53.8%
	2-3 times per week	55.5%		2-3 times per week	63.2%
	Once a week	54.6%		Once a week	61.6%
	Several times a week	54.0%		Several times a week	68.9%



AGE:

As children get older, they are less likely to engage in bullying.¹⁷ However, with the recent emergence of cyber bullying, there has been a trend of increasing rates in older children engaging in bullying, specifically cyberbullying.



Figure 15: Have you ever engaged in bullying?

Age:	Response:	Percent:
<10	Yes	6.1%
11	Yes	10.5%
12	Yes	16.1%
13	Yes	22.4%
14	Yes	17.7%
15	Yes	16.1%
16	Yes	8.8%
17	Yes	2.2%
<10	No	9.0%
11	No	14.6%
12	No	17.6%
13	No	19.4%
14	No	17.1%
15	No	15.3%
16	No	6.0%
17	No	0.9%

AGE AND BULLYING

Bully Rates

Age	Most Reported Type of Bullying
10	CYBER 6.1% reported bullying in any form; 7.2% said cyber
11	SOCIAL 10.5% reported bullying in any form; 12.4% said social
12	PHYSICAL 16.1% reported bullying in any form; 19.2% said physical
13	VERBAL 22.4% reported bullying in any form; 22.0% said verbal
14	SOCIAL 17.7% reported bullying in any form; 18.5% said social
15	VERBAL 16.1% reported bullying in any form; 17.7% said verbal
16	CYBER 8.8% reported bullying in any form; 9.0% said cyber
17	CYBER 2.2% reported bullying in any form; 3.6% said cyber

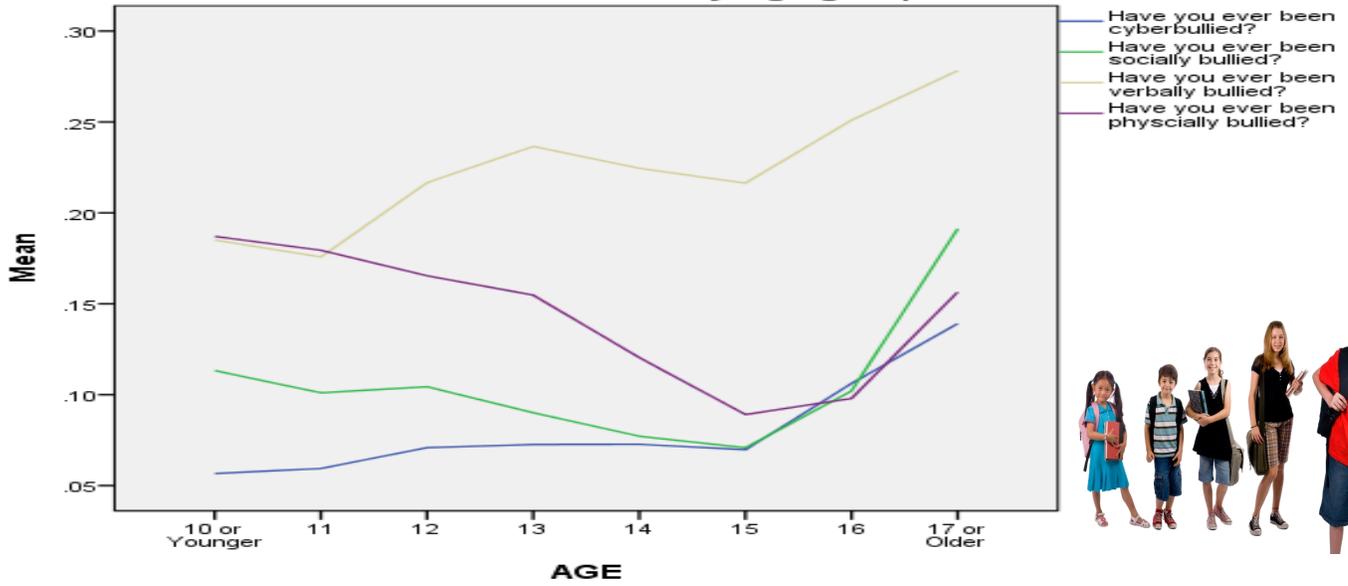
AGE AND BULLYING

Victim Rates

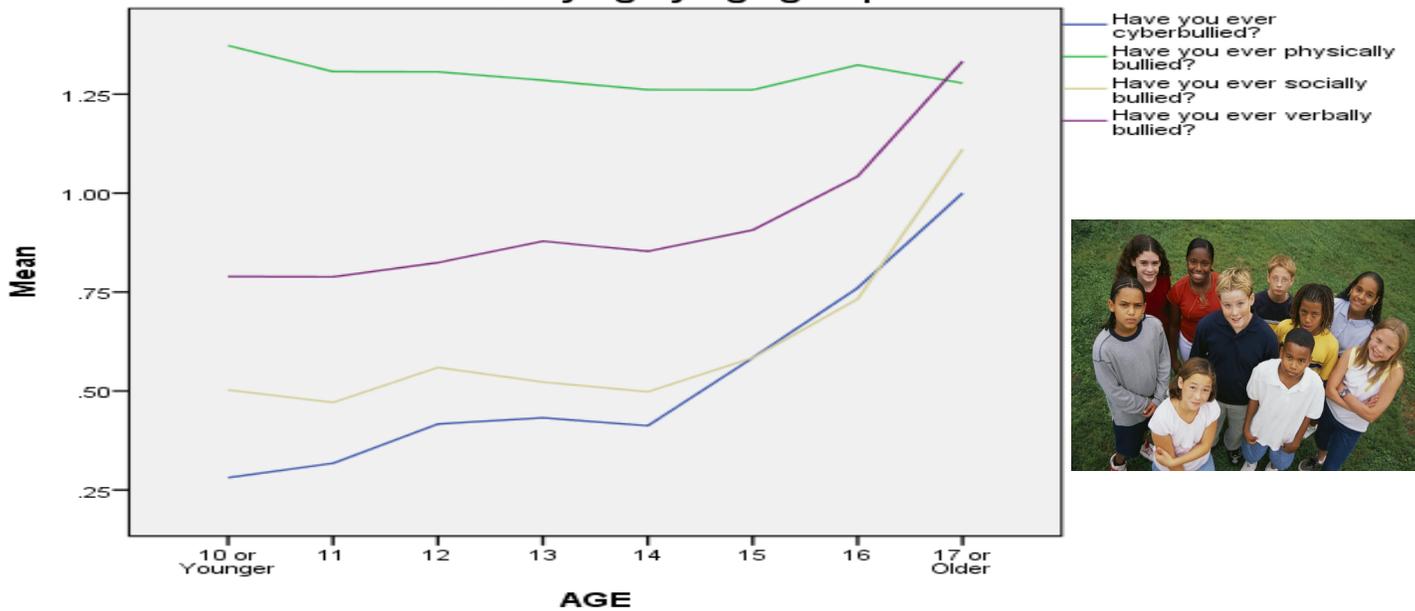
Age	Most Reported Type of Bullying
10	PHYSICAL 11.8% reported being bullied in any forms; 11.1% said physical
11	PHYSICAL 17.8% reported being bullied in any form; 17.8% said physical
12	PHYSICAL 19.6% reported being bullied in any form; 20.1% said physical
13	VERBAL 21.2% reported being bullied in any form; 21.3% said verbal
14	VERBAL 13.5% reported being bullied in any forms; 18.0% said verbal
15	VERBAL/ CYBER 9.3% reported being bullied in any form; 15.4% said verbal, 15.0% said cyber
16	CYBER 5.3% reported being bullied in any form; 9.3% said cyber
17	CYBER 1.5% reported being bullied in any form; 2.1% said cyber



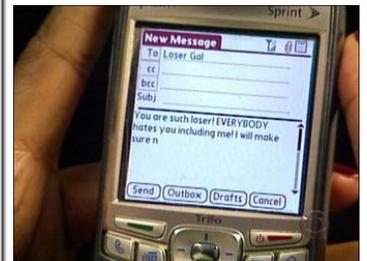
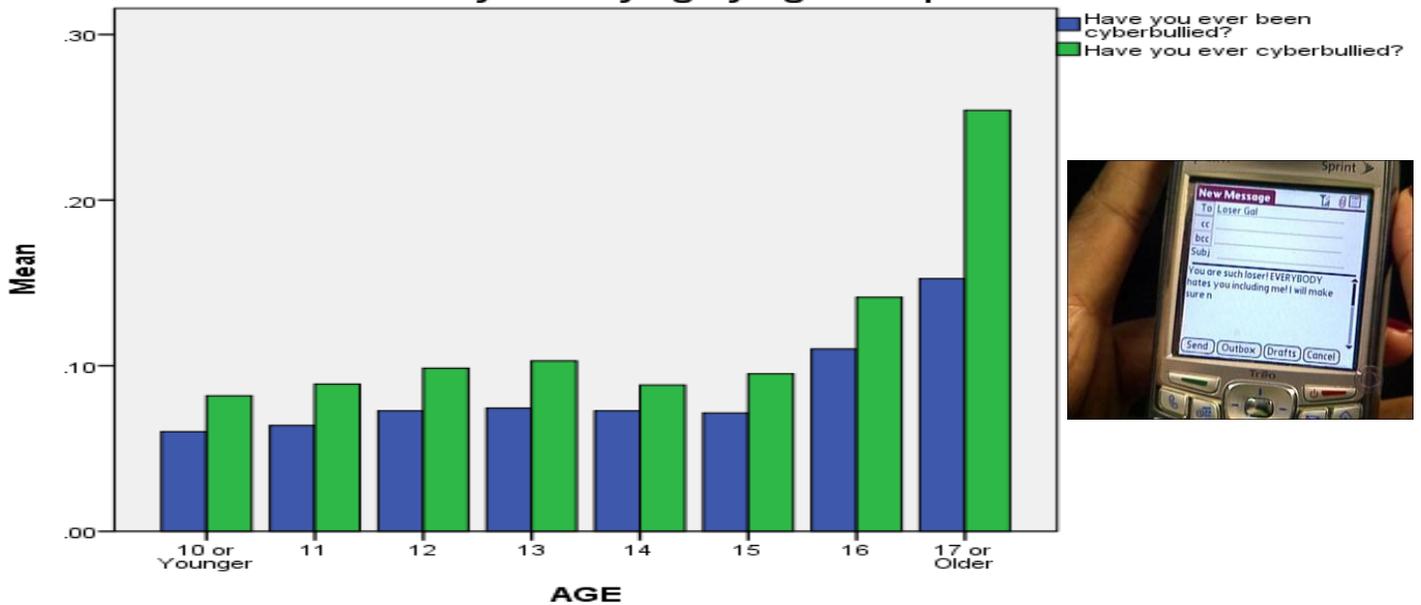
Victimization by Age groups



Bullying by Age groups



Cyberbullying by Age Group



GEOGRAPHY:

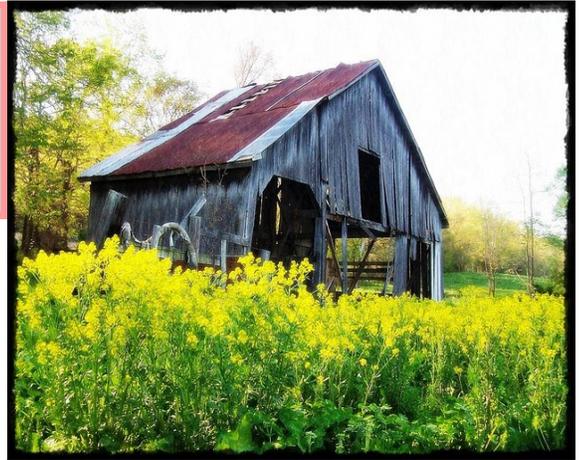
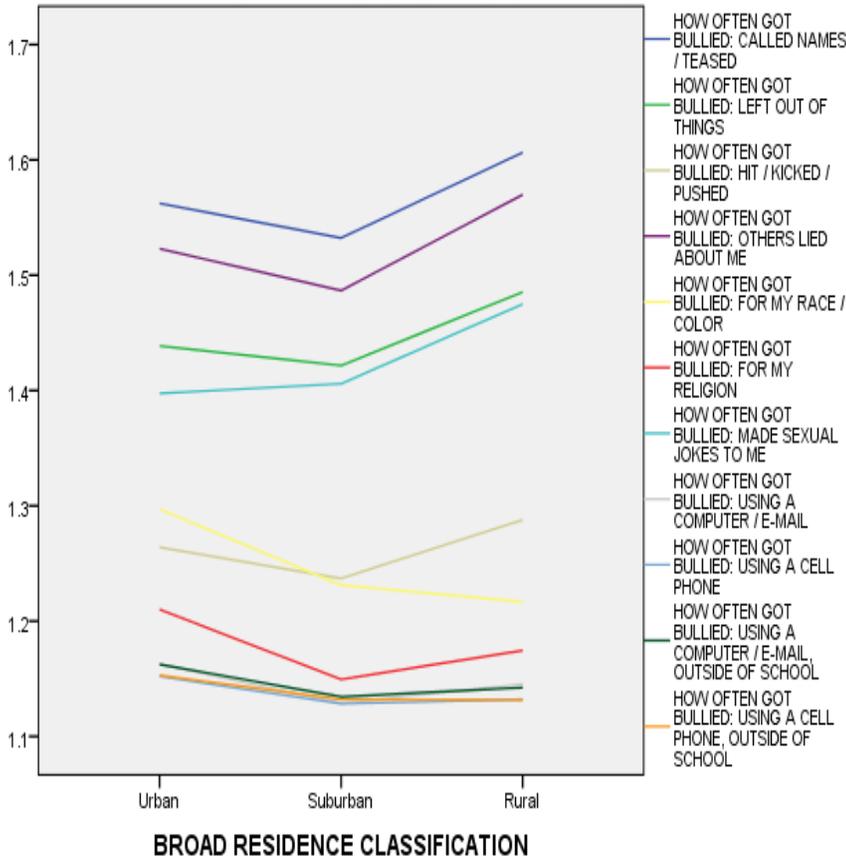
Rural children are more likely engage in bullying than urban children.⁴ Studies suggest some reasons are the increased rates of poverty, distance from major metropolitans, poor parenting, and increased drug usage.^{6, 11}

Studies also show that rural children are more likely to engage in behaviors that are both externalizing (aggression, destruction of property, bullying etc.) and internalizing (social withdrawal, depression, suicidal thoughts etc.) than urban children.^{5, 18}

One limitation with studies conducted on the rural children and bullying is the lower numbers of rural children in such studies. While 25% is a large proportion of students, the actual number of children being bullied in these areas is likely to be much higher than are being self-reported.



Types of Bullying by Geographic Setting



BULLYING IN RURAL AREAS

Internalizing v. Externalizing Behaviors

Rural children are more likely to engage in internalizing and externalizing behaviors than their urban counter parts

INTERNALIZING

EXTERNALIZING

FEELING LONELY

50.0% of rural children reported feeling left out, lonely, or sad

SMOKING

27.9% of rural children have smoked in tobacco in the past 30 days. 23.5% have smoked Marijuana in the past 30 days.

DISLIKING SCHOOL

28.4% of rural children have reported disliking or hating school

DRUGS/ALCOHOL

24.2% of rural children have drank alcohol in the past 30 days. 23.4% of rural children have used drugs in the past 30 days

HATING LIFE

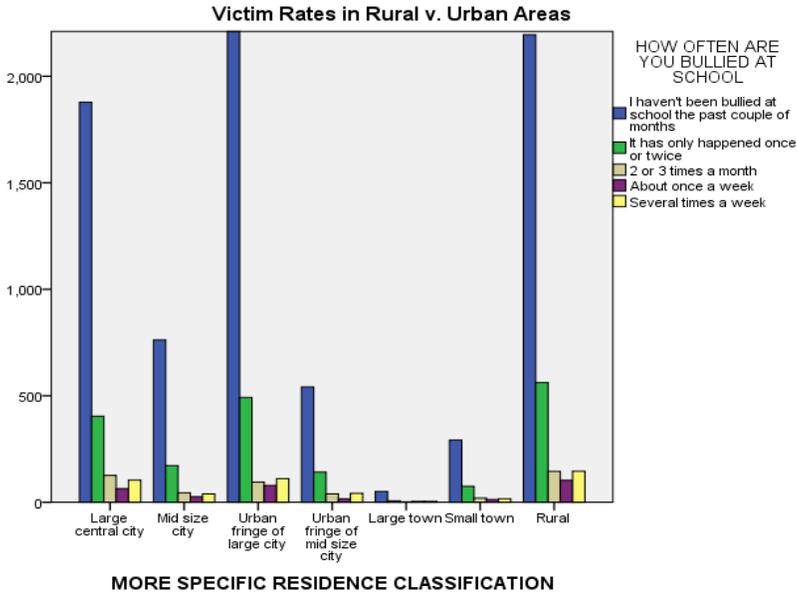
24.7% of rural children rate their life as being the poor to the worst life possible.,

VIOLENCE

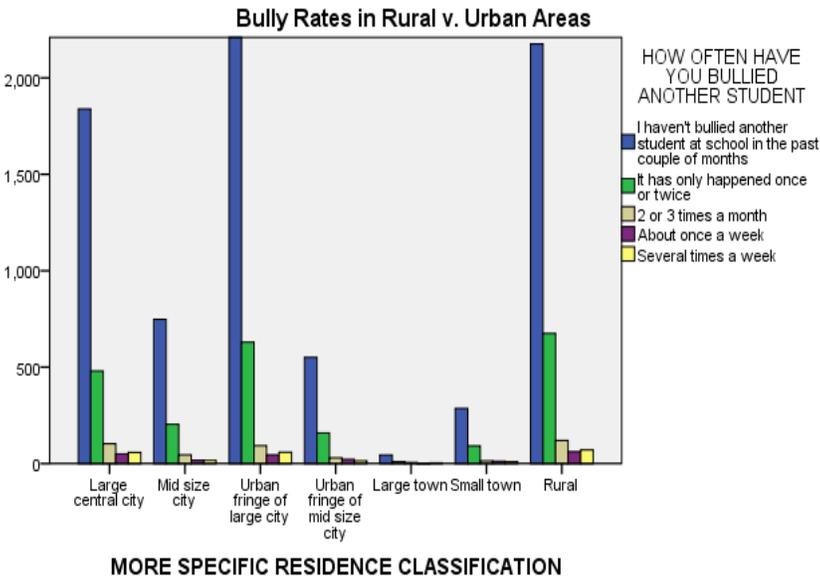
28.1% of rural children have reported carrying a weapon in the past 30 days. 29.6% of rural children have been involved in a physical altercation in the past 30 days.

BULLYING

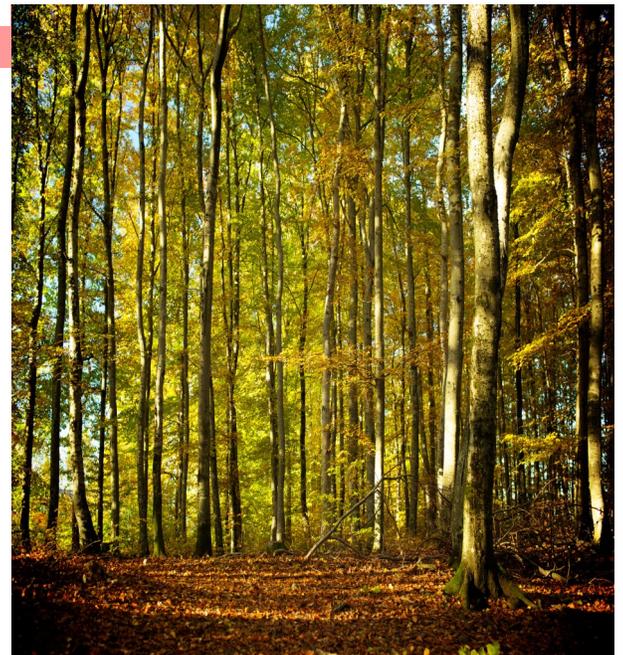
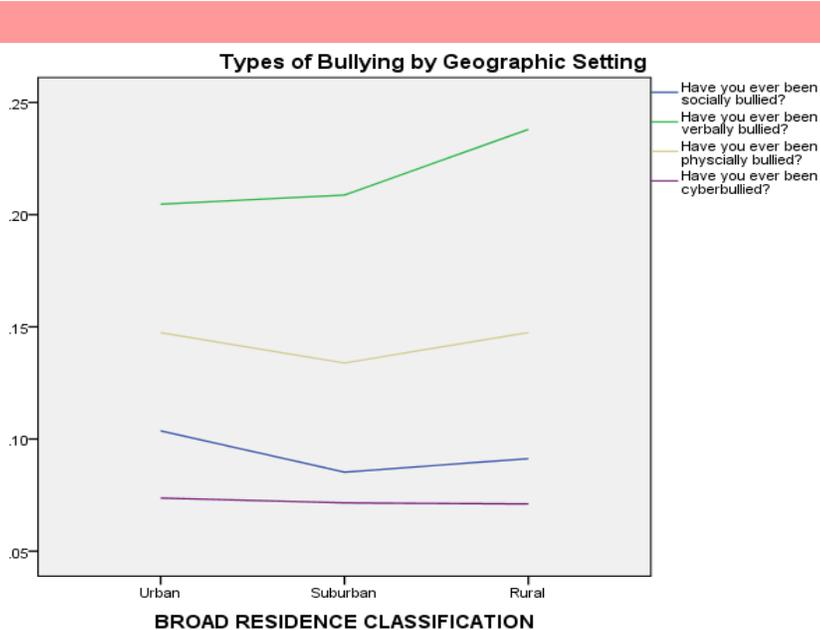
28.3% of rural children have been victims of bullying. 25.3% of rural children have been victims of cyber bullying. 25.2% of rural children have been victims of social bullying. 28.6% of rural children have been victims of verbal bullying. 26.7% of rural children have been victims of physical bullying. 27.8% of rural children have reported being a bully.



Rural v. Urban Settings:



Rural settings have higher rates of reported bullying (246) and victim (512) occurrences several times a week than any other setting. The type of bullying with the largest reported rate is verbal bullying. There is a substantial increase in verbal bullying rates between urban and rural settings. The only specific types of bullying that are not more prevalent in rural area, or increasing in prevalence, are racial and religious. Rural areas are more likely to see less bullying based on race and religious affiliations than their urban counterparts.



Rural Missouri Factors:

Poverty, parental education levels, proximity to larger cities, increase in obesity rates due to lack of exercise and healthful food opportunities, and food insecurity are just a few factors that influence bullying rates.^{6,11}

As previously stated, food insecurity and lack of access to healthful food options increase the risk for childhood obesity. Childhood obesity is one of the major determinants for a child becoming a victim of bullying. However, food insecurity and lack of access have their own unique impacts on bullying rates aside from aiding to the increase in a child's weight.

For both bullying and victim rates, food insecurity had the highest impact. If a child reported going to bed hungry, they were more likely to engage in bullying or become victims of bullying. The trend we can see is that there is a relationship between food and bullying that extends past the impact food has on obesity.⁷



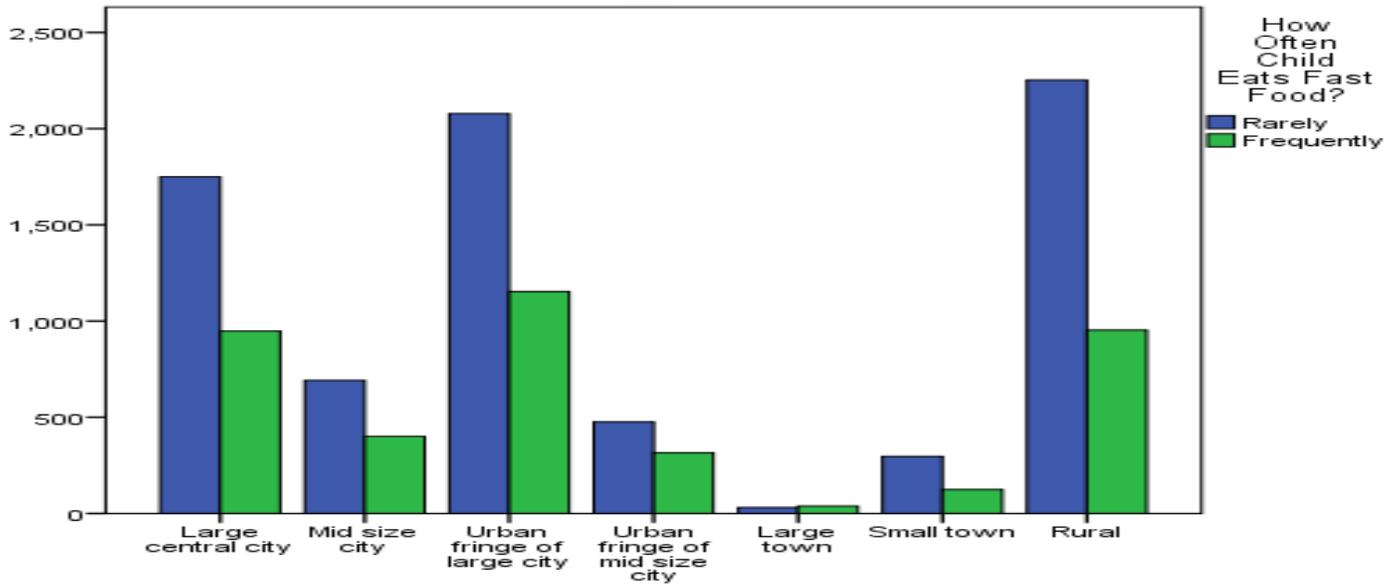
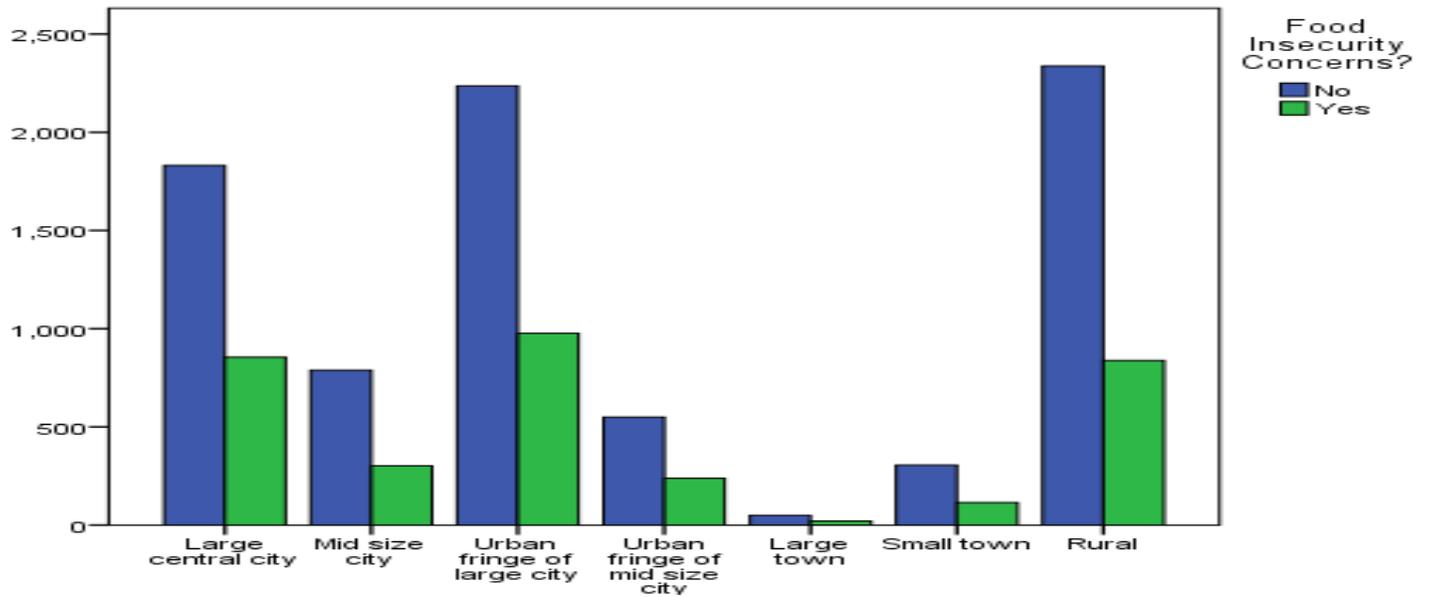
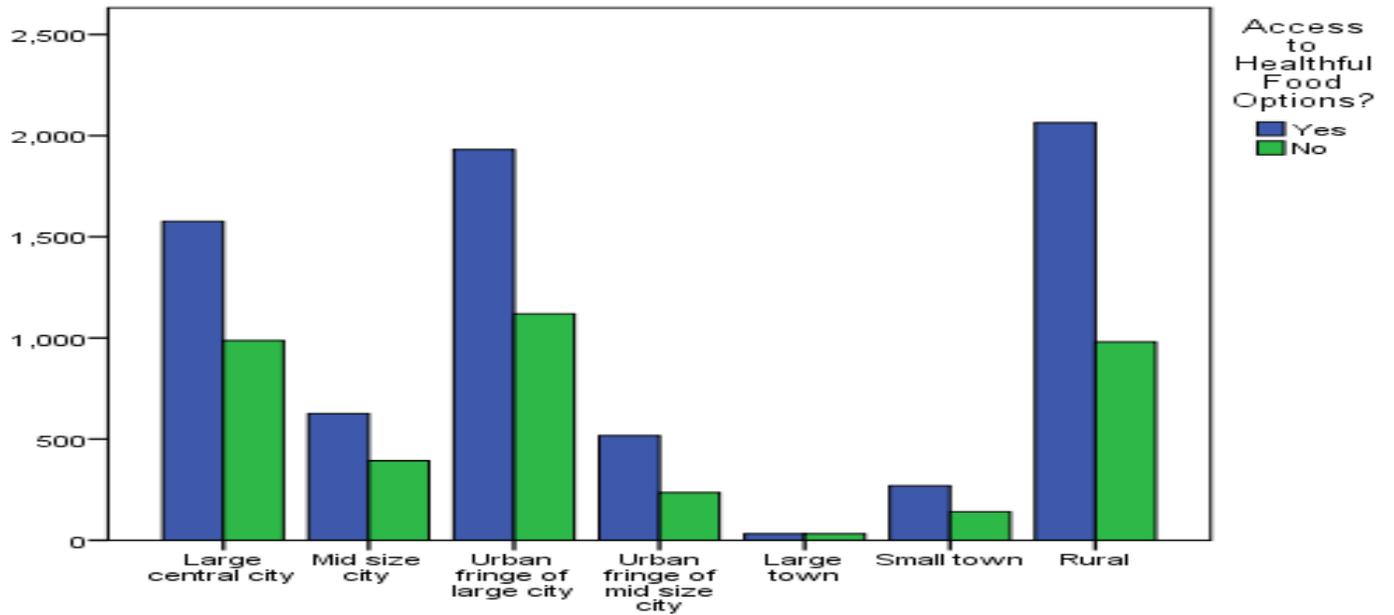
Figure 16: Victim Rates and various factors

