



# SOCIAL CAPITAL IN U.S. RURAL COUNTIES: TOO MUCH OF A GOOD THING?

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## BACKGROUND

Social capital has been conceptualized as a product of opportunities for meaningful interaction and cohesion within a community and has emphasized mutual respect, social trust, and group membership.<sup>1,2</sup> Previous research has reported that low levels of social capital are associated with high-risk and violent behaviors and high levels are associated with better community health.<sup>3-7</sup> Some studies have suggested that social capital may be a risk factor among certain populations and have questioned the explanatory power and uncritical use of social capital in the study of suicide.<sup>8-10</sup> Others have suggested that measures of community disintegration, conceptualized as social fragmentation, may be more appropriate for studies of suicide.<sup>11-13</sup>

## OBJECTIVES

- To identify age- and area-level differences in the associations between an index of social capital and the five-year rate of deaths from suicide among residents of U.S. urban and rural counties
- To compare the associations between suicide rates and indexes of social capital and social fragmentation

## METHODS

- Mortality data and suicide rates for the years 1999-2004 were obtained from the Centers for Disease Control and Prevention's "Wide-ranging OnLine Data for Epidemiologic Research" (WONDER) system for each U.S. county. Suicide rates were age-adjusted to the 2000 U.S. standard population when appropriate.
- Standardized county level measures of social capital were obtained from the Northeast Regional Center for Rural Economic Development at the Pennsylvania State University and included information on the number of recreational, political, business, and civic organizations, census participation, voter turnout, and non-profit organizations.<sup>15</sup>
- A social fragmentation index was constructed by calculating the sum of the number of renter-occupied housing units, average five year population change, number of single person households, and number of single-parent households in each county (2000). Data for this index were obtained from the U.S. Census Bureau and 2005 Area Resource File. Each variable was standardized to have a mean of zero and standard deviation of one prior to index calculation.
- Bivariate correlation coefficients were calculated using Pearson product moment and Spearman rank order methods and were calculated overall and stratified by rural classification code and age group
- Urban and rural categories for all U.S. counties were initially classified using the nine-level 2003 Rural-Urban Continuum Codes as defined by the U.S. Office of Management and Budget. The Rural-Urban Continuum Codes were then collapsed to form a four-level classification scheme:
  - Urban (metropolitan populations of 250,000 or more)
  - Suburban (non-metropolitan urban populations of 20,000 or more)
  - Town (non-metropolitan urban populations of 2,500 to 19,999 people)
  - Rural (population of less than 2,500 people)

## RESULTS

- Statistically significant associations between social capital and rate of suicide were identified among 31% (n=25) of the age and rural-urban classifications. Among those with a significant correlation 84% (n=21) were inversely related (Table 2)
- Important age and urbanization differences in the relationships between social capital can be identified using a four category rural classification scheme (Tables 3 and 5)
- Overall, 50% (n=11) of the 22 statistically significant associations between social capital and county level suicide rates were among persons age 55 to 84
  - All of the associations in this age group were negative
- The only statistically significant positive Pearson correlations between social capital and suicide rates (n=4) were among persons age 15-24 living in non-metropolitan town or rural counties
- Overall, rural counties have the highest levels of social capital and the lowest levels of social fragmentation (Table 1)
- Social fragmentation was significantly associated with the rate of suicide among 20% (n=9) of the age and rural categories and the association between social fragmentation and the suicide rate was positive for 22% (n=2) of all significant relationships (Tables 4 and 6)

## CONCLUSIONS

- The bivariate associations between social capital and county-level U.S. suicide rates are not uniform and vary when the age and rural category of the group are considered
- High levels of social capital are associated with higher suicide rates among the youngest age groups and most rural U.S. regions
- Social capital and social fragmentation may be inversely related to suicide rates among certain categories of U.S. counties. However, the overall relationship between the rate of deaths from suicide and social capital or social fragmentation is negative
- Overall, social capital may provide a more appropriate measure of risk for higher suicide rates in U.S. counties
- The low prevalence of significant associations and lack of uniformity between levels of social capital and suicide rates across urban and rural regions suggests that substantial structural heterogeneity exists in the relationships between community health and increased opportunities for meaningful social interaction and reciprocal trust

