

Which Factors Increase the Likelihood of Being Uninsured in a Rural State?

Identifying Opportunities to Reduce Disparities

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Background

Health insurance in the United States is a pressing issue facing health care today. According to the Kaiser Family Foundation (2004), approximately 45 million Americans are without health insurance. It is estimated that one of every five uninsured persons reside in rural areas (Ziller et. al, 2003). In addition, Glimmer and Kronick (2005) project the number of uninsured Americans to increase by as much as 11 million over the next decade.

Research Objective

To determine the impact of selected demographic, enabling, behavioral, and geographic factors on the health insurance status of North Dakota adults between the ages of 18 and 64.

Survey Design

The North Dakota Household Survey (NDHS) utilizing a list-assisted random digit dialing (RDD) frame for general population screening was administered between February 9 and April 7, 2004. Overall, 3,199 North Dakotans participated in the survey. The response rate for the NDHS was 68.9 percent. For the purpose of this study, the population included adults between the ages of 18 and 64 (N=2,131). Mathematica Policy Research, Inc. developed person level weights resulting in the weighted number of 401,276 persons, which represents the 2002 Current Population Survey estimate for North Dakota's adult population.

Analytic Design

This study utilized binary logistic regression employing block (Figure 1) and forward stepwise entry to determine factors that significantly predict health insurance status. A modified version of the Operational Indicators of Access Framework reported by Aday, Andersen, and Fleming (1980) was utilized to assign variables to each block. Of the 401,276 cases, 86,473 (21.5%) were excluded from the analysis due to missing data, yielding a valid N of 314,803.

The following independent variables were analyzed:

- o **Rurality** (urban=communities with 16,700+ persons; rural=communities with less than 16,700 persons)
- o **Gender** (male or female)
- o **Age** (18-24, 25-34, 35-44, 45-54, or 55-64)
- o **Race** (Native American, Caucasian, or other race)
- o **Education Level** (<HS diploma, HS diploma, some college or college graduate)
- o **Employment Status** (self employed, employed by someone, not employed, or unemployed)
- o **Household Income** (<200% FPL or ≥200% FPL)
- o **Visit to a health care provider in the past year** (yes or no)
- o **Regular Health Care Provider** (yes or no)
- o **Self-reported Health Status** (excellent, very good, good, fair, or poor)

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Figure 1. Conceptual Analytic Model Utilizing Block Entry Binary Logistic Regression

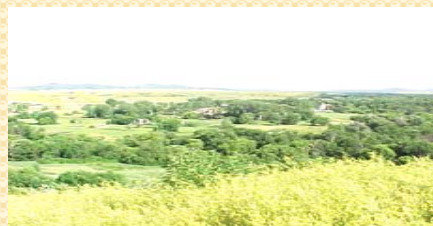
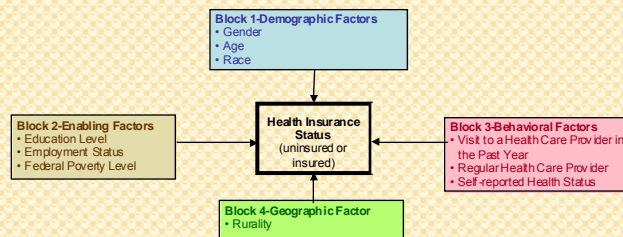


Table 1. Summary of Logistic Regression Analysis Measuring Impact of Selected Factors on Health Insurance Status

Variable	B	SE	OR	95.0% CI.	
				Lower	Upper
Gender (Male)	-.036	.017	.965*	.934	.997
Age (18-24)			1.000		
Age (25-34)	.169	.026	1.184**	1.125	1.246
Age (35-44)	.429	.028	1.538**	1.455	1.621
Age (45-54)	.122	.027	1.129**	1.070	1.192
Age (55-64)	-.050	.030	.952	.897	1.009
Native American			1.000		
Caucasian	2.200	.025	9.024**	8.586	9.484
Other Race	1.752	.055	5.763**	5.178	6.417
Education (<HS)			1.000		
Education (HS diploma)	-.734	.033	.490**	.450	.512
Education (Some college)	-.154	.033	.858**	.803	.916
Education (College graduate)	.241	.036	1.273**	1.187	1.365
Self Employed			1.000		
Employed by Someone Else	.962	.020	2.616**	2.516	2.720
Not Employed (student, homemaker, retired)	1.138	.029	3.120**	2.947	3.303
Unemployed	.306	.034	1.357**	1.270	1.452
Household Income (<200% FPL)	1.718	.017	5.571**	5.387	5.762
Visit to a Health Care Provider in the past year (yes)	1.068	.017	2.910**	2.814	3.010
Regular Health Care Provider (yes)	.409	.017	1.509**	1.457	1.555
Self-reported Health Status (Excellent)			1.000		
Self-reported Health Status (Very Good)	-.439	.022	.644**	.618	.672
Self-reported Health Status (Good)	-.385	.022	.681**	.652	.711
Self-reported Health Status (Fair)	-.1125	.029	.325**	.307	.344
Self-reported Health Status (Poor)	-.057	.055	.944	.848	1.051
Rurality (Urban)	.562	.018	1.754**	1.694	1.815

*p<.05. **p<.001

Results

The model accounted for 30.0% of the variance within the dependent variable. Table 1 contains the regression coefficients, standard errors, odds ratios, and confidence intervals.

Block 1-Demographic Factors

- **Gender**-Males were significantly more likely than females to be uninsured.
- **Age**-North Dakotans age 18-24 were significantly more likely to be uninsured than those between the ages of 25 and 54.
- **Race**-Native Americans were significantly more likely to be uninsured when compared to Caucasians and other races.

Block 2-Enabling Factors

- **Education Level**-North Dakota adults who had not earned a high school diploma were significantly more likely to be uninsured when compared to those with a college degree.
- **Employment Status**-Self employed North Dakotans were significantly more likely to be without health insurance than those who were employed by someone, those who were not employed, or those who were unemployed.
- **Household Income**-North Dakotans indicating they resided in a household that earned less than 200% of the federal poverty level were significantly more likely to be uninsured when compared to those residing in a household at or above 200% of the federal poverty level.

Block 3-Behavioral Factors

- **Visit to a health care provider in the past year**-North Dakota residents reporting they had not visited a health care provider in the past year were significantly more likely to be uninsured than those who had visited a health care provider in the past year.
- **Regular Health Care Provider**-North Dakotans reporting they did not have a regular health care provider were significantly more likely to be uninsured than those who did have a regular health care provider.
- **Self-reported Health Status**-Those North Dakotans reporting a health status of very good, good, or fair were significantly more likely to be uninsured than those who reported a health status of excellent.

Block 4-Geographic Factor

- **Rurality**-North Dakotans residing in rural areas were significantly more likely to be uninsured when compared to those residing in urban areas.

Recommendations

- Increase awareness of the need for health insurance, recognizing the limitations of Indian Health Service.
- Examine policy options that assist low-income persons in obtaining health insurance.
- Assure safety net of rural health care providers, including expansion of federally qualified health centers and community health centers.
- Explore policy options for increasing the availability of affordable health insurance for self employed individuals.

References

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