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# Men's Health in Illinois: Metro versus Nonmetro

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## Abstract

The difference between male and female life expectancy in Illinois is 6 years, 73.8 years is the life expectancy for men compared to 79.8 years for women. According to the Center for Disease Control and Prevention (CDC), the mortality rate is higher for men. Despite these differences, men's health fails to be prioritized in health and social policies in the state. This research uses microdata from the Current Population Survey (CPS) and National Health Interview Survey (NHIS) to learn about the prevalence and predictors of men's health in Illinois. Empirical analysis shows that men suffer more than women from cardiovascular diseases, high cholesterol, and hypertension. It is recommended that Illinois put forward a comprehensive men's health strategy to ensure gender equality in health and healthcare.

## Introduction

The field of gender-specific medicine is built on the principle that medical treatment is different for men and women<sup>2</sup>. In an earlier *Research Brief*, I documented the causal role of gender in a nomological net<sup>3</sup> which depicted 'anxiety' as a causal variable for 'life satisfaction'<sup>4</sup>. In this paper, the focus is on health disparities among men in metro and nonmetro Illinois.

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<sup>2</sup> Grace, V. (2007). Beyond dualism in the life sciences: Implications for a feminist critique of gender-specific medicine. *Journal of Interdisciplinary Feminist Thought*, 2(1), 1.

<sup>3</sup> A nomological net is a flow diagram of concepts in causal relations; for example, 'Anxiety' → 'Life satisfaction'.

<sup>4</sup> Athiyaman, A. (2023). Gender and health in the Midwest, metro versus nonmetro: Insights from the National Health Interview Survey. *Research Brief*, 5(10), May 7. Available: [https://iira.org/wp-content/uploads/2023/07/RB\\_5\\_10-Gender-and-Health-in-the-Midwest.pdf](https://iira.org/wp-content/uploads/2023/07/RB_5_10-Gender-and-Health-in-the-Midwest.pdf).

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According to the Center for Disease Control and Prevention (CDC), the mortality rate is higher for men, 1090.8 per 100,000 men compared to 965.1 per 100,000 females<sup>5</sup>. Furthermore, the difference between male and female life expectancy in Illinois is 6 years, 73.8 years is the life expectancy for men compared to 79.8 years for women<sup>6</sup>. Despite these differences, men's health fails to be prioritized in health and social policies in the nation<sup>7</sup>. What is needed for policy is an understanding of the status of men's health; this paper is an attempt to gain this information for Illinois.

## Theory and Hypotheses

The gender gap in men's life expectancy arises because of 'gender socialization' - boys and men are prescribed a set of traits and behaviors that define masculine ideal<sup>8</sup>. For example, men are expected to be tough, ready to fight, and risk-takers<sup>9</sup>.

Culture - practices, symbols, values, and ideals that are constructed and shared by a community – operates both at the societal and individual levels<sup>10</sup>. Gender stereotypes are people's beliefs about

how the sexes differ or should differ. Table 1 is a partial listing of activities and interests with examples of male and female-type attributes for each domain; note the masculine ideology or belief that men should be eager to take risks (for example, be a firefighter) and have a dominant personality (assertive).

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<sup>5</sup> <https://www.cdc.gov/nchs/fastats/deaths.htm>.

<sup>6</sup> <https://www.cdc.gov/nchs/data/nvsr/nvsr71/nvsr71-02.pdf>.

<sup>7</sup> Nuzzo, J. (2020). Men's health in the United States: A national health paradox. *The Aging Male*, 23(1), 42-52. For Illinois, see <https://hfs.illinois.gov/medicalclients/health/man.html>; the web page for men's health, <http://www.idph.state.il.us/menshealth/>, is broken and inactive, an indication of non-saliency of the topic, "men's Health", for policy-makers.

<sup>8</sup> Leaper, C., & Friedman, C. K. (2007). The socialization of gender. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 561–587). Guilford Press.

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<sup>9</sup> Heilman, B., Barker, G., & Harrison, A. (2017). *The Man Box: A study on being a young man in the U.S., U.K., and Mexico*. Promundo-U.S.

<sup>10</sup> Kitayama, S., & Uskul, A. K. (2011). Culture, mind, and the brain: Current evidence and future directions. *Annual review of psychology*, 62, 419-449.

**Table 1: Examples of Gender-Typing**

Domain	Male-Typed	Female-Typed
Recreational activities	Sports, chess	Dolls, hopscotch
Academic interests	Math, science	English, language
Occupations	Firefighter, scientist	Nurse, secretary
Household task	Yard work	Dishes
Psychopathology	Aggression, compulsive body building	Depression, eating disorders
Personality traits	Bravery, assertion	Empathy, gentleness
Fantasy life	Heroics	Romance
Social cognition	Hostile attributions	Internal attributions

**Note:** