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Health and Health Care in Kentucky: Variations by Region and Metro/Micro/Rural Status

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Institute for
Rural Health Policy

“Health and Health Care in Kentucky: Variations by Region and Metro/Micro/Rural Status”

November 10, 2016

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About the Institute for Rural Health Policy (IRHP):

The IRHP was founded in 2013 as a joint effort by Ty Borders and Brady Reynolds serving as Co-Directors and Foundation for a Healthy Kentucky Endowed Chairs in Rural Health Policy. It conducts rural health services and policy research to inform rural health practitioners, managers, and policy makers in Kentucky.

Summary

Purpose

Health policy makers and health system managers frequently make decisions to allocate and organize resources according to differences in unmet needs across geographic areas. This report describes, compares, and contrasts key health, health behavior, and health care access indicators by region and metropolitan status in Kentucky.

Methods

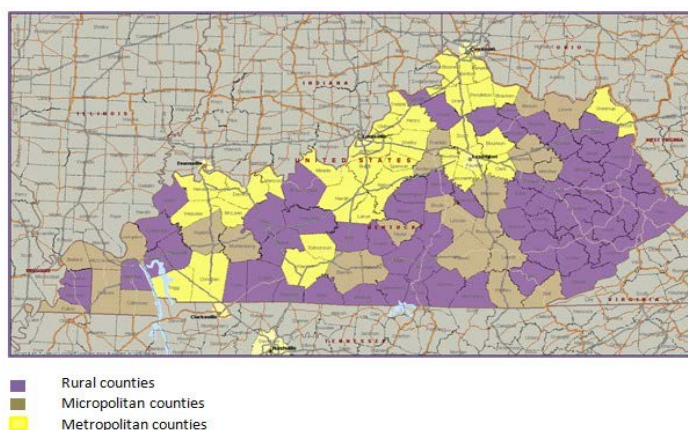
Definitions of Region and Metropolitan Status

We defined regions according to commonly accepted divisions across Kentucky (see Figure 1) and metropolitan status according to the U.S. Office of Management and Budget definitions. A metropolitan county includes an urban core of at least 50,000 persons and a non-metropolitan county has fewer than 50,000 persons. We further distinguished non-metropolitan counties as micropolitan or rural counties (see Figure 2). Micropolitan counties are those with a population at least 10,000 but less than 50,000 and rural counties are those with a population of less than 10,000. We refer to these as metro/micro/and rural in the remainder of this report.

Figure 1. Kentucky Regions



Figure 2. Metropolitan, Micropolitan, and Rural Counties



Data

We used data from the 2013 Behavioral Risk Factor Surveillance System (BRFSS), a random telephone survey of adults ages 18 years and older.

Health status indicators included: past 30 days of poor mental health and poor physical health, overall self-rated health, and body mass index (BMI).

Health behavior indicators included: past 30 days of heavy alcohol consumption, binge drinking, physical activity/exercise, and smoking.

Health care access indicators included: a past 12-month doctor visit, delay in getting medical care, not seeing a doctor because of cost, not getting medications because of cost, overall satisfaction with health care, having a personal doctor/health care provider, and having health insurance.

Analysis

We compared the indicators listed above across region (Section 1) and metro/micro/rural residence (Section 2) by conducting bivariate (chi-square) and multivariable (logistic regression) statistical analyses. Additionally, to examine if the associations between the indicators and metro/micro/rural residence differed by region, we tested for interactions between metro status and region. For those variables with an interaction, stratified analyses were conducted and reported separately (Section 3). Finally, detailed descriptive statistics for region (Supplementary Table I) and metro/micro/rural residence (Supplementary Table II) are provided in the Appendix section at the end of the report (pages 12-17).

Summary of Results

Region

- In unadjusted analyses, we found significant variations across regions (Section 1a and 1b).
 - Generally, residents of Appalachia had worse health and health behaviors and greater barriers to care than residents of the Central and Delta regions. Heavy and binge drinking were more common in the Central than Delta and Appalachia regions.
- In adjusted analyses, regional differences remained significant for only two indicators, having health insurance and not able to see a doctor because of costs (Section 1c).
 - Residents of Appalachia had lower odds of health insurance and higher odds of not being able to see a doctor because of costs than residents of the Delta and Central regions.

Metro/micro/rural residence

- In unadjusted analyses, we found significant metro/micro/rural variations (Sections 2a and 2b).
 - Generally, rural residents reported worse health and health behaviors, with the exception of alcohol consumption. Heavy and binge drinking were more common in metro than micro and rural areas.
- In adjusted analyses (Section 2c), we found some differences between metro relative to rural and micro counties. There were no significant differences between rural and micro counties.
 - Rural and micro residents had lower odds of overall excellent/very good/good health, higher odds of having a doctor/other provider, and lower odds of binge drinking than metro residents.
 - Micro residents had greater odds of having health insurance than metro residents.

Interactions between region and metro/micro/rural residence

- In unadjusted analyses (Section 3a), 3 indicators had statistically significant region*metro status interaction terms: any days of poor physical health, heavy drinking, and any physical activity/exercise in the past 30 days.
 - Central rural residents more frequently had poor physical health and less frequently reported heavy drinking compared to Central metro residents; Central rural residents less frequently engaged in physical activity than Central micro and metro residents.
- In stratified logistic regression analyses (Section 3b), Appalachia had the greatest variation by metro status.
 - Appalachian micro residents had lower odds of any days of poor mental and poor physical health than Appalachian metro residents. Appalachian rural residents had lower odds of any days of poor physical health than Appalachian metro residents and lower odds of physical activity/exercise than Appalachian micro residents.
 - Delta rural residents had lower odds of any days of poor mental health than Delta metro residents.
 - Central micro residents had higher odds of any days of poor physical health than Central metro residents.

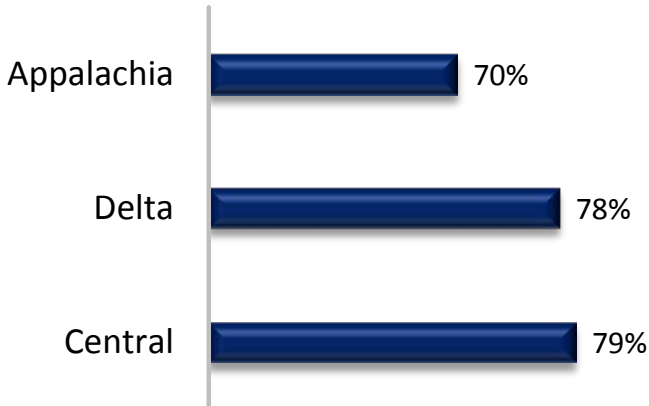
Conclusions and Implications for Health Management and Policy

Our findings indicate that Appalachian residents generally have worse health, health behaviors, and health care access than residents of other regions; however, our adjusted analyses suggest that these differences are not attributable to simply residing in Appalachia, but to other individual-level demographic or socioeconomic factors. Similarly, our findings indicate that rural and micro residents do not consistently have worse health, health behaviors, and health care access than their metro counterparts. Adding to the complexity of our results, we found that the association between rural/micro/metro residence frequently differed by region of residence. Because age, gender, race, and education likely explain some of the geographic variations in health, health behaviors, and health care access, we suggest that health policy makers and health system managers consider addressing the health care needs of these underlying demographic subgroups.

1a. Regional Comparisons: Health Status and Behavior Indicators

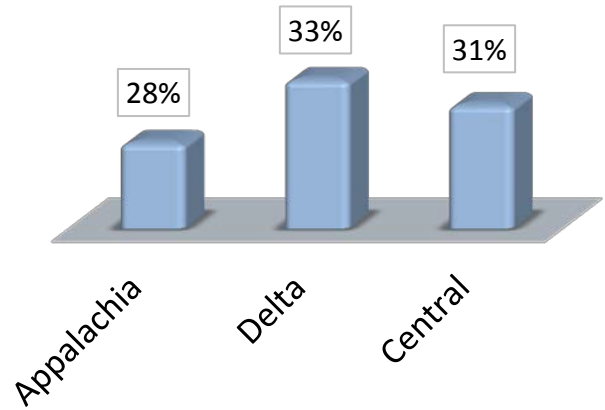
Overall Health Good/Excellent

Delta and Central Kentucky respondents more frequently ($P<.05$) rated their overall health status as good, very good, or excellent than Appalachia region respondents. However, these differences did not remain significant when adjusting for other factors.



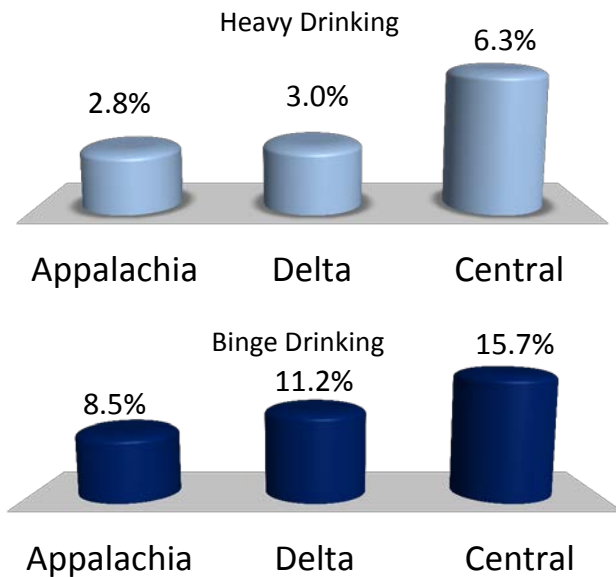
Normal Body Mass Index

Respondents residing in the Delta region more frequently ($P<.05$) had a normal BMI than those in other regions. However, this difference did not remain significant when adjusting for other factors.

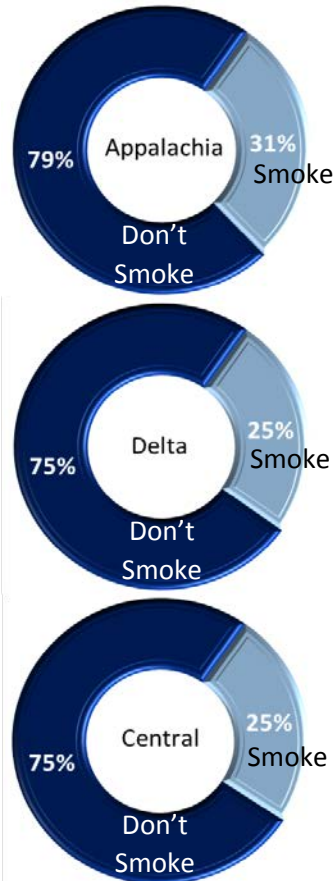


Heavy and Binge Drinking

Respondents from the Central Kentucky region more frequently ($P<.05$) engaged in past 30 day heavy and binge drinking than persons in other regions, but this difference did not remain when adjusting for other factors.



Smoking

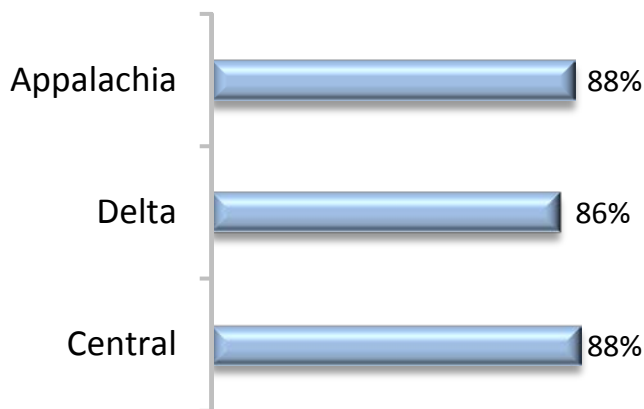


Respondents in the Appalachia region more frequently ($P<.05$) smoked than residents of the Delta or Central region, but these differences did not remain when adjusting for other factors.

1b. Regional Comparisons: Health Care Access Indicators

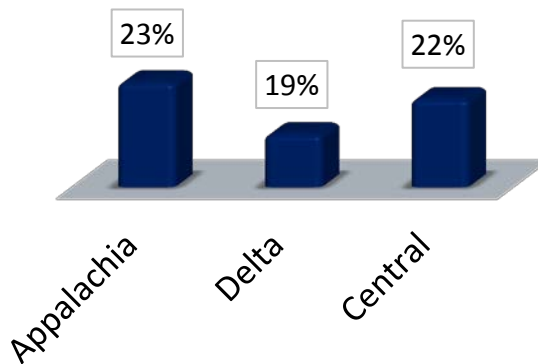
Doctor Visit in Last 12 Months

Regions did not vary significantly in having a doctor visit within the last 12 months.



Delays in Getting Care

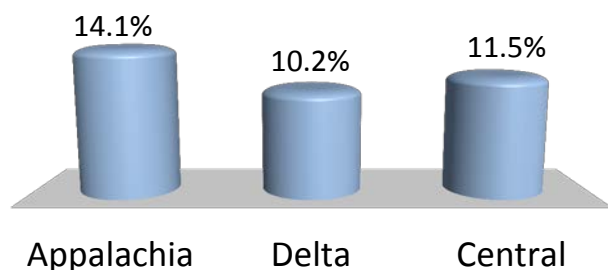
No significant differences were found for having delayed care.



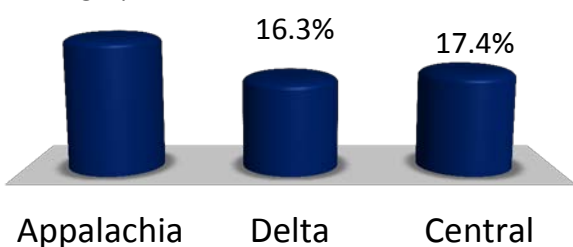
Cost as a Barrier

Appalachian respondents more frequently ($P<.05$) reported cost as a barrier to seeing a doctor; this difference remained when adjusting for other factors. They also more frequently reported cost as a barrier to getting medicine ($P<.05$), but this did not remain when adjusting for other factors.

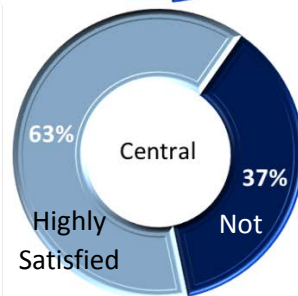
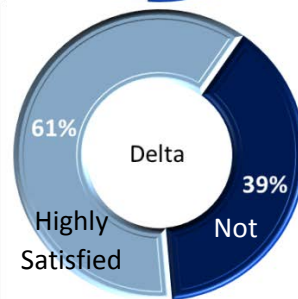
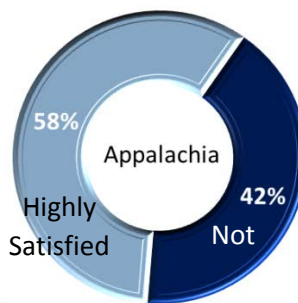
Cost a Barrier to Seeing Doctor



Cost a Barrier to Getting Medicine



Satisfaction with Health Care



High satisfaction with care was significantly ($P<.05$) lower among residents of the Appalachia region (58%) compared to the Central region (63%), but this difference did not remain when adjusting for other factors.

1c. Regional Comparisons: Multivariable Results

The findings presented in Table 1 below indicate that Appalachian residents have significantly higher adjusted odds of experiencing cost as a barrier to seeing a doctor than Delta (OR = 1.40, 95% CI = 1.03, 1.09) and Central residents (OR = 1.51, 95% CI = 1.17, 1.94). Appalachian residents had lower adjusted odds of having any type of health insurance than Delta (OR = 0.69, 95% CI = 0.49, 0.95) and Central residents (OR = 0.51, 95% CI = 0.39, 0.68). No other regional comparisons were statistically significant in the adjusted logistic regression models.

TABLE I. LOGISTIC REGRESSION ANALYSIS COMPARING REGIONS

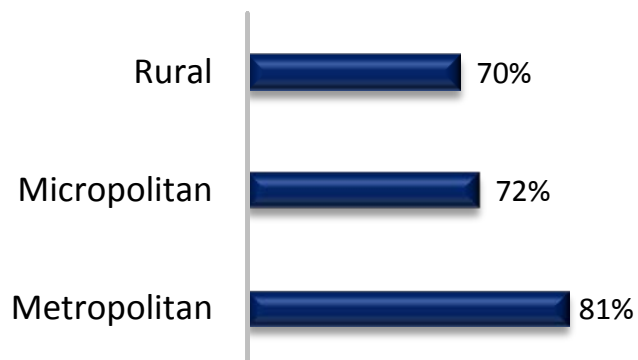
	Appalachia vs. Delta		Appalachia vs. Central		Delta vs. Central	
	OR	95% CI	OR	95% CI	OR	95% CI
HEALTH STATUS						
Overall Health Good/Very Good/ Excellent (vs. Poor)	0.81	(0.64, 1.03)	0.98	(0.78, 1.21)	1.20	(0.94, 1.53)
Normal BMI (vs. not normal)	0.84	(0.68, 1.04)	1.01	(0.83, 1.24)	1.21	(0.98, 1.49)
HEALTH CARE ACCESS						
Any Doctor Visits in Last 12 Months (vs. none)	0.96	(0.67, 1.38)	0.78	(0.56, 1.10)	0.81	(0.56, 1.17)
Delayed Getting Medical Care (vs. no delay)	1.05	(0.81, 1.36)	0.96	(0.77, 1.20)	0.92	(0.72, 1.18)
Have Any Health Insurance (vs. uninsured)	0.69	(0.49, 0.95)	0.51	(0.39, 0.68)	0.74	(0.54, 1.03)
Not Able to See Doctor Because of Cost (vs. cost not a problem)	1.40	(1.03, 1.90)	1.51	(1.17, 1.94)	1.07	(0.80, 1.44)
Not Being Able to Get Meds Because of Cost (vs. cost not a problem)	1.24	(0.86, 1.78)	1.19	(0.88, 1.60)	0.95	(0.67, 1.35)
Have a Personal Doctor or Health Care Provider (vs. no personal provider)	0.91	(0.66, 1.24)	0.62	(0.46, 0.83)	0.67	(0.50, 0.91)
Very Satisfied with Health Care (vs. somewhat satisfied or dissatisfied with care)	1.01	(0.81, 1.26)	0.92	(0.74, 1.14)	0.91	(0.73, 1.13)
HEALTH BEHAVIOR						
Binge Drinker (vs. not)	0.92	(0.63, 1.36)	0.73	(0.52, 1.01)	0.79	(0.56, 1.10)
Current Smoker (vs. non-smoker)	1.22	(0.96, 1.56)	1.18	(0.95, 1.46)	0.97	(0.76, 1.22)

Note: *Significant ($P < .05$) differences are bolded and highlighted.

2a. Metro/Mico/Rural Comparisons: Health Status and Behavior Indicators

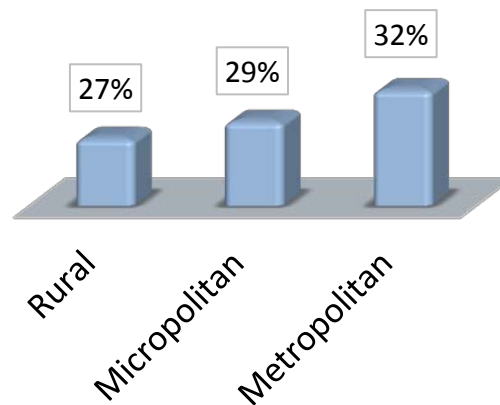
Overall Health Good/Excellent

Rural and micropolitan residents less frequently ($P<.05$) reported good/very good/excellent health than metropolitan residents. These differences remained when adjusting for other factors.



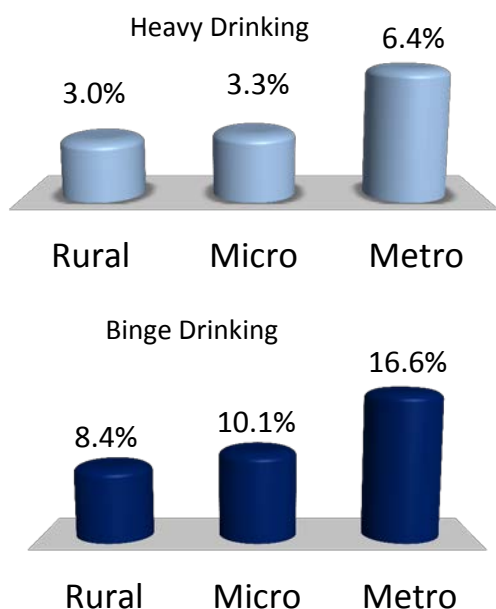
Normal Body Mass Index

Metropolitan residents more frequently ($P<.05$) had a normal BMI than micropolitan and rural residents. However, this difference did not remain when adjusting for other factors.

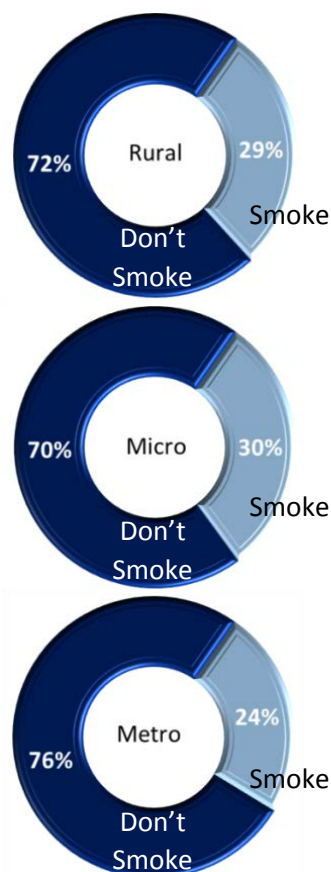


Heavy and Binge Drinking

Metropolitan respondents more frequently ($P<.05$) reported heavy and binge drinking than residents of other areas. These differences remained significant when adjusting for other factors.



Smoking

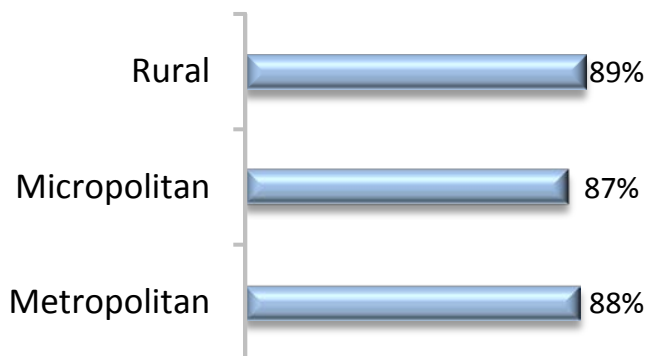


Metropolitan respondents less frequently ($P<.05$) reported smoking than micropolitan and other rural residents. However, this difference did not remain when adjusting for other factors.

2b. Metro/Micro/Rural Comparisons: Health Care Access Indicators

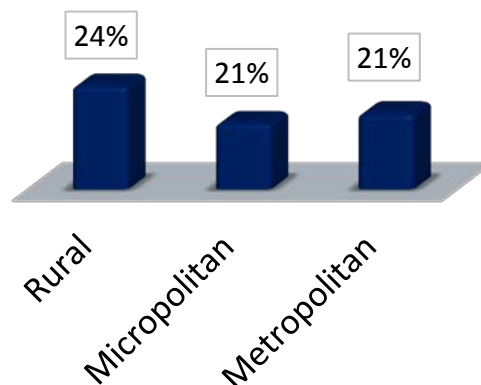
Doctor Visit in Last 12 Months

Respondents did not vary significantly in having had a doctor visit within the last 12 months by metropolitan status.



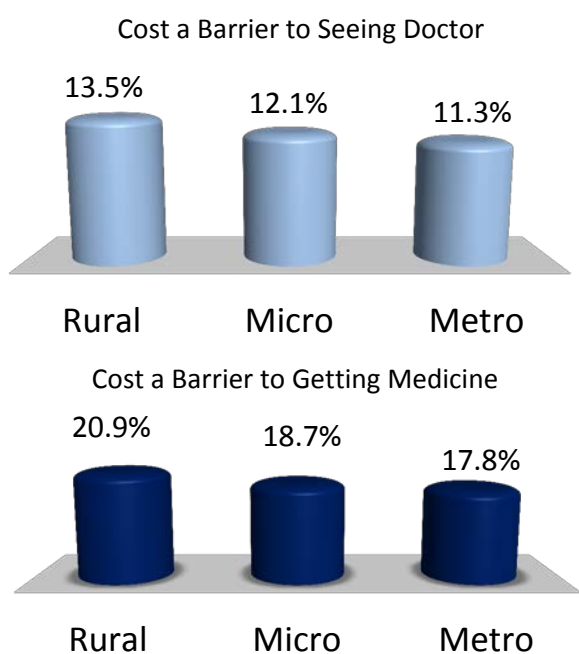
Delays in Getting Care

No significant differences were found for having delayed care.

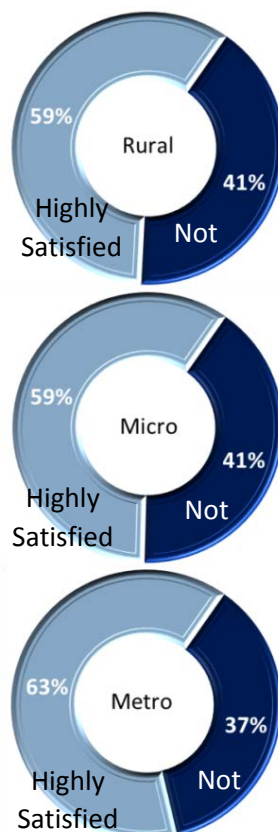


Cost as a Barrier

Cost barriers did not vary ($P < .05$) amongst rural, micropolitan, and metropolitan residents.



Satisfaction with Care



Metropolitan residents more frequently ($P < .05$) reported being very satisfied (63%) with health care received. However, these differences did not remain when adjusting for other factors.

2c. Metro/Micro/Rural Comparisons: Multivariable Results

As shown in Table II below, micropolitan vs. metropolitan respondents differed across four indicators when adjusting for confounders: reporting good or better general health (OR = 0.71, 95% CI = 0.55, 0.90), having any health insurance (OR = 1.38, 95% CI = 1.01, 1.90), having a personal doctor or health care provider (OR = 1.40, 95% CI = 1.02, 1.87), and being a binge drinker (OR = 0.67, 95% CI = 0.48, 0.94). Rural vs. metropolitan respondents differed across three indicators in the adjusted models: reporting good or better general health (OR = 0.74, 95% CI = 0.59, 0.93), having a personal doctor or health care provider (OR = 1.52, 95% CI = 1.13, 2.04), and being a binge drinker (OR = 0.60, 95% CI = 0.44, 0.82). No rural vs. micropolitan comparison was statistically significantly different in the adjusted logistic regression models.

TABLE II. LOGISTIC REGRESSION ANALYSIS COMPARING METRO/MICRO/RURAL STATUS

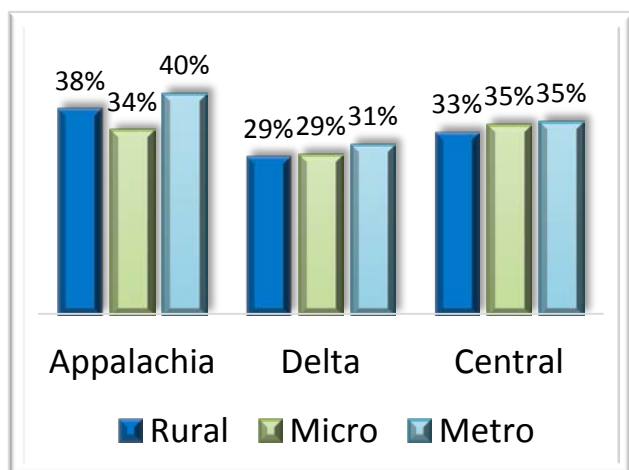
	Rural vs. Micropolitan		Rural vs. Metropolitan		Micropolitan vs. Metropolitan	
	OR	95% CI	OR	95% CI	OR	95% CI
HEALTH STATUS						
Overall Health Good/Very Good/Excellent Health (vs. poor)	1.05	(0.86, 1.27)	0.74	(0.59, 0.93)	0.71	(0.55, 0.90)
Normal BMI (vs. not normal)	1.02	(0.84, 1.22)	0.83	(0.68, 1.02)	0.82	(0.66, 1.01)
HEALTH CARE ACCESS						
Any Doctor Visit in Last 12 Months (vs. no visit)	1.12	(0.82, 1.52)	1.12	(0.80, 1.57)	1.01	(0.68, 1.49)
Delay Getting Medical Care (vs. no delay)	1.22	(0.98, 1.52)	1.19	(0.94, 1.49)	0.97	(0.75, 1.26)
Any Health Insurance (vs. uninsured)	0.96	(0.74, 1.25)	1.33	(0.99, 1.77)	1.38	(1.01, 1.90)
Not Able to See Doctor Because of Cost (vs. no problem with cost)	1.03	(0.81, 1.32)	0.90	(0.69, 1.18)	0.88	(0.66, 1.16)
Not Able to Get Meds Because of Cost (vs. no problem with cost)	1.00	(0.74, 1.35)	0.92	(0.67, 1.26)	0.92	(0.66, 1.29)
Have Personal Doctor or Other Provider (vs. no personal provider)	1.10	(0.85, 1.43)	1.52	(1.13, 2.04)	1.40	(1.02, 1.87)
Very Satisfied with Care (vs. somewhat satisfied/dissatisfied)	0.98	(0.72, 1.19)	0.91	(0.74, 1.11)	0.92	(0.74, 1.14)
HEALTH BEHAVIOR						
Binge Drinker (vs. not)	0.89	(0.64, 1.24)	0.60	(0.44, 0.82)	0.67	(0.48, 0.94)
Current Smoker (vs. not)	0.89	(0.73, 1.08)	1.08	(0.87, 1.35)	1.22	(0.97, 1.54)

Note: Significant ($P < .05$) differences are bolded and highlighted.

3a. Metro/Micro/Rural Comparisons WITHIN Region

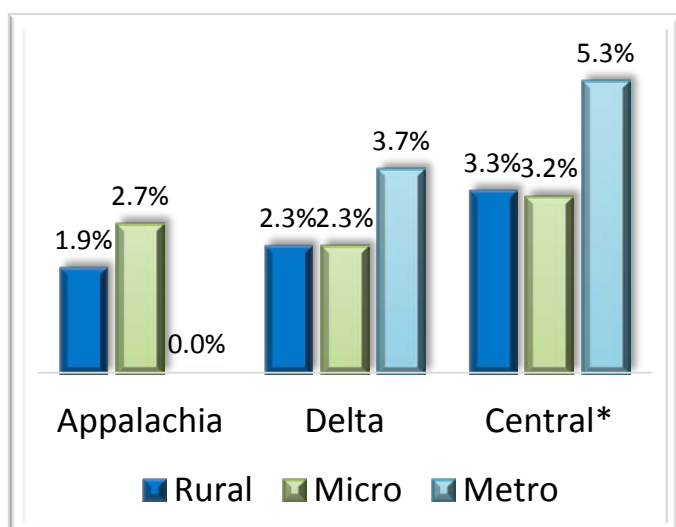
To determine if health status, health behaviors, and health care access differed across rural/micro/metro areas within each of Kentucky's regions, we conducted analyses stratified by region.

Poor Mental Health



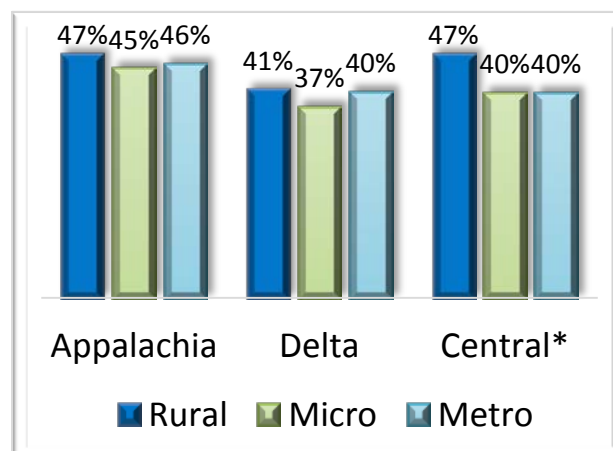
Within each region, there were no unadjusted rural/micro/metro differences. When adjusting for other factors, micro residents had lower odds (OR=0.53) of any days of poor mental health than metro residents of Appalachia (see Table III).

Heavy Drinking



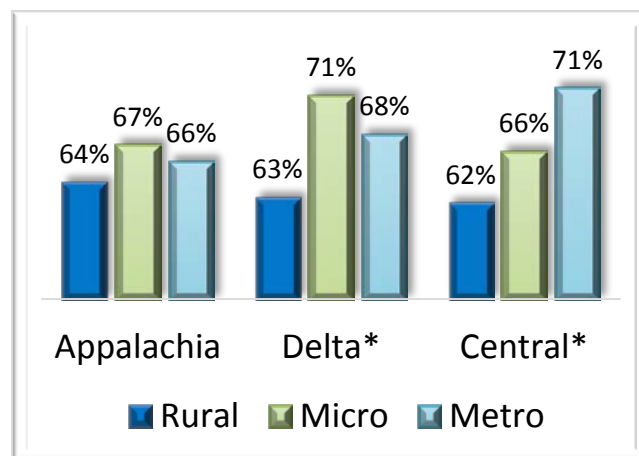
Within the Central region, metro respondents more frequently reported heavy drinking ($P<.05$) than rural or micro residents. When adjusting for other factors, metro residents within the Central region had higher odds (OR=1.48) of heavy drinking than only micro residents.

Poor Physical Health



Within the Central region, rural residents more frequently reported poor physical health (47%) than micro or metro residents. When adjusting for other factors, rural (OR=0.53) and micro (OR=0.54) had lower odds of poor physical health than metro residents within Appalachia.

Physical Activity



Within the Delta and Central regions, rural residents less frequently reported physical activity in the last 30 days. When adjusting for other factors, only rural residents within the Appalachia region had lower odds (OR=0.76) of physical activity than micro residents of Appalachia.

*indicates significant ($P<.05$) metro/micro/rural difference within region in unadjusted analysis.

3b. Metro/Micro/Rural Comparisons WITHIN Region

Stratified Logistic Regression Analysis for Selected Variables: We present in the table below the stratified multivariable logistic regression analyses for those variables found to have an interaction between region and metro/micro/rural. Appalachia experienced the greatest amount of significant differences with micro vs. metro differing in having any days of poor mental (OR = 0.53, 95% CI = 0.28, 0.99) and physical (OR = 0.52, 95% CI = 0.27, 0.97) health in the last 30 days. Rural vs. metro differed significantly in having any days of poor physical health (OR = 0.53, 95% CI = 0.29, 0.99), while rural vs. micro differed in having any physical activity in the last 30 days (OR = 0.76, 95% CI = 0.60, 0.97). Also, note that there were no respondents in Appalachia in the metro category that reported being a heavy drinker. Delta and Central regions only had one significant difference each. Rural vs. metro differed in any days of poor mental health (OR = 0.64, 95% CI = 0.43, 0.97) in the Delta, while micro vs. metro differed in any days of poor physical health (OR = 1.48, 95% CI = 1.11, 1.97) in the Central region.

TABLE III. STRATIFIED LOGISTIC REGRESSION ANALYSIS

	Appalachia (N=3,786)					
	Rural vs. Micro		Rural vs. Metro		Micro vs. Metro	
	OR	95% CI	OR	95% CI	OR	95% CI
HEALTH STATUS						
Any Days of Poor Mental Health (vs. none)	1.06	(0.84, 1.34)	0.57	(0.31, 1.04)	0.53	(0.28, 0.99)
Any Days of Poor Physical Health (vs. none)	1.03	(0.82, 1.29)	0.53	(0.29, 0.99)	0.52	(0.27, 0.97)
HEALTH BEHAVIOR						
Heavy Drinker (vs. not)	0.65	(0.32, 1.32)	**	**	**	**
Any Phys. Activity or Exercise in Last 30 Days	0.76	(0.60, 0.97)	0.82	(0.43, 1.58)	1.09	(0.55, 2.11)
	Delta (N=1,621)					
	Rural vs. Micro		Rural vs. Metro		Micro vs. Metro	
	OR	95% CI	OR	95% CI	OR	95% CI
HEALTH STATUS						
Any Days of Poor Mental Health	0.74	(0.49, 1.12)	0.64	(0.43, 0.97)	0.87	(0.58, 1.28)
Having Any Days of Poor Physical Health	1.09	(0.75, 1.61)	0.84	(0.56, 1.25)	0.77	(0.52, 1.13)
HEALTH BEHAVIOR						
Heavy Drinker	1.46	(0.39, 5.38)	1.18	(0.34, 4.08)	0.81	(0.23, 2.79)
Any Phys. Activity or Exercise in Last 30 Days	0.69	(0.45, 1.06)	0.99	(0.66, 1.50)	1.45	(0.94, 2.21)
	Central (N=5,244)					
	Rural vs. Micro		Rural vs. Metro		Micro vs. Metro	
	OR	95% CI	OR	95% CI	OR	95% CI
HEALTH STATUS						
Any Days of Poor Mental Health	0.75	(0.52, 1.08)	0.88	(0.67, 1.15)	1.17	(0.97, 1.59)
Any Days of Poor Physical Health	0.80	(0.56, 1.12)	1.18	(0.92, 1.51)	1.48	(1.11, 1.97)
HEALTH BEHAVIOR						
Heavy Drinker	1.26	(0.50, 3.14)	0.63	(0.33, 1.21)	0.50	(0.24, 1.05)
Any Phys. Activity or Exercise in Last 30 Days	0.90	(0.62, 1.32)	0.76	(0.57, 1.00)	0.84	(0.61, 1.15)

Notes: **The cell count for those living in a metropolitan area in Appalachia and reporting heavy drinking was zero, which means these comparisons cannot be made; significant ($P < .05$) differences are bolded and highlighted; missing data ranged from 658 to 1,177.