Factor:	Percent (Yes):	Percent (No):	Change:
Healthful Food Access	11.6%	10.6%	1% ↑
Food Insecurity	24.3%	10.3%	14.0% ↑
Not enough Exercise	11.8%	10.7%	1.1% ↑
No Vehicle	13.8%	11.3%	2.5% ↑
Family well off	10.4%	18.4%	8.0% ↑
Fast Food Access	11.9%	10.8%	1.1% ↑

Figure 17: Bullying Rates and various factors

Factor:	Percent (Yes):	Percent (No):	Change:
Healthful Food Access	9.0%	6.7%	2.3% ↑
Food Insecurity	15.5%	7.1%	8.4% ↑
Not enough Exercise	7.7%	7.7%	0%
No Vehicle	11.5%	7.6%	3.9% ↑
Family well off	7.2%	13.0%	5.8% ↑
Fast Food Access	10.1%	6.4%	3.7% ↑

Food Concerns and Geographic Area



Poverty Rates:



Figure 18: Counties with the highest percentage of children in poverty

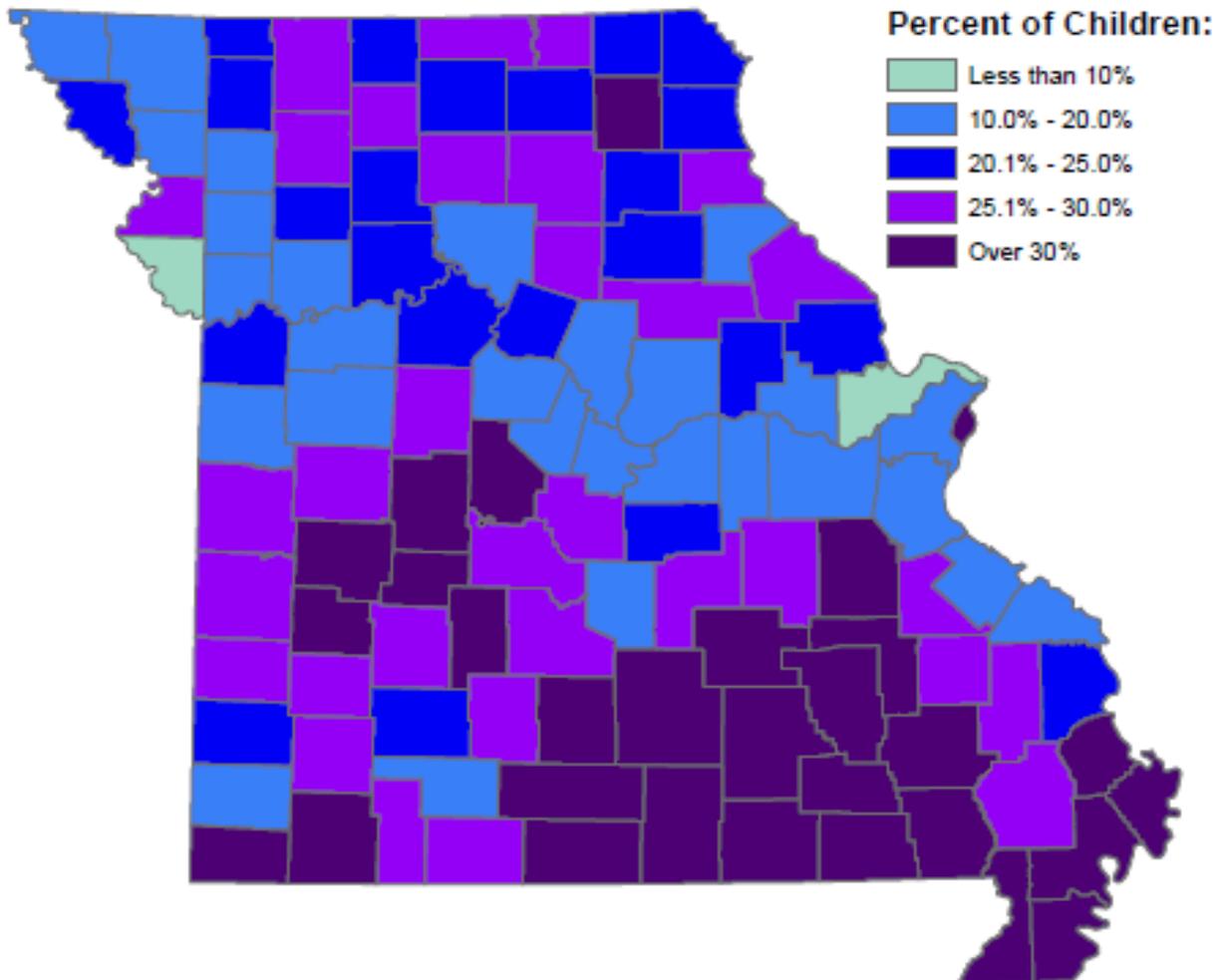
Poverty is a known contributor to bullying rates.¹⁹ The Missouri average for childhood poverty is 21%. 30 counties are below the state average. Figure 18 lists the counties that have 40% or more of their children in poverty.

Of the counties with over 40% of their child populations in poverty, 85.7% are rural and 43% are classified as 75% or more rural. Of the counties in total over the Missouri state average, only five counties are listed as urban: Jasper, Greene, St. Louis City, Buchanan, and Jackson.

Figure 18 shows an 8% increase in likelihood of a child becoming a victim if their family lives in poverty. Figure 17 shows a 5.8% increase in a child being a bully if their family lives in poverty.

County:	Percent:	Rural:	Most Rural:
Hickory	40%	Yes	Yes
Mississippi	40%	Yes	No
Pemiscot	40%	Yes	No
Wayne	41%	Yes	Yes
Dunklin	42%	Yes	No
St. Louis City	43%	No	No
Shannon	48%	Yes	Yes

Percent of Children in Poverty in Missouri, 2014



Inadequate Parenting:

Inadequate parenting encompasses a number of risk factors. Single family homes, teenage parents, parental unemployment, and parental inattentiveness are all factors that have impacts on childhood bullying. Poor parenting has a direct effect on substance abuse, increased peer-pressure, and exacerbates peer-provocation-aggression relations (bullying).¹¹

Whether the father is involved or not in a teenage boys life has a significant impact on whether or not the boy will become a bully.²³ It has also been shown that when the father is involved in the teens life they are less susceptible to becoming a victim as well.²³ When it comes to single family homes, while there is still an increase in bullying and victim rates, it is much smaller when the father is the single parent than when it is the mother.

Children who are born to teenage parents are more likely to be in poverty, and belong to single family household.²⁴ Children from teenage parents are also likely to receive inadequate parenting²⁴, and can be a contributing factor to a child's likelihood to engage in bullying. Teenagers themselves are not cognitively developed enough to handle raising a child whose first three years of live require careful nurturing and stimulation to provide for the child a bright future.²⁴ Teenagers, after all, are still children themselves.

There is also a causative effect from bullying and teenage pregnancies. A study conducted in Finland showed that teens who were bullied were more likely to become pregnant as a teenager.²² Other studies show that pregnant teens are more likely to be bullied than non-pregnant teens.^{21, 22}

Children who reside in a single parent household are more likely to be bullies and victims.²⁵ Historically, single family households use to be synonymous with single mothers, but today there are over 2 million single father households in the United States.²⁵ One reason studies suggest single parent households struggle with issues such as bullying is that the parents are a forced to take on the role of two parents.²⁵ This causes financial strain, emotional stress, and an increased risk for mental, and behavioral issues.²⁵ Unfortunately, when those risk factors occur in the home, the child is more likely to engage in addictive and/or violent behaviors.¹¹



PS3 ... new dad Alfie Patten, 13, and mum Chantelle Steadman, 15, with baby Maisie and PlayStation



Single Parent Households:

Inadequate parenting has been linked to increase rates of childhood bullying.¹¹ While not all single parent households are going to produce children who are more inclined to bully, there is a statistically significant correlation that single parent homes are more likely to increase rates. Single mother households had the highest impact on children likely to engage in bullying with 0.102 (10.2%). Single fathers are a close second with a 0.081 (8.1%) impact on bullying. Single mother household also have the highest impact on likelihood for the child to be a victim of bullying (0.128 or 12.8%).

The Missouri state average is 33% for single family homes. New Madrid and Pemiscot are well over the state average with 54% and 56% respectively.



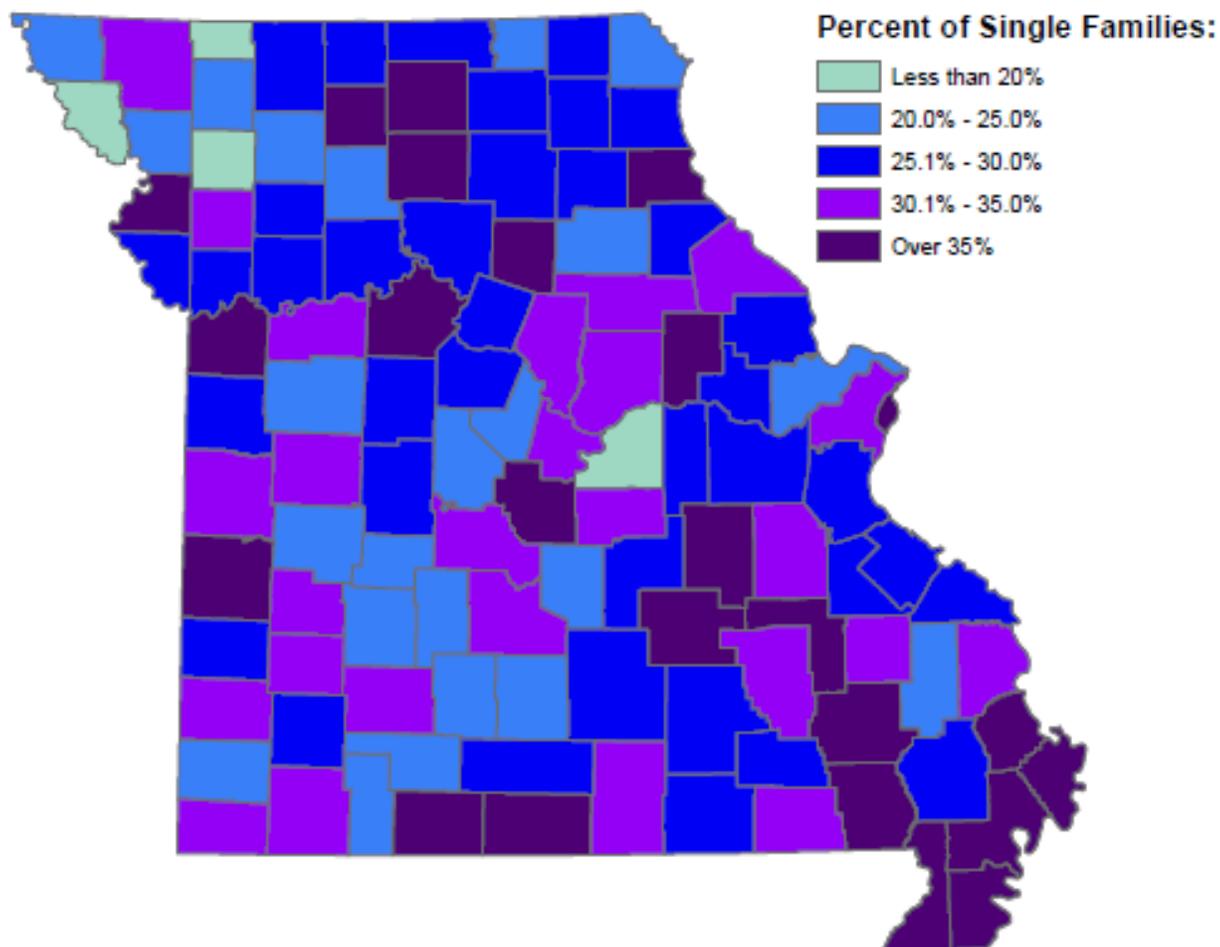
Figure 19: Single Parent Homes and the impact on bullying rates

Household	Impact:	Significance:
Single Mother	.102	.0001*
Single Father	.081	.0001*
Single Grandparent	.030	.220

Figure 20: Single Parent Homes and the impact on victim rates

Household:	Impact:	Significance:
Single Mother	.128	.0001*
Single Father	.079	.0001*
Single Grandparent	.019	.102

Percent of Single Family Homes in Missouri, 2014



Parental Inattentiveness:



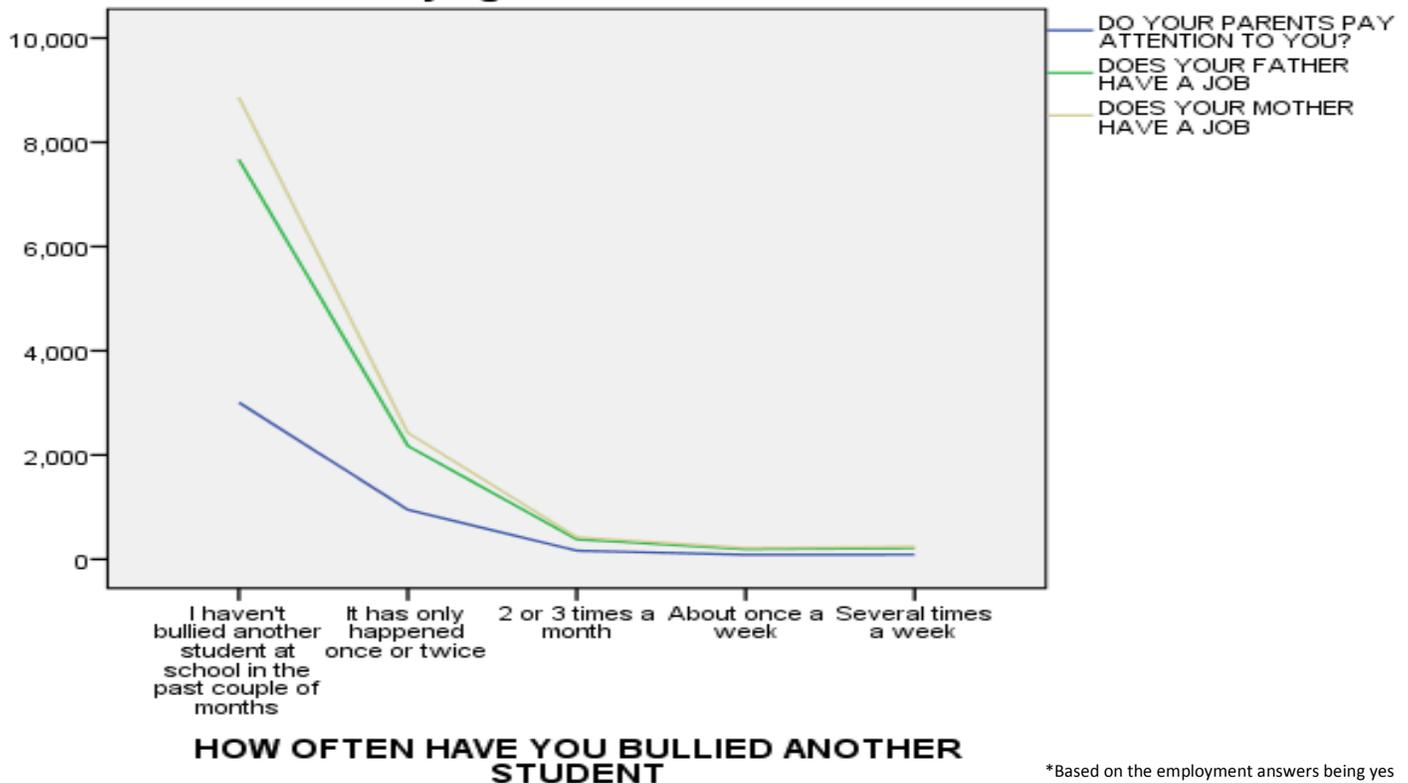
Parental inattentiveness is defined as a child feeling their parents do not love them enough, are not helping them as much as they need, do not understand their problems, ignore them when they feel upset, and take no interest in their activities. When a parent is not attentive to their child or their needs, there is an increase in the child's propensity to not only engage in bullying, but also an increase into the frequency that child will engage in bullying.

Figure 21 shows the impact parent inattentiveness can have on a child becoming a bully. When parents are inattentive, a bully is 1.1% more likely to bully several times a week.

Figure 21: How often have you bullied another student?

Are your Parents Attentive to you?	Frequency:	Percentage:
Yes:	Never	76.3%
	Once of Twice	18.0%
	2-3 times per month	3.1%
	Once a week	1.2%
	Several times per week	1.4%
No:	Never	69.2%
	Once of Twice	21.9%
	2-3 times per month	4.2%
	Once a week	2.2%
	Several times per week	2.5%

Bullying based on Parental Access



*Based on the employment answers being yes

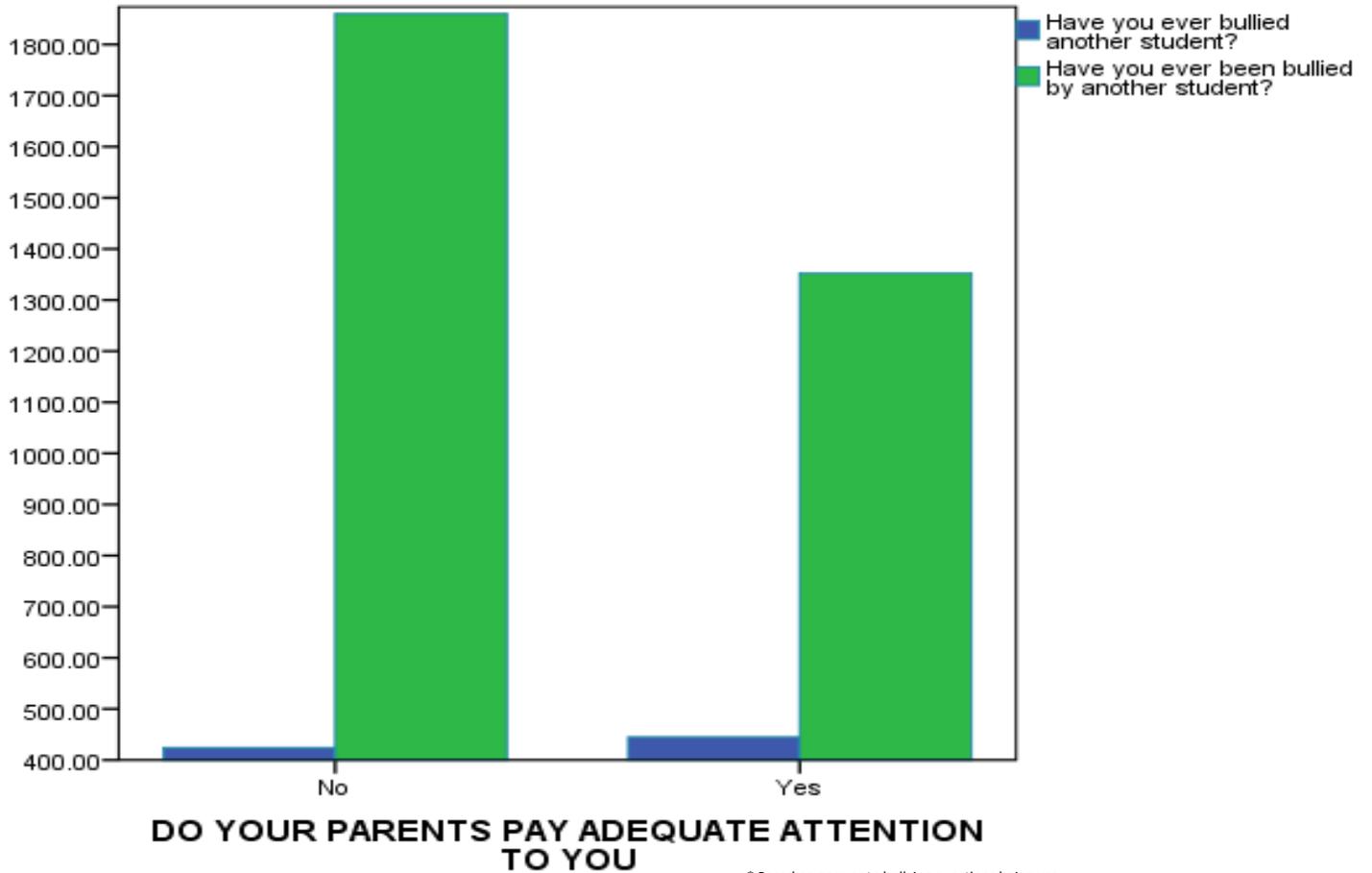
Figure 22: Unemployment rates and Victimization

Variable:	Impact:	Significance:
Father Unemployed	0.094	.006*
Mother Unemployed	0.045	.047*
Rural	0.059	.008*

Figure 23: Unemployment rates and Bullying

Variable:	Impact:	Significance:
Father Unemployed	.146	.0001*
Mother Unemployed	0.017	.362
Rural	0.046	.013*
Inattentive Parents	.073	.0001*

Bullying based on Parental Accessibility



VS



Parental Unemployment:

In both victim and bully rates, parental unemployment had an impact. 1.7% of children were more likely to be a bully if their mother was unemployed, and 4.8% were more likely if their father was unemployed. 1.1% of children were more likely to be a victim if their mother was unemployed, and 2.9% were more likely if their father was unemployed.

In Missouri, the state unemployment average is 6.1%. 65 counties, (56.5%) are over the state unemployment average. Only 3 counties with high rates of unemployment are classified as urban (4.6%). 95.4% of counties with high unemployment rates are classified as rural with 30 of those counties being classified as 75% or more rural; 46.2%.

Of the counties with high unemployment rates, 33 (50.7%) have above the state average (23%) for children in the population. Only 2 of those counties over the unemployment rate with high populations of children are classified as urban. 93.9% of those counties are listed as rural. 11 of the counties are considered 75% or more rural; 33.3%.

Percent of Single Family Homes in Missouri, 2014



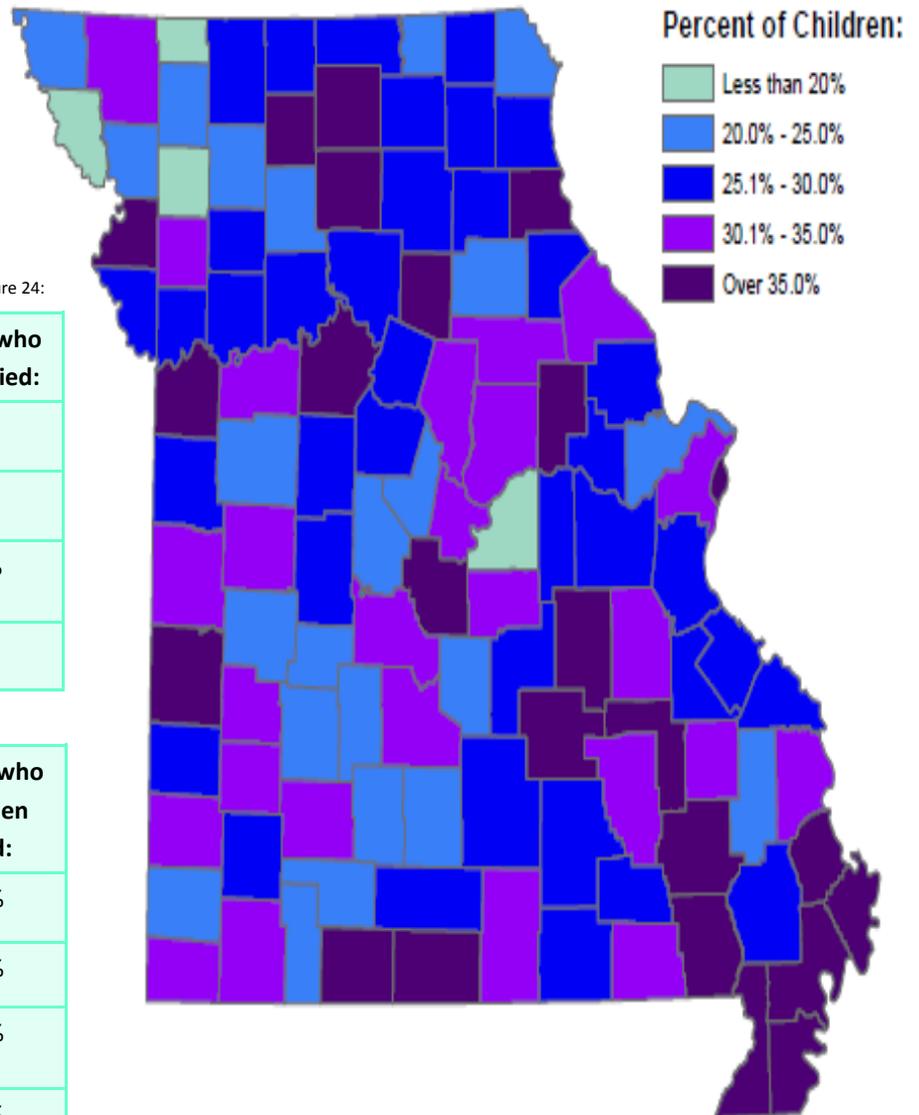
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Figure 24:

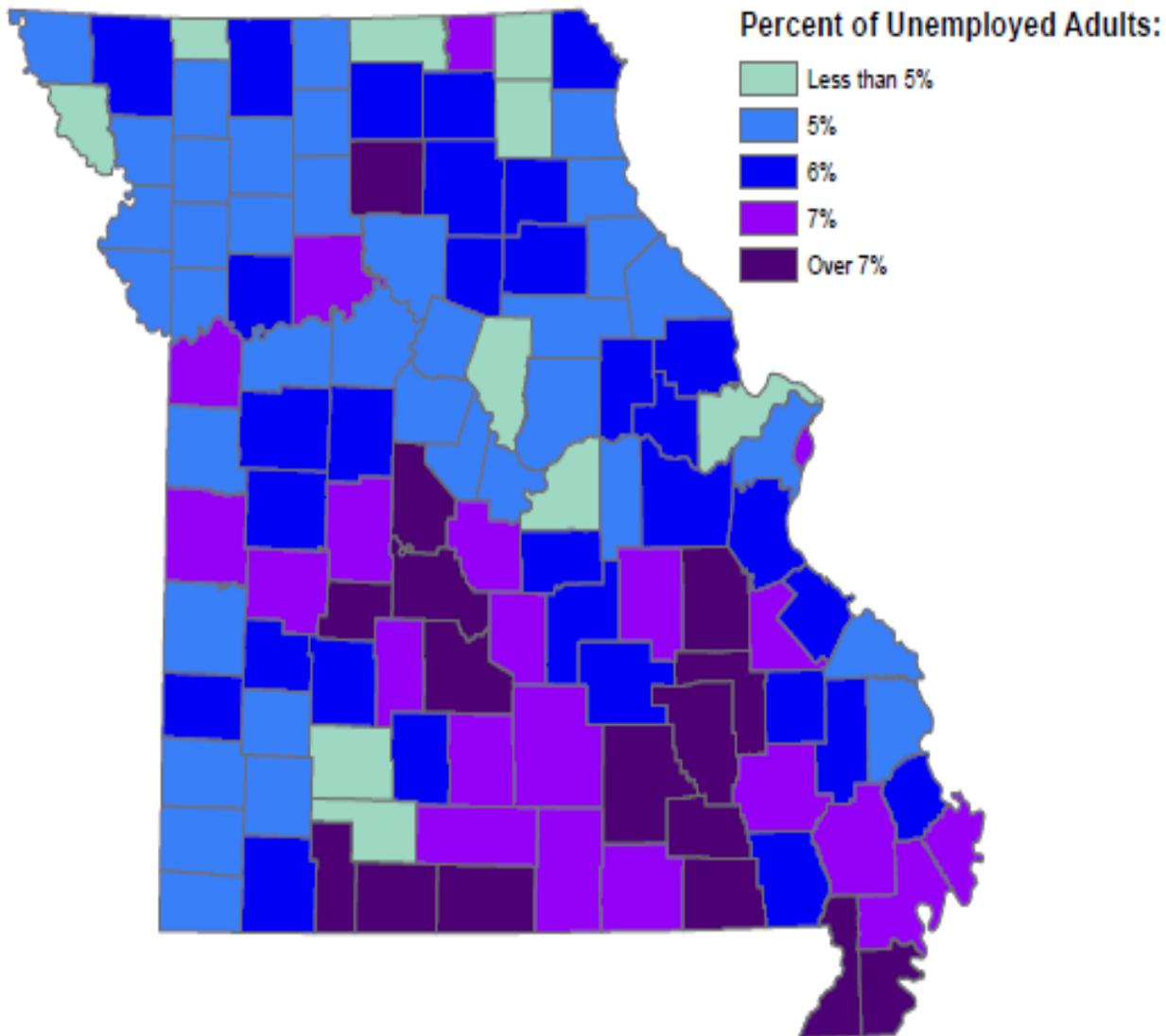
Parent:	Employed:	Percent who have bullied:
Father	Yes	6.8%
Mother	Yes	6.9%
Father	No	11.6%
Mother	No	8.6%

Figure 25: Parental employment status on victim rates

Parent:	Employed:	Percent who have been bullied:
Father	Yes	27.5%
Mother	Yes	27.4%
Father	No	30.4%
Mother	No	28.5%



Percent of Unemployed Adults in Missouri, 2014



When a parent is unemployed, there is added strain to the family, both financially and emotionally. If a parent is unemployed, their focus may shift from the child to acquiring gainful employment. Unemployment also plays a role in other bullying factors, such as obesity, food insecurity, and poverty.



Lack of Access:



Lack of Access can be defined by number of different yet equally important measures. Do kids have access to larger cities? Do they have access to adequate exercise opportunities? All of these concerns impact a child's likelihood to either bully or be bullied.

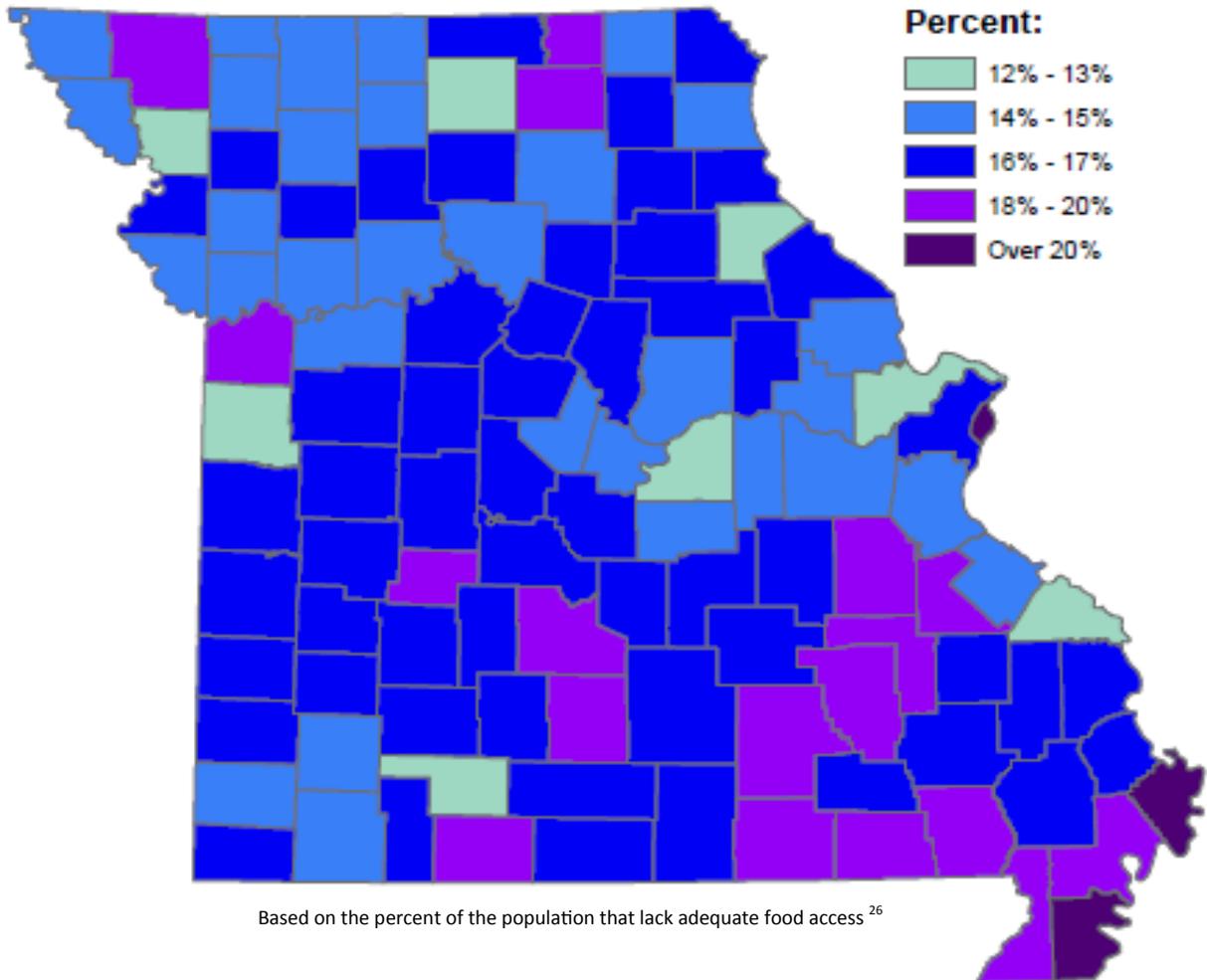
Food Access and Insecurity:

Food access and security impacts both obesity rates and bullying. A child is 8.4% more likely to be a bully if they do not have adequate food sources. A child is 14% more likely to be a victim of bullying if they do not have adequate food sources.

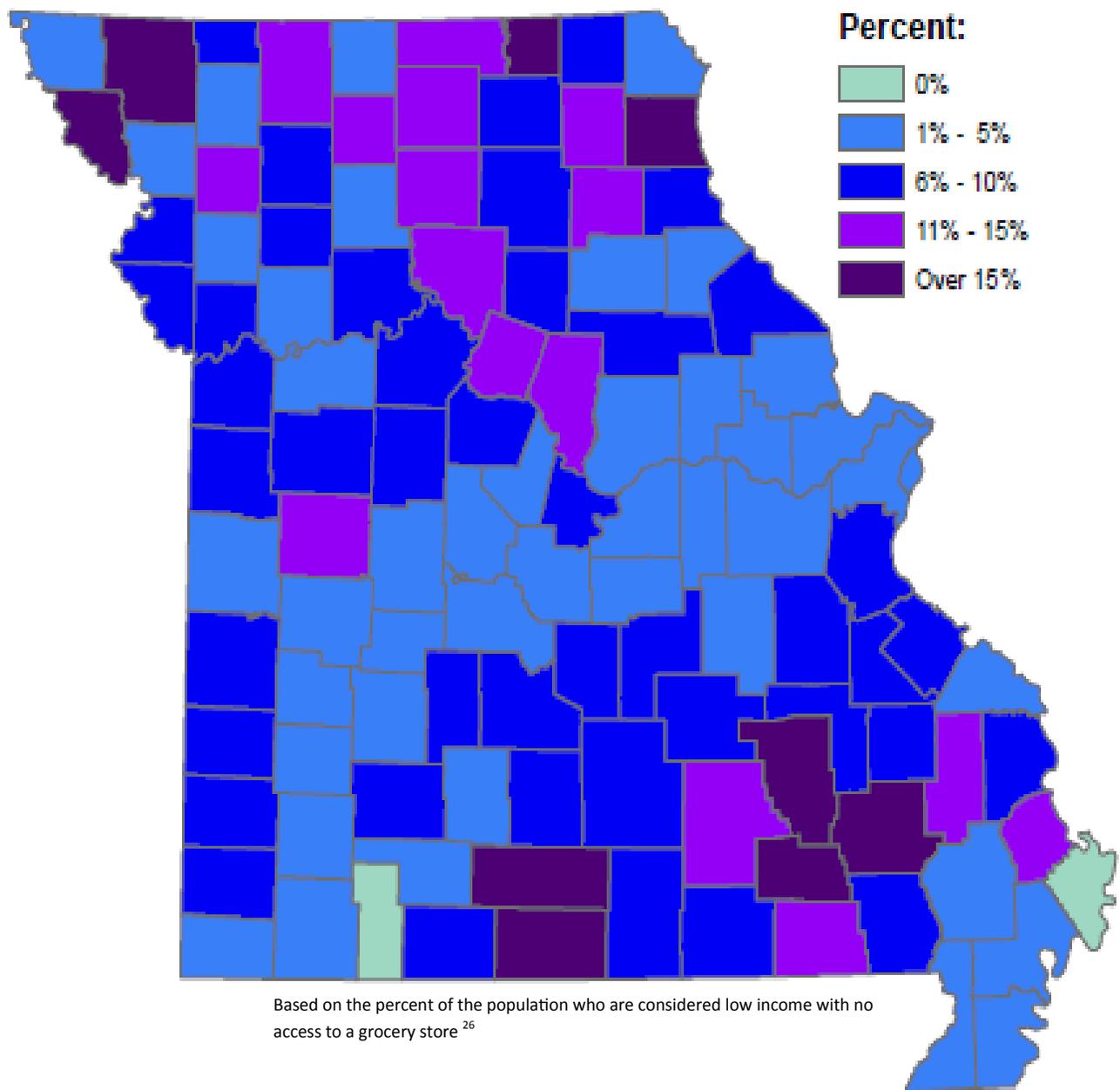
Figure 26: Counties with the highest percent of the population who lack access to food

County:	Percentage:	Estimation of Children:
St. Louis City	26%	82,310
Pemiscot	23%	4,200
Mississippi	22%	3,080
Dunklin	20%	6,290

Percent of Food Insecurity in Missouri, 2014



Percent of Food Access in Missouri, 2014



Based on the percent of the population who are considered low income with no access to a grocery store ²⁶

Figure 27: Counties with the highest percent of the population who lack access to healthful

County:	Percentage:	Estimation
Holt	36%	1,758
Schuyler	32%	1,397
Ozark	28%	2,741
Carter	28%	1,760

Transportation:

When the family owns a car, the ability to access exercise opportunities, larger cities, and educational opportunities increase for a child.¹¹ Unfortunately, when the family does not own a car, the child faces greater limitations that can influence bullying rates, more specifically a child's likelihood to engage in bullying. A child whose family has no car increases their likelihood to bully by 0.094 (9.4%).

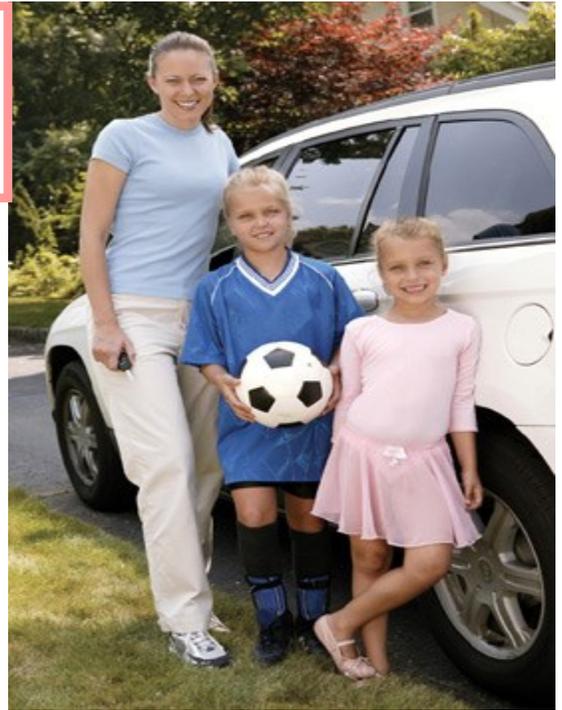


Figure 28: Counties with higher percentage of population with no vehicles

Name:	Total People without cars:	Percentage of Children:
Carter	288	23.9%
Dunklin	1,290	25.9%
Mississippi	610	22.4%
New Madrid	766	23.8%
Pemiscot	894	26.9%