## LIMITATIONS

- Ecological analyses prohibit consideration of individual level characteristics
- Bivariate correlations limit consideration of possible confounding economic and social factors
- Data limitations resulting in differences in the calculation of social fragmentation may have affected the analyses

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Table 1: Median Levels of Social Capital and Social Fragmentation by Collapsed Rural Classification, 1999-2004

	Social Capital Median Value	Social Fragmentation Median Value
Urban	-0.073	-0.077±
Suburban	0.030	-0.489
Town	-0.141	-0.881
Completely Rural	0.066*	-1.015

\* Mean value significantly higher than Urban, Suburban, or Town areas (ps.05)  
± Mean value significantly higher than Suburban, Town, or Rural areas (ps.05)

Table 2: Correlations between Social Capital and Suicide Rates by Rural Urban Continuum Classification, 1999-2004

	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Most Urban	-0.122	0.019	<b>-0.127</b>	<b>-0.162</b>	-0.096	<b>-0.218</b>	<b>-0.162</b>	<b>-0.171</b>	-0.047
2 <sup>nd</sup> Most Urban	-0.056	-0.077	-0.088	-0.069	0.001	-0.111	<b>-0.133</b>	<b>-0.185</b>	0.022
3 <sup>rd</sup> Most Urban	0.053	-0.077	0.060	0.048	-0.006	-0.021	-0.065	<b>-0.145</b>	-0.033
4 <sup>th</sup> Most Urban	-0.054	-0.008	-0.070	-0.092	<b>-0.152</b>	-0.060	-0.098	<b>-0.210</b>	-0.028
5 <sup>th</sup> Most Urban	<b>0.236</b>	<b>0.006</b>	<b>0.028</b>	<b>0.021</b>	<b>0.191</b>	<b>0.200</b>	-0.156	<b>-0.171</b>	0.052
6 <sup>th</sup> Most Urban	<b>0.141</b>	0.052	0.009	-0.067	<b>-0.121</b>	<b>-0.103</b>	<b>-0.134</b>	-0.135	-0.029
7 <sup>th</sup> Most Urban	0.082	0.058	0.048	<b>-0.147</b>	-0.082	-0.089	<b>-0.174</b>	<b>-0.110</b>	-0.077
8 <sup>th</sup> Most Urban	-0.007	0.075	<b>-0.147</b>	-0.083	-0.011	-0.047	0.015	-0.086	0.011
Most rural	<b>0.116</b>	0.085	<b>-0.096</b>	<b>-0.156</b>	-0.049	-0.008	<b>-0.096</b>	-0.052	-0.092

Note: statistically significant associations are in bold

Table 3: Direction of Significant Product Moment/Rank Order Correlations between Social Capital and Suicide, 1999-2004

	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Urban					ns/-	-/-	-/-	-/-	
Suburban							-/-	-/-	
Town	+/+	+/ns	ns/+	-/-	-/-	-/-	-/-	-/-	
Completely Rural	+/ns	+/-	-/-	-/-	ns/-	ns/-	ns/-	-/-	

n/s = not statistically significant

Table 4: Direction of Significant Correlations between Social Capital, Social Fragmentation and Suicide, 1999-2004

	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Urban		ns/-	ns/-	ns/-	ns/-	-/ns	-/-	-/ns	
Suburban					ns/+	ns/+	-/ns	-/ns	
Town	+/ns	+/-	-/ns	-/ns	-/ns	-/ns	-/ns	-/ns	
Completely Rural	+/ns	+/ns	-/ns	-/ns	-/ns	-/ns	-/ns	-/ns	

n/s = not statistically significant

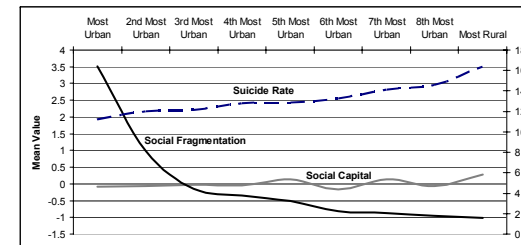


Figure 1: Mean Values for Suicide Rates, Social Fragmentation, and Social Capital by Rural Classification

Table 5: Product Moment and Rank Order Correlations between Social Capital and Suicide Rates by Collapsed Rural Classification, 1999-2004

	15-19		20-24		25-34		35-44		45-54		55-64		65-74		75-84		85+	
	PM	Rank	PM	Rank	PM	Rank	PM	Rank	PM	Rank	PM	Rank	PM	Rank	PM	Rank	PM	Rank
Urban	-0.034	-0.013	-0.046	-0.027	-0.034	-0.039	-0.059	-0.075	-0.028	<b>-0.071</b>	<b>-0.108</b>	<b>-0.131</b>	<b>-0.119</b>	<b>-0.124</b>	<b>-0.161</b>	<b>-0.162</b>	-0.025	0.059
Suburban	0.054	0.102	0.009	0.021	-0.026	-0.052	-0.047	-0.094	-0.029	-0.067	0.015	-0.038	<b>-0.122</b>	<b>-0.151</b>	<b>-0.184</b>	<b>-0.203</b>	-0.014	-0.016
Town	<b>0.113</b>	<b>0.114</b>	<b>0.066</b>	0.041	0.051	<b>0.062</b>	<b>-0.111</b>	<b>-0.093</b>	<b>-0.091</b>	<b>-0.086</b>	<b>-0.086</b>	<b>-0.135</b>	<b>-0.144</b>	<b>-0.134</b>	<b>-0.090</b>	<b>-0.057</b>	-0.009	-0.009
Rural	<b>0.107</b>	0.045	<b>0.089</b>	<b>-0.080</b>	<b>-0.100</b>	<b>-0.225</b>	<b>-0.138</b>	<b>-0.201</b>	-0.039	<b>-0.138</b>	-0.016	<b>-0.142</b>	<b>-0.062</b>	<b>-0.154</b>	<b>-0.078</b>	<b>-0.119</b>	0.050	0.063

Note: statistically significant associations are in bold

Table 6: Correlations between Social Capital, Social Fragmentation and Suicide Rates by Collapsed Rural Classification, 1999-2004

	15-19		20-24		25-34		35-44		45-54		55-64		65-74		75-84		85+	
	SC	SF	SC	SF	SC	SF	SC	SF	SC	SF	SC	SF	SC	SF	SC	SF	SC	SF
Urban	-0.034	<b>-0.088</b>	-0.046	<b>-0.069</b>	-0.034	<b>-0.109</b>	-0.059	<b>-0.111</b>	-0.028	<b>-0.073</b>	<b>-0.108</b>	-0.043	<b>-0.119</b>	<b>-0.073</b>	<b>-0.161</b>	-0.057	<b>-0.025</b>	-0.013
Suburban	0.054	-0.004	0.009	0.008	-0.026	0.042	-0.047	0.020	-0.029	<b>0.129</b>	0.015	<b>0.120</b>	<b>-0.122</b>	0.065	<b>-0.184</b>	0.029	-0.014	0.080
Town	<b>0.113</b>	-0.052	<b>0.066</b>	<b>-0.075</b>	0.051	-0.028	<b>-0.111</b>	0.059	<b>-0.091</b>	0.016	<b>-0.086</b>	0.045	<b>-0.135</b>	0.020	<b>-0.134</b>	<b>-0.023</b>	<b>-0.087</b>	0.004
Rural	<b>0.107</b>	-0.045	<b>0.089</b>	<b>-0.062</b>	<b>-0.100</b>	-0.004	<b>-0.138</b>	0.068	-0.039	0.040	-0.016	<b>-0.023</b>	<b>-0.062</b>	0.025	<b>-0.078</b>	0.011	0.050	0.001

Note: statistically significant associations are in bold

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