

The Wisconsin County Health Rankings: Important Determinants of Health in Wisconsin Counties

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INTRODUCTION

Wisconsin County Health Rankings

- Compiles publicly available data and ranks counties according to health outcomes (mortality and health-related quality of life) and health determinants

- Health determinants are viewed as future predictors of health outcomes, and are divided into four components:

- Health Care
- Health Behaviors
- Socioeconomic Factors
- Physical Environment

METHODS

- Data were compiled from various sources, including:

- Behavioral Risk Factor Surveillance System (BRFSS) Data
- CDC WONDER Mortality Data
- Bureau of Health Information and Policy, Division of Public Health, Department of Health and Family Services
- US Census Data
- Wisconsin Department of Natural Resources
- Wisconsin Department of Public Instruction
- Wisconsin Office of Justice Assistance
- US Environmental Protection Agency
- Metastar, Inc.

- Pearson correlation coefficients were used to calculate the association between measures (Spearman coefficients are reported in the graphs of ranks)

Figure 2. Relationships between both health determinants and summary measures and health outcomes

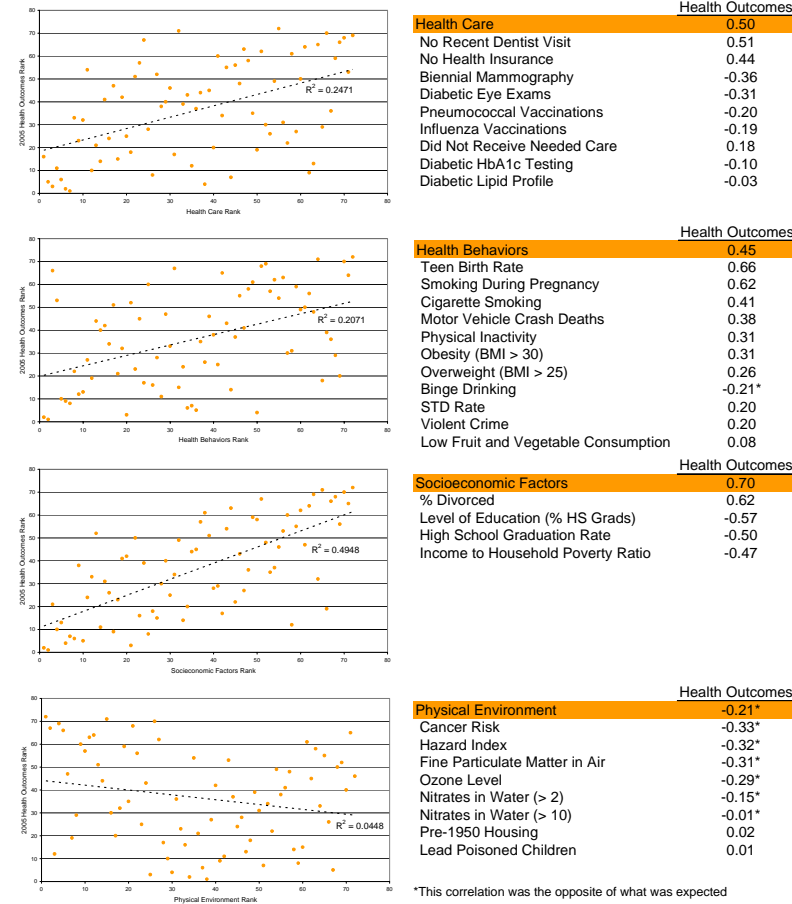


Figure 3. Patterns of correlation within determinants measures

Health Determinants	Socioeconomic Factors	Level of Education (% HS Grads)	High School Graduation Rate	Income to Household Poverty Ratio	% Divorced
Health Care	0.91	-0.69	-0.67	-0.80	0.67
No Health Insurance	0.51	-0.40	-0.18	-0.46	0.38
No Recent Dentist Visit	0.51	-0.28	-0.13	-0.56	0.40
Biennial Mammography	0.47	-0.52	-0.13	-0.56	0.17
Influenza Vaccinations	-0.31	0.30	0.12	0.37	-0.16
Diabetic Eye Exams	-0.28	0.27	0.00	0.17	-0.28
Diabetic Eye Exams	-0.28	0.23	0.32	0.07	-0.28
Pneumococcal Vaccinations	-0.21	0.24	0.00	0.19	-0.20
Diabetic Lipid Profile	-0.07	-0.01	0.00	-0.01	-0.14
Diabetic HbA1c Testing	-0.02	0.07	0.12	-0.01	0.01
Did Not Receive Needed Care	-0.01	0.13	0.00	0.07	0.06
Health Behaviors	0.50	-0.52	-0.47	-0.54	0.25
Smoking During Pregnancy	0.74	-0.54	-0.37	-0.66	0.61
Teen Birth Rate	0.73	-0.54	-0.72	-0.59	0.56
Violent Crime	0.57	-0.22	-0.71	-0.65	0.40
Motor Vehicle Crash Deaths	0.50	-0.42	-0.23	-0.49	0.40
STD Rate	0.46	-0.16	-0.75	-0.43	0.35
Cigarette Smoking	0.38	-0.23	-0.41	-0.40	0.26
Obesity (BMI > 30)	0.37	-0.53	-0.22	-0.43	0.14