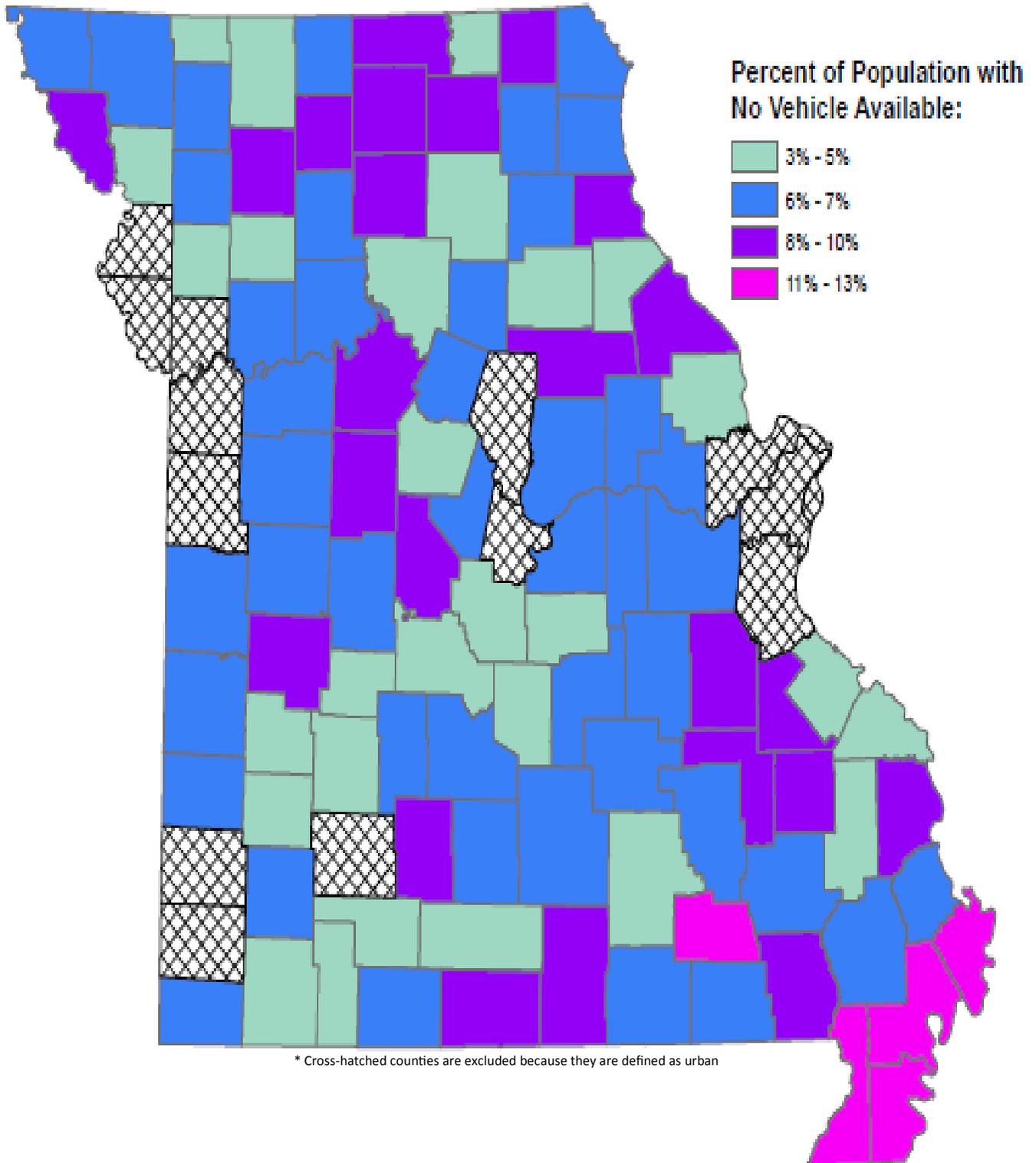


Figure 29: Transportation's effect on victim and bully rates

	Variable:	Impact:	Significance:
Bully:	No Car	0.094	.021*
	Rural	0.044	0.01*
Victim:	No Car	0.041	.402
	Rural	0.070	.001*



Transportation in Rural Missouri, 2017



Exercise Opportunities:

Adequate exercise is essential for burning off additional energy. When children do not receive an adequate amount of exercise, there can be an impact on bullying rates.

The most significant variable that impacts bullying and victim rates is the amount of television a child watches. If a child watches 4 or more hours of television a day, they are much more likely to be bullied or to bully multiple times a week.

Exercise does not show a statistically significant impact. However, when a child watches 4 or more hours of television a day, its likely that the child is not receiving adequate exercise. So, while this study does not support the apparent correlation between lack of exercise and increased bullying, the impact television consumption has on rates can infer such a correlation.



Figure 30: How often are you bullied at school?

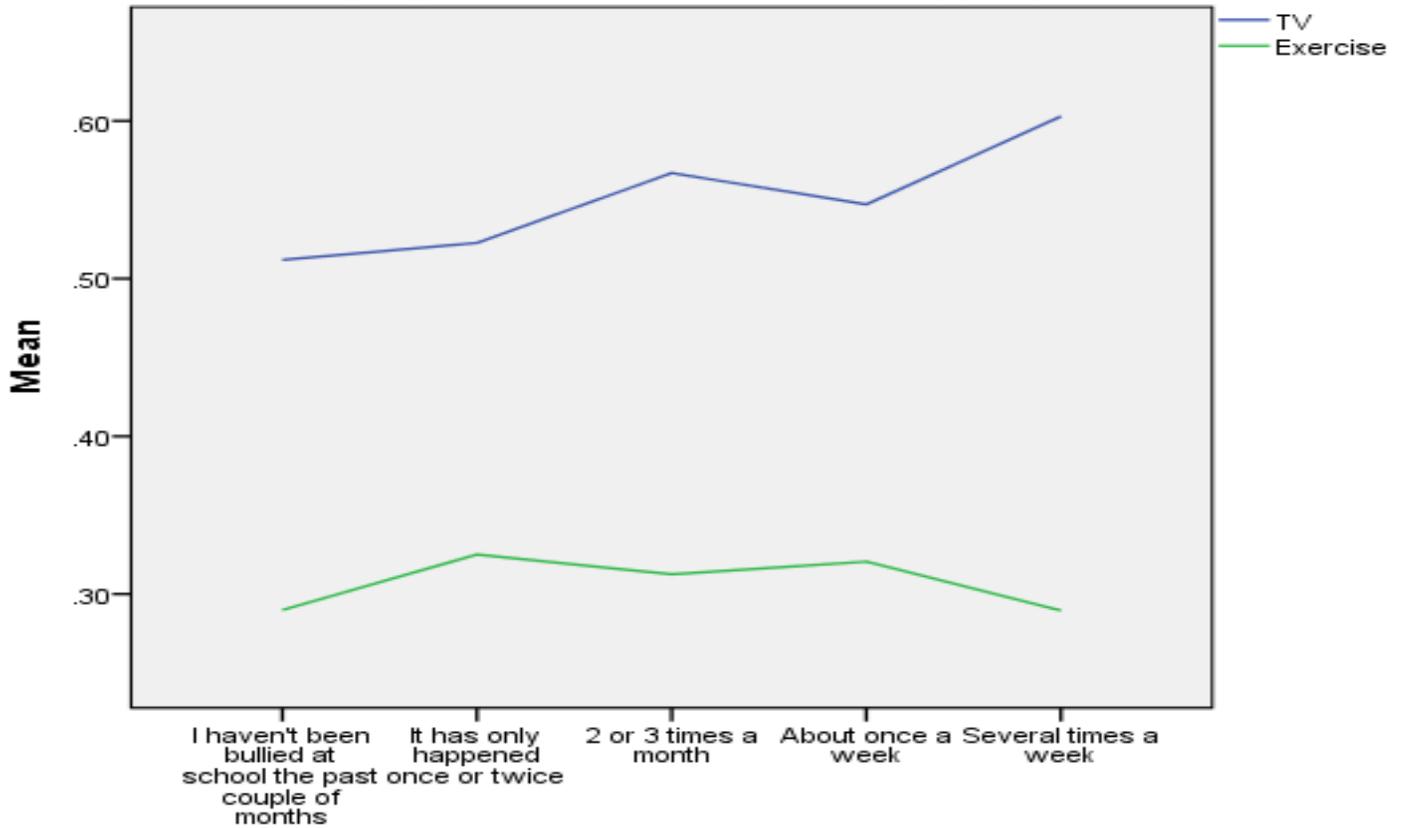
Variable:	Impact:	Significance:
TV Time	0.078	.0001*
Rural	0.071	.001*
Exercise Time	0.030	.144

Figure 31: How often do you bully at school?

Variable:	Impact:	Significance:
TV Time	0.129	.0001*
Rural	0.046	.010*
Exercise Time	-.005	.764



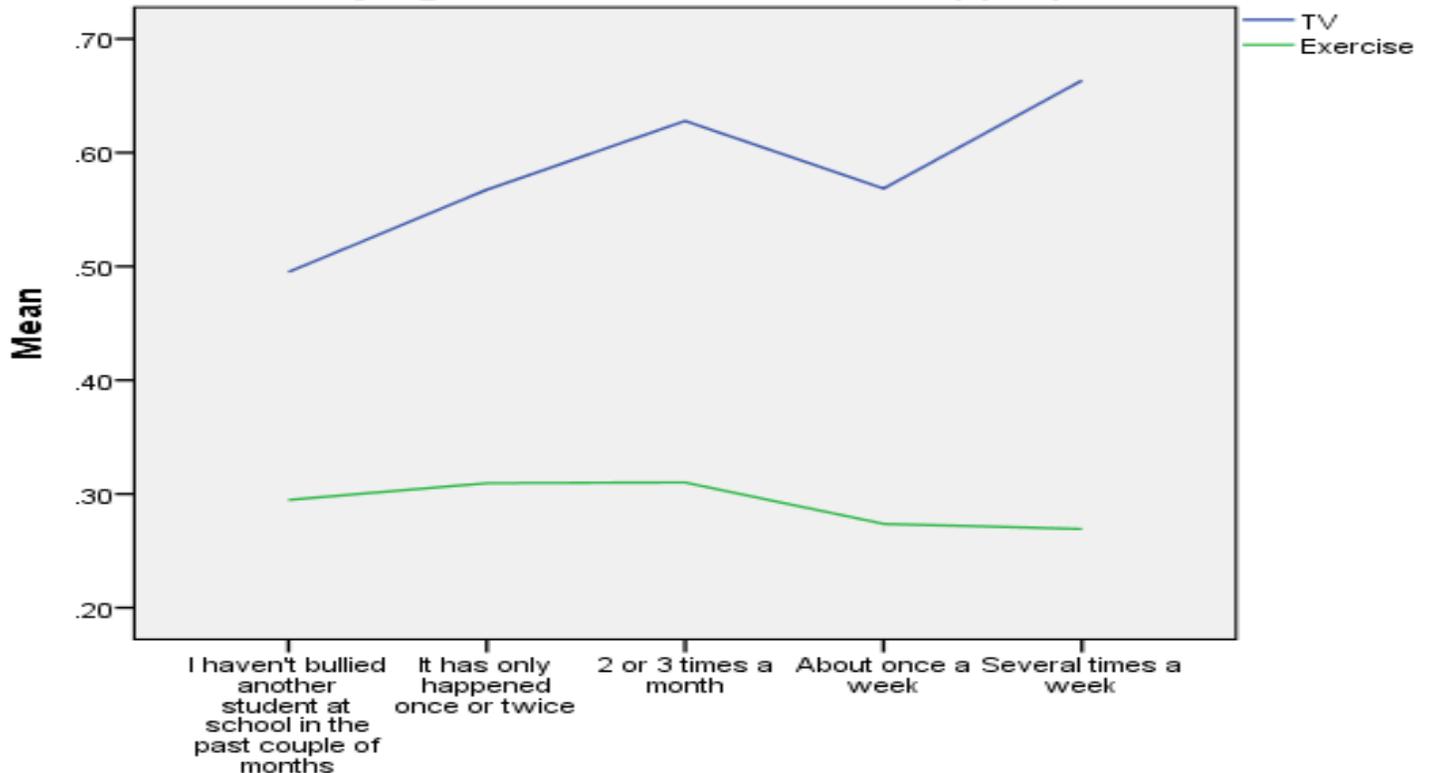
Bullying based on TV Time and Appropriate Exercise



HOW OFTEN ARE YOU BULLIED AT SCHOOL

* Exercise= less than 3 times a week
TV= More than 4 hours a day

Bullying based on TV Time and Appropriate Exercise



HOW OFTEN HAVE YOU BULLIED ANOTHER STUDENT

* Exercise= less than 3 times a week
TV= More than 4 hours a day

Percent of Physically Inactive Adults in Missouri, 2012

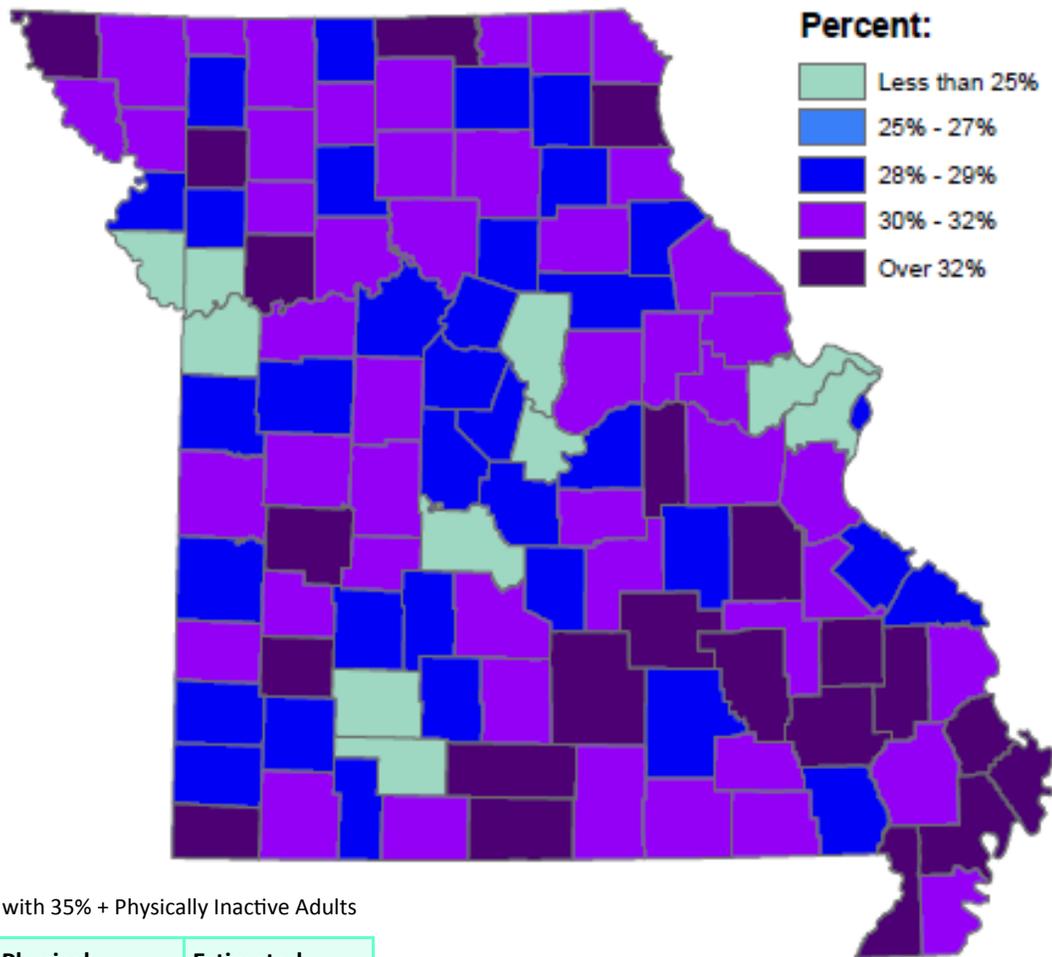


Figure 32: Counties with 35% + Physically Inactive Adults

County:	Physical Inactivity:	Estimated Impacted Children:
New Madrid	38%	1,653
Mississippi	36%	1,148
Putnam	35%	360
Wayne	35%	979
Lewis	35%	809
Reynolds	35%	478

If we are to assume the correlation between hours spent watching television is negatively influencing the number of hours a child exercises, we can infer based on the physical inactivity rates of adults what the approximate number of affected children would be. Figure 32 shows the counties with the highest percentages of inactive adults and the number of expected children to also be inactive based on those percentages. In total, 5,427 children are not meeting the required CDC physical activity guidelines in those 6 counties



Limitations:

Bullying rates vary greatly, especially between individual schools.⁵ The individual characteristics of the schools can have significant impacts on the bullying rates in those schools.⁵ For example, studies have shown that students feel more safe and secure in smaller school than in bigger ones, and that bullying rates tend to be lower in the schools kids feel safer at.⁵ It has also been shown that larger schools have higher levels of violence, vandalism, crime, and bullying.⁵ So, while an encompassing look at bullying in rural areas in general is a start, it in no way is applicable to individual schools whose characteristics will vary greatly.