SUPPLEMENTARY TABLE I. REGION DESCRIPTIVE STATISTICS									
	Appalachia (N=3786)		Delta (N=1621)		Central (N=5244)		Total (N=10,651)		P-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
DEMOGRAPHICS									
Region ¹									-
Central	-	-	-	-	5244	59.7	5244	59.7	
Appalachian	3786	26.7	-	-	-	-	3786	26.7	
Delta	-	-	1621	13.6	-	-	1621	13.6	
Metropolitan Status ^d									<.0001
Metropolitan	68	3.6	609	38.5	3963	80.5	4640	54.2	
Micropolitan	1040	35.0	598	37.9	558	9.3	2196	20.0	
Neither/Rural	2678	61.4	414	23.6	723	10.3	3815	25.7	
Age									.0434
18-24	166	10.8	62	14.1	312	12.4	540	12.2	
25-44	806	31.8	219	29.1	1115	33.6	2140	32.5	
45-64	1691	36.9	665	34.4	2190	35.5	4546	35.7	
65+	1111	20.5	668	22.4	1592	18.4	3371	19.5	
Highest Education Level ^{a,b}									<.0001
Less than High School	594	23.7	170	18.2	485	14.7	1249	17.6	
High School or GED	1401	36.0	586	37.1	1677	33.2	3664	34.5	
Any College	1788	40.3	861	44.7	3075	52.1	5724	48.0	
Employment Status ^{a,b}									<.0001
Not Employed	2309	54.3	948	49.8	2702	43.4	5959	47.2	
Employed	1464	45.7	669	50.2	2530	56.6	4663	52.8	
Race ^d									<.0001
White	3662	95.8	1517	92.0	4225	86.2	9404	89.5	
Black or African American	53	2.4	65	6.0	878	10.8	996	7.9	
Other/Multiracial	59	1.8	35	2.1	117	3.1	211	2.6	
Marital Status ^a									.0038
Unmarried	1648	42.3	685	46.5	2614	47.8	4947	46.1	
Married	2131	57.7	932	53.5	2616	52.2	5679	53.9	
Sex									.8781
Male	1292	48.0	557	48.2	1888	48.8	3737	48.5	
Female	2494	52.0	1064	51.8	3356	51.2	6914	51.5	

SUPPLEMENTARY TABLE I. REGION DESCRIPTIVE STATISTICS CONTINUED.									
	Appalachia (N=3786)		Delta (N=1621)		Central (N=5244)		Total (N=10,651)		P-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
HEALTH STATUS									
Any Days of Poor Mental Health									
No	2361	62.0	1127	66.6	3372	62.1	6860	62.7	.0875
Yes	1354	38.0	476	33.4	1805	37.9	3635	37.3	
Any Days of Poor Physical Health ^{a,c}									.0002
No	1970	56.6	966	63.1	3039	63.0	5975	61.3	
Yes	1723	43.4	622	36.9	2105	37.0	4450	38.7	
General Health ^{a,c}									<.0001
Good or Better	2517	69.7	1227	77.8	3982	79.1	7726	76.4	
Fair or Poor	1263	30.3	391	22.2	1255	20.9	2909	23.6	
Body Mass Index ^c									.0286
Normal	954	27.5	489	33.0	1481	30.8	2924	30.2	
Non-Normal	2648	72.5	1044	67.0	3503	69.2	7195	69.8	
HEALTH CARE ACCESS & UTILIZATION									
Any Doctor Visits in Last 12 Months									.3815
No	331	12.3	121	13.9	448	11.7	900	12.1	
Yes	3271	87.7	1432	86.1	4613	88.3	9316	87.9	
Delayed Getting Medical Care									.1363
No	2848	76.8	1319	80.8	4174	78.1	8341	78.2	
Yes	900	23.2	287	19.2	1034	21.9	2221	21.8	
Any Health Insurance ^a									.0019
No	591	21.0	150	18.2	595	16.0	1336	17.6	
Yes	3178	79.0	1470	81.8	4637	84.0	9285	82.4	
Could Not See Doctor Because of Cost ^{a,c}									<.0001
No	3028	76.8	1432	83.7	4453	82.6	8913	81.2	
Yes	750	23.2	185	16.3	786	17.4	1721	18.8	
Could Not Get Meds Because of Cost ^c									.0223
No	3262	85.9	1481	89.8	4661	88.5	9404	88.0	
Yes	518	14.1	138	10.2	577	11.5	1233	12.0	
Personal Doctor of Health Care Provider									.2856
No	547	20.7	200	23.5	731	20.4	1478	20.9	
Yes	3230	79.3	1416	76.5	4507	79.6	9153	79.1	
Satisfaction with Care Received ^a									.0234
Very Satisfied	2097	58.4	1004	60.5	3087	63.0	6188	61.4	
Less than Very Satisfied	1327	41.6	487	39.5	1672	37.0	3486	38.6	

SUPPLEMENTARY TABLE I. REGION DESCRIPTIVE STATISTICS CONTINUED.

	Appalachia (N=3786)		Delta (N=1621)		Central (N=5244)		Total (N=10,651)		P-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
HEALTH BEHAVIOR									
Heavy Drinker ^{a,b}									<.0001
No	3540	97.2	1487	97.0	4747	93.7	9774	95.1	
Yes	75	2.8	43	3.0	240	6.3	358	4.9	
Binge Drinker ^{a,b}									<.0001
No	3418	91.5	1429	88.8	4418	84.3	9265	86.8	
Yes	206	8.5	103	11.2	578	15.7	887	13.2	
Any Physical Activity or Exercise in Last 30 Days									.0755
No	1246	32.6	489	31.5	1495	29.2	3230	30.4	
Yes	2301	67.4	1018	68.5	3411	70.8	6730	69.6	
Current Smoker ^{a,c}									.0002
No	2743	69.0	1300	74.8	3987	75.4	8030	73.6	
Yes	935	31.0	283	25.2	1126	24.6	2344	26.4	

UW = Unweighted

W = Weighted

Notes: *Missing values ranged from 0 to 691; 363 respondents had missing values for region and were not included in the analyses; Additional analyses were conducted comparing each combination of two regions. A Bonferroni correction of $P = 0.05/3 = 0.0167$ was used. The following superscripts identify if there was a statistically significant ($P < .0167$) difference between the two groups compared:

- a. Statistically significant difference between Central and Appalachian regions when compared alone
- b. Statistically significant difference between Central and Delta regions when compared alone
- c. Statistically significant difference between Appalachian and Delta regions when compared alone
- d. Statistically significant difference between all combinations of two group comparisons

SUPPLEMENTARY TABLE II. METRO/MICRO/RURAL DESCRIPTIVE STATISTICS									
	Rural (N=3815)		Micropolitan (N=2196)		Metropolitan (N=4640)		Total (N=10,651)		P-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
DEMOGRAPHICS									
Metropolitan Status ¹									-
Metropolitan	-	-	-	-	4640	54.2	4640	54.2	
Micropolitan	-	-	2196	20.0	-	-	2196	20.0	
Neither/Rural	3815	25.7	-	-	-	-	3815	25.7	
Region ^d									<.0001
Central	723	23.8	558	27.6	3963	88.6	5244	59.7	
Appalachian	2678	63.8	1040	46.7	68	1.8	3786	26.7	
Delta	414	12.4	598	25.6	609	9.6	1621	13.6	
Age ^d									<.0001
18-24	155	9.0	105	15.2	280	12.7	540	12.2	
25-44	754	31.6	387	28.3	999	34.5	2140	32.5	
45-64	1721	37.8	902	34.7	1923	35.2	4546	35.7	
65+	1170	21.6	793	21.8	1408	17.7	3371	19.5	
Highest Education Level ^{a,b}									<.0001
Less than High School	586	22.0	269	22.4	394	13.7	1249	17.6	
High School or GED	1461	39.4	808	36.1	1395	31.5	3664	34.5	
Any College	1766	38.6	1112	41.5	2846	54.8	5724	48.0	
Employment Status ^{a,b}									<.0001
Not Employed	2350	54.2	1272	51.1	2337	42.4	5959	47.2	
Employed	1450	45.8	919	48.9	2294	57.6	4663	52.8	
Race ^{a,b}									<.0001
White	3687	95.5	2095	93.8	3622	85.1	9404	89.5	
Black or African American	58	2.5	61	4.8	877	11.5	996	7.9	
Other/Multiracial	63	1.9	31	1.3	117	3.4	211	2.6	
Marital Status ^{b,c}									<.0001
Unmarried	1640	40.4	923	45.4	2384	49.1	4947	46.1	
Married	2169	59.6	1269	54.6	2241	50.9	5679	53.9	
Sex									.8739
Male	1275	48.1	773	49.1	1689	48.4	3737	48.5	
Female	2540	51.9	1423	50.9	2951	51.6	6914	51.5	

SUPPLEMENTARY TABLE II. METRO/MICRO/RURAL DESCRIPTIVE STATISTICS CONTINUED.									
	Rural (N=3815)		Micropolitan (N=2196)		Metropolitan (N=4640)		Total (N=10,651)		p-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
HEALTH STATUS									
Any Days of Poor Mental Health									
No	2411	64.1	1454	63.1	2995	61.8	6860	62.7	.3567
Yes	1337	35.9	704	36.9	1594	38.2	3635	37.3	
Any Days of Poor Physical Health ^b									.0006
No	1981	57.6	1260	59.5	2734	63.7	5975	61.3	
Yes	1735	42.4	892	40.5	1823	36.3	4450	38.7	
General Health ^{a,b}									<.0001
Good or Better	2550	70.4	1568	72.2	3608	80.8	7726	76.4	
Fair or Poor	1257	29.6	624	27.8	1028	19.2	2909	23.6	
Body Mass Index ^b									.0176
Normal	957	27.1	601	28.9	1366	32.2	2924	30.2	
Non-Normal	2654	72.9	1492	71.1	3049	67.8	7195	39.8	
HEALTH CARE ACCESS									
Any Doctor Visits in Last 12 Months									.458
No	317	11.4	181	13.4	402	12.0	900	12.1	
Yes	3306	88.6	1924	86.6	4086	88.0	9316	87.9	
Delayed Getting Medical Care									.1789
No	2876	76.3	1765	79.4	3700	78.6	8341	78.2	
Yes	904	23.7	416	20.6	901	21.4	2221	21.8	
Any Health Insurance									0.7811
No	548	18.3	255	17.6	533	17.3	1336	17.6	
Yes	3255	81.7	1931	82.4	4099	82.7	9285	82.4	
Could Not See Doctor Because of Cost									.0835
No	3083	79.1	1851	81.3	3979	82.2	8913	81.2	
Yes	724	20.9	342	18.7	655	17.8	1721	18.8	
Could Not Get Meds Because of Cost									.1592
No	3295	86.5	1961	87.9	4148	88.7	9404	88.0	
Yes	514	13.5	233	12.1	486	11.3	1233	12.0	
Personal Doctor or Health Care Provider ^b									.0331
No	498	18.1	299	20.9	681	22.2	1478	20.9	
Yes	3308	81.9	1892	79.1	3953	77.8	9153	79.1	
Satisfaction with Care Received ^b									.0128
Very Satisfied	2127	58.9	1286	59.3	2775	63.4	6188	61.4	
Less than Very Satisfied	1338	41.1	714	40.7	1434	36.6	3486	38.6	

SUPPLEMENTARY TABLE II. METRO/MICRO/RURAL DESCRIPTIVE STATISTICS CONTINUED.									
	Rural (N=3815)		Micropolitan (N=2196)		Metropolitan (N=4640)		Total (N=10,651)		P-value
	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	N (UW)	% (W)	
HEALTH BEHAVIOR									
Heavy Drinker ^{a,b}									<.0001
No	3561	97.0	2039	96.7	4174	93.6	9774	95.1	
Yes	80	3.0	57	3.3	221	6.4	358	4.9	
Binge Drinker ^{a,b}									<.0001
No	3454	91.6	1957	89.9	3854	83.4	9265	86.8	
Yes	195	8.4	136	10.1	556	16.6	887	13.2	
Any Physical Activity or Exercise in Last 30 Days ^{b,c}									<.0001
No	1296	35.6	664	30.0	1270	28.1	3230	30.4	
Yes	2263	64.4	1400	70.0	3067	71.9	6730	69.6	
Current Smoker ^{a,b}									<.0001
No	2806	71.5	1646	69.8	3578	76.0	8030	73.6	
Yes	910	28.5	493	30.2	941	24.0	2344	26.4	
UW = Unweighted W = Weighted Notes: *Missing values ranged from 0 to 691; 363 respondents had missing values for metropolitan status and were not included in the analyses; additional analyses were conducted comparing each combination of two metropolitan statuses. A Bonferroni correction of $P = .05/3 = .0167$ was used. The following superscripts identify if there was a statistically significant ($P < .0167$) difference between the two groups compared: a. Statistically significant difference between metropolitan and micropolitan when compared alone b. Statistically significant difference between metropolitan and rural when compared alone c. Statistically significant difference between micropolitan and rural when compared alone d. Statistically significant difference between all combinations of two group comparisons									