Overweight (BMI > 25)	0.36	-0.47	-0.14	-0.34	0.22
Physical Inactivity	0.30	-0.43	-0.31	-0.37	0.07
Low Fruit and Vegetable Consumption	0.16	-0.28	-0.08	-0.11	0.07
Binge Drinking	-0.14	0.07	-0.18	-0.04	-0.28
Socioeconomic Factors	1.00	-0.65	-0.66	-0.82	0.83
% Divorced	0.83	-0.27	-0.58	-0.45	1.00
Income to Household Poverty Ratio	-0.82	0.58	0.41	1.00	-0.45
High School Graduation Rate	-0.66	0.24	1.00	0.41	-0.58
Level of Education (% HS Grads)	-0.65	1.00	0.24	0.58	-0.27
Physical Environment	-0.33	0.18	0.02	0.39	-0.30
Fine Particulate Matter in Air	-0.35	0.30	-0.11	0.47	-0.20
Ozone Level	-0.32	0.29	-0.17	0.48	-0.16
Cancer Risk	-0.19	0.37	-0.35	0.39	0.00
Nitrates in Water (> 10)	-0.19	0.00	0.19	0.12	-0.25
Hazard Index	-0.14	0.38	-0.41	0.34	0.05
Nitrates in Water (> 2)	-0.11	0.06	0.19	0.05	-0.10
Pre-1950 Housing	-0.09	-0.24	0.20	0.00	-0.32
Lead Poisoned Children	0.03	-0.06	-0.20	0.05	-0.01

CONCLUSIONS

SES and Health: While all four summary measures contribute to the overall Health Determinants measure, the Socioeconomic Factors component is the most strongly correlated with Health Outcomes, providing evidence for the relationship between socioeconomic status and health.

Determinants and Outcomes: The fact that the overall Health Determinants component is strongly correlated with Health Outcomes provides evidence that the determinants are accurately measuring factors leading to health outcomes. However, it is possible that the effect of the Health Determinants measured in one year may not be affecting the population until later years; for example, cigarette smoking may cause mortality years after the initial exposure. This lag time in determinants affecting outcomes remains a direction for further research.

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RESULTS

- Determinants and Outcomes are strongly correlated ($r = .77$)
- Teen pregnancy ($r = .66$), smoking during pregnancy ($r = .62$), and percent of people divorced ($r = .62$) are the strongest individual correlates of health outcomes
- The socioeconomic factors summary measure ($r = .70$) is the strongest aggregate correlate of health outcomes
- Measures of determinants are correlated with each other, for example:
 - High school graduation rate is strongly correlated with several other measures, including STD rate ($r = -.75$), teen birth rate ($r = -.72$), and violent crime ($r = -.71$)

Figure 1. Health Outcomes and Health Determinants in Wisconsin Counties in 2005