The Health Behavior in School-Aged Children (HBSC), 2009-2010 used survey data to ask the children for responses. The student respondents could have neglected to admit they were bullied or bullies, or they may not think certain past actions constituted being bullied or being a bully. While this data helps give a decent picture of bullying in America, and especially as it pertains to rural children, it is a broad perspective and does not account for the individual schools' and surrounding towns' unique characteristics.

Conclusion:

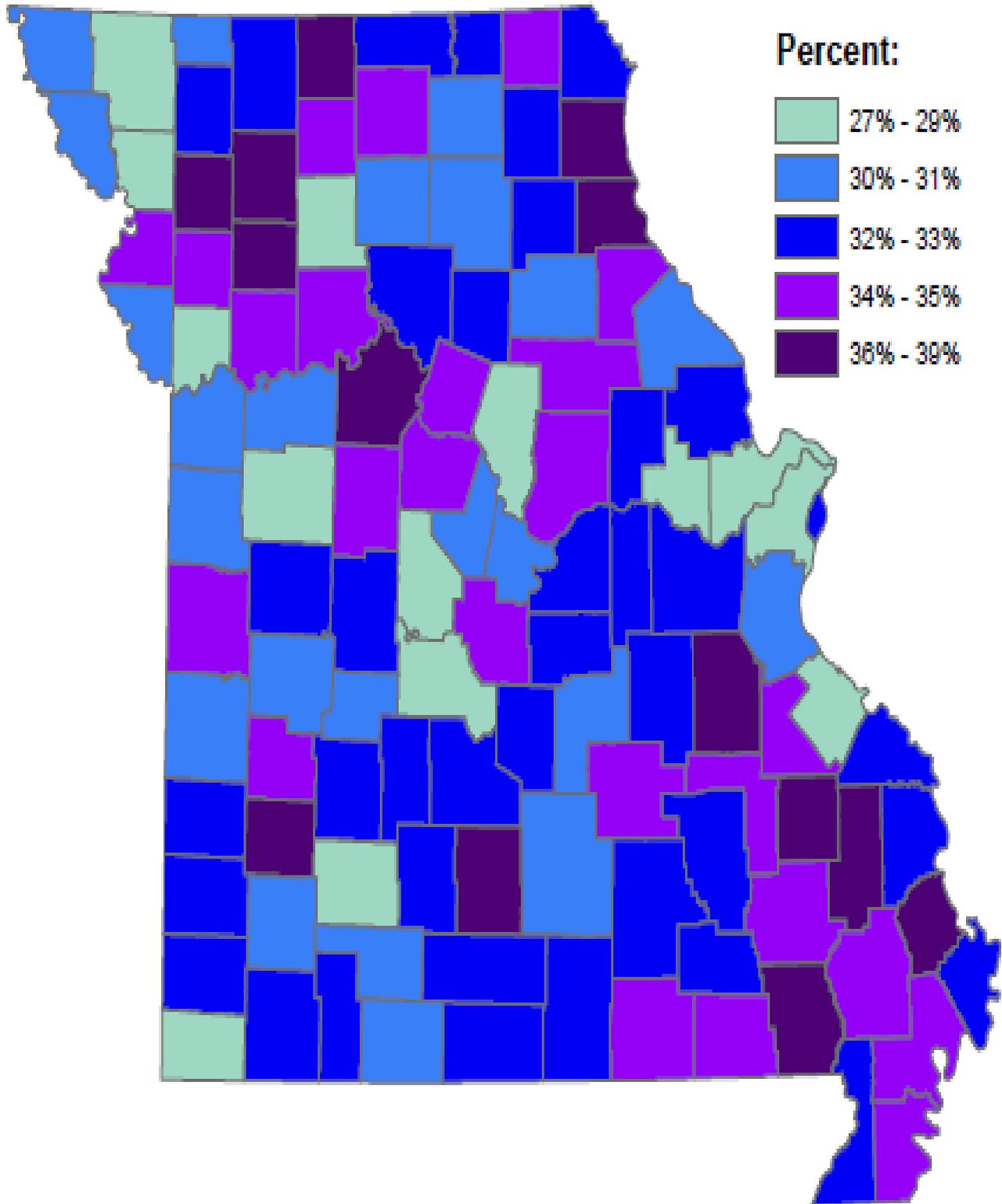
Bullying is a concern for children in rural areas. With higher percentages of obesity, single family households, poverty, food insecurity, families with no transportation, and lack of exercise opportunities, children are becoming increasingly more likely to engage in bullying. Studies show rural children are 3-5% more likely to be bullied than urban children, and 15.5% more likely to be bullied multiple times a week.



Appendix:

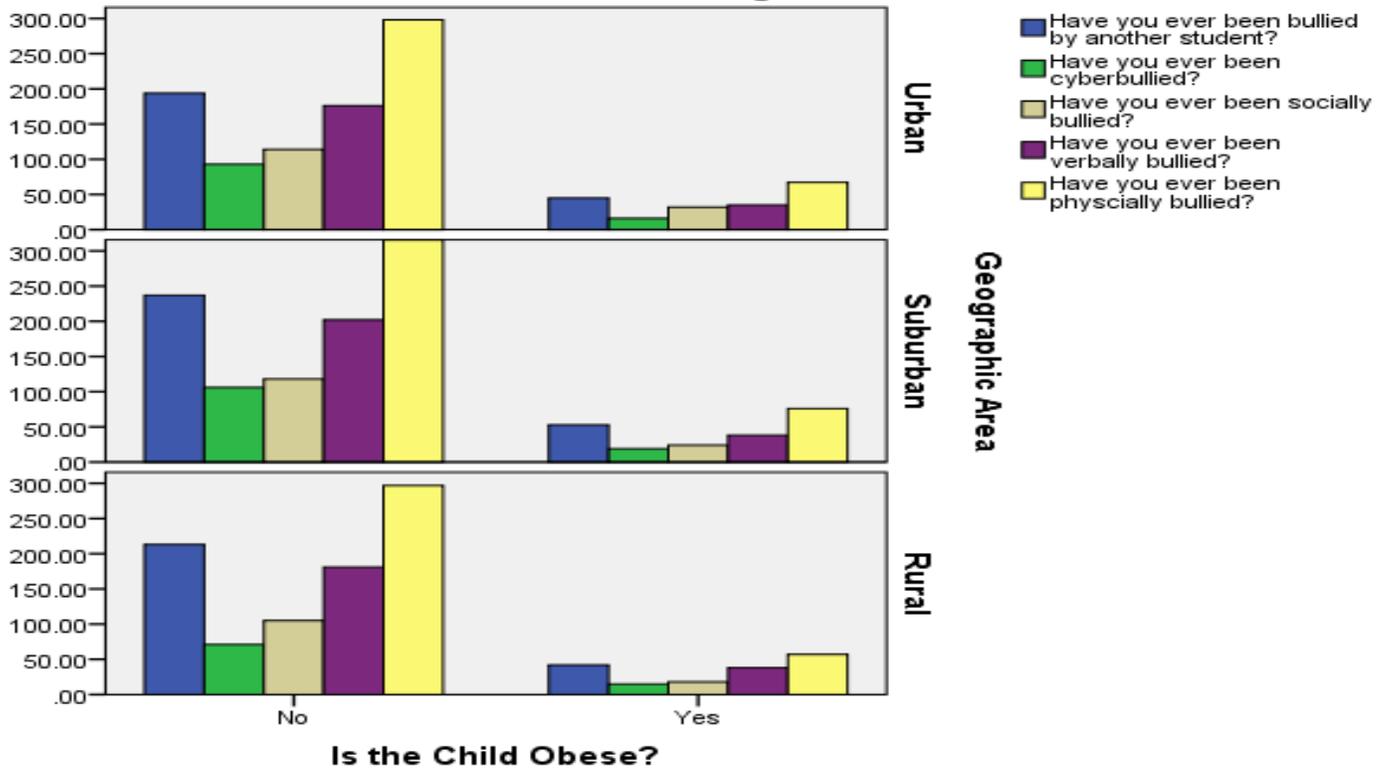
For Additional Maps, and Graphs:

Obese Adults in Missouri, 2014

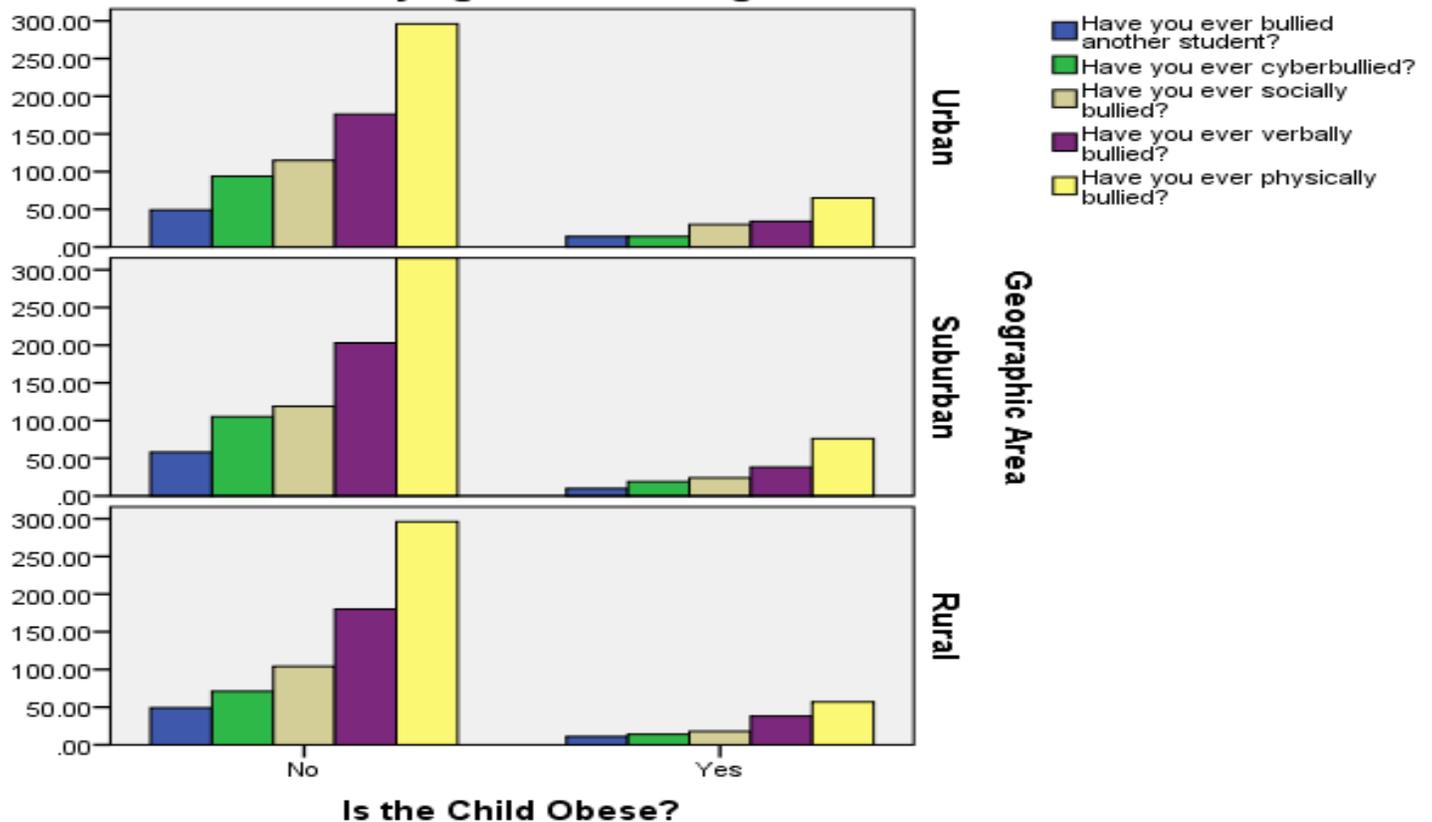


Bullying and Obesity Only:

Victimization based on weight and location

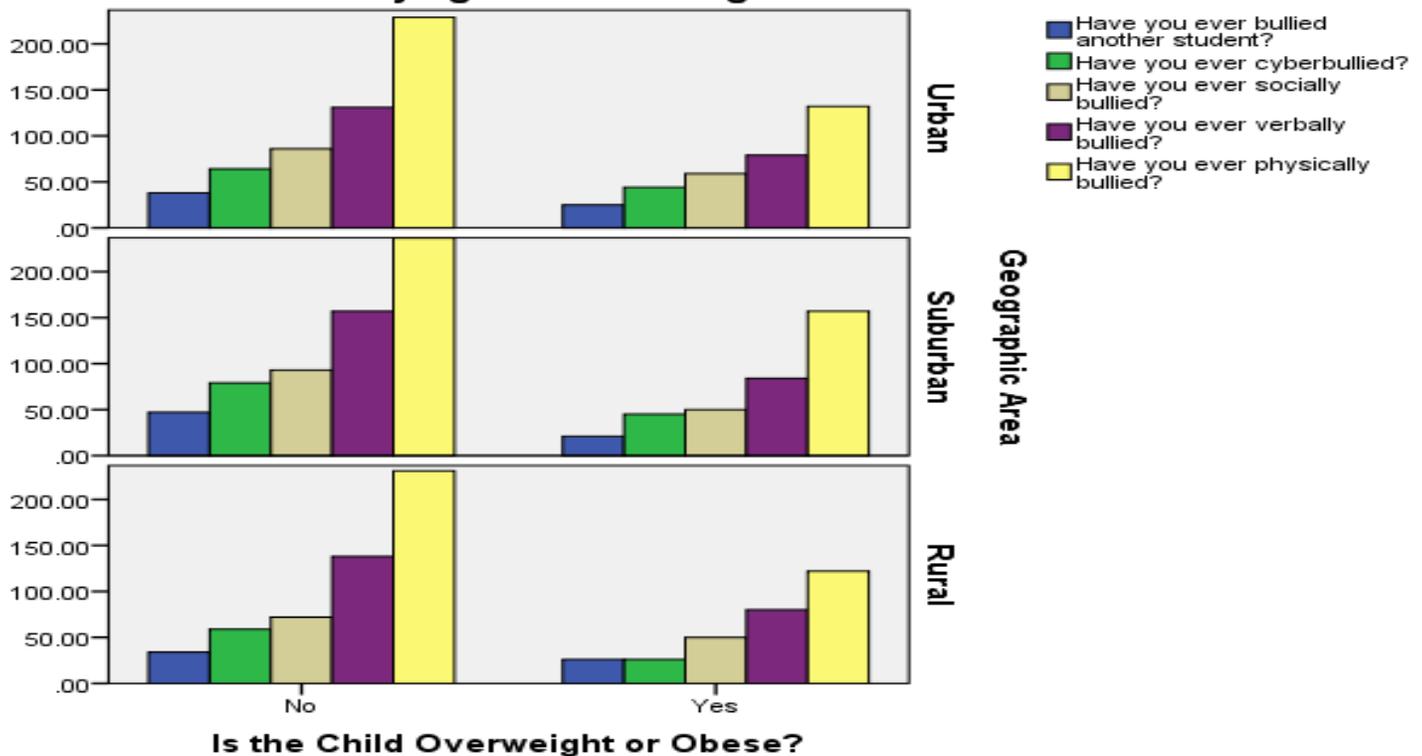


Bullying based on weight and location

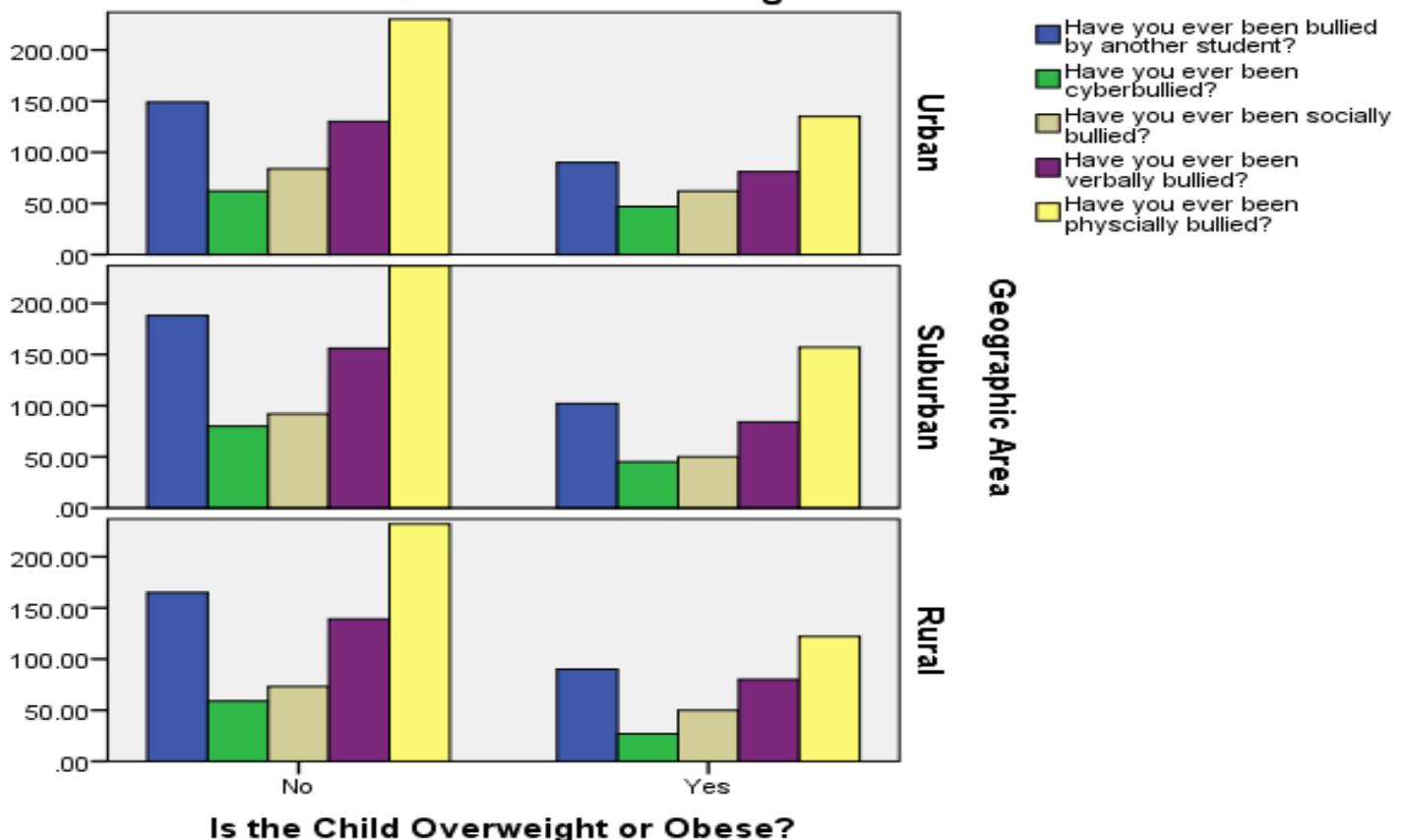


Bullying, Overweight, and Obese:

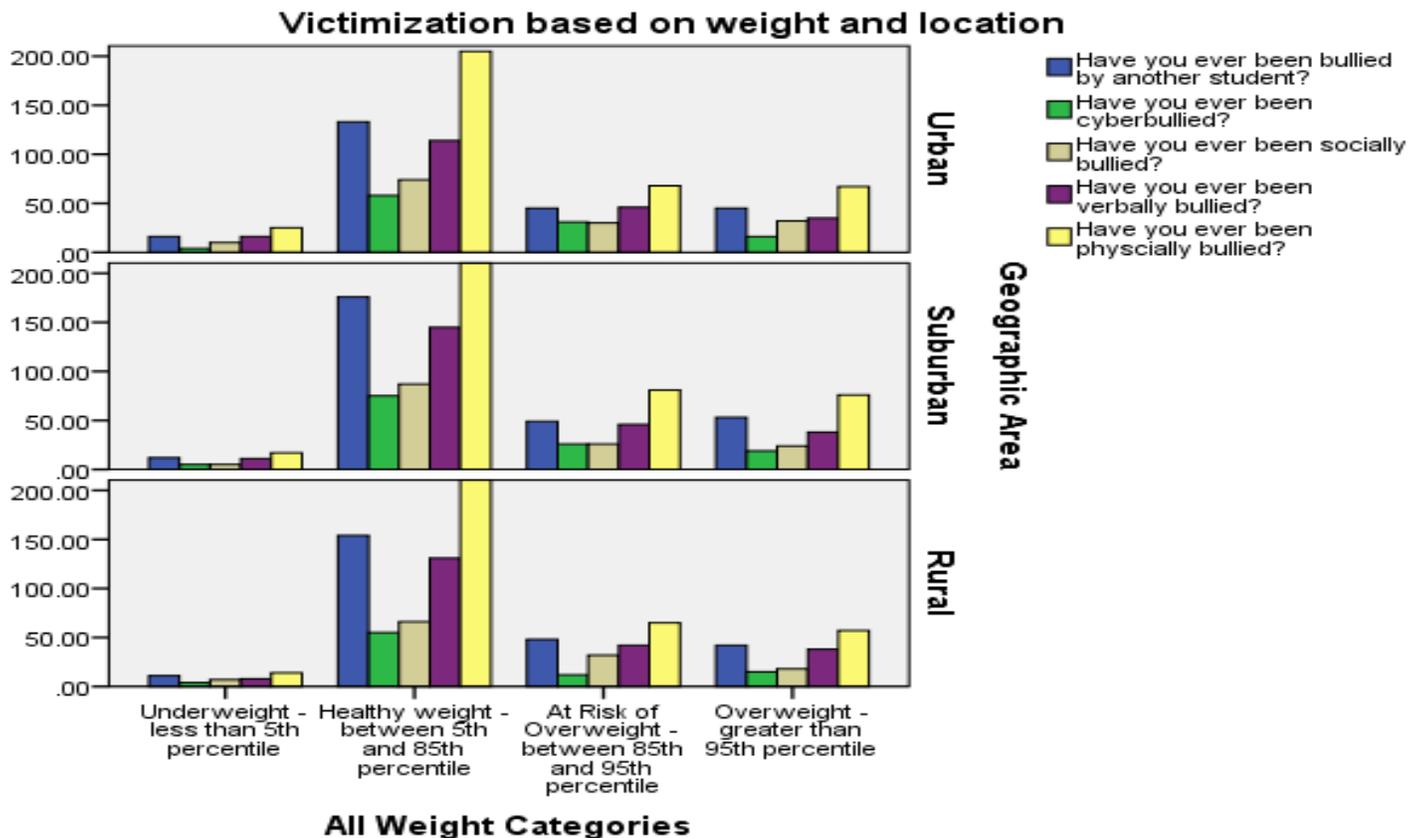
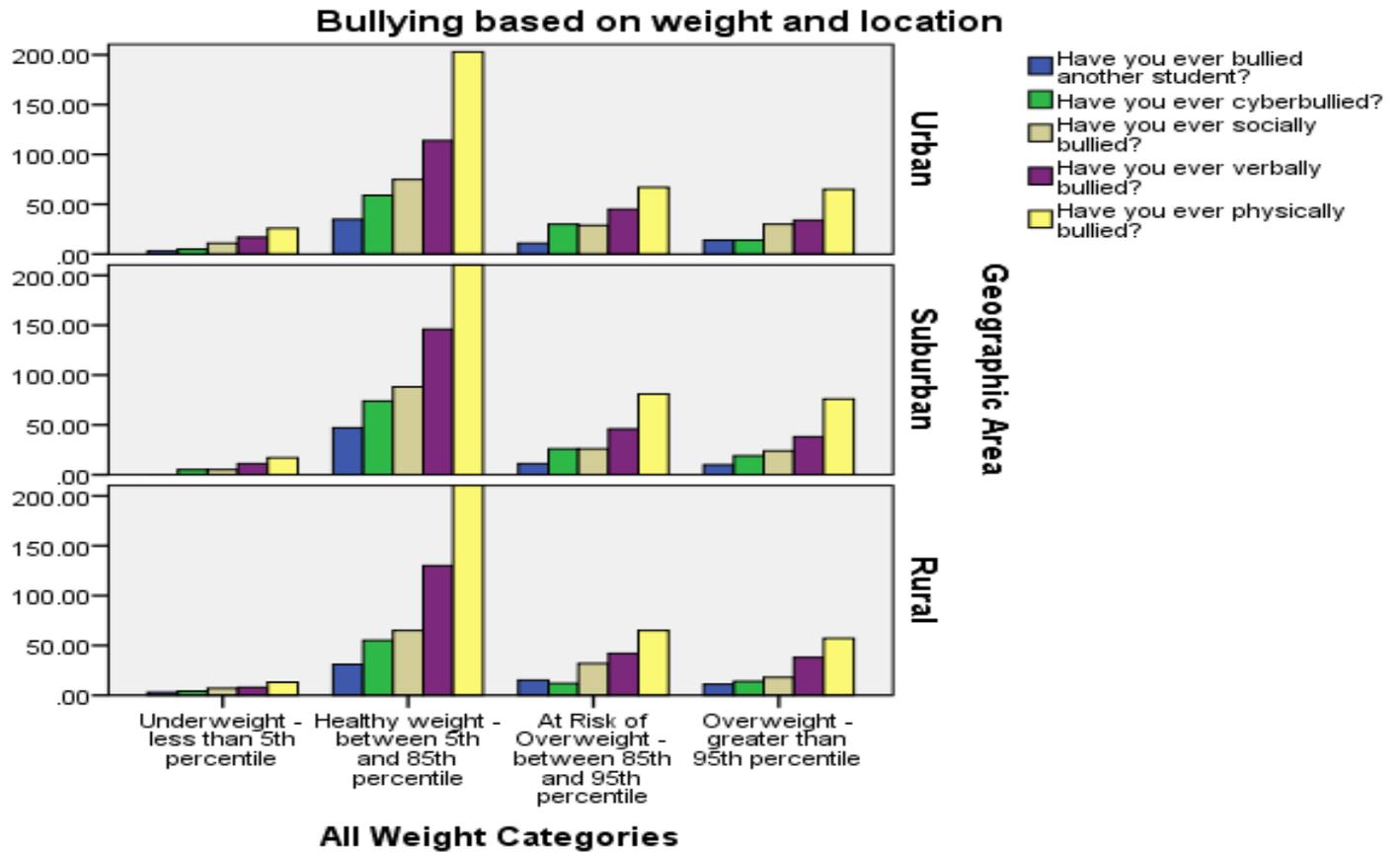
Bullying based on weight and location



Victimization based on weight and location

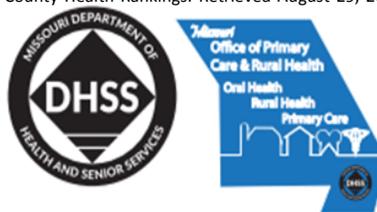


Bullying Across All Weight Categories:



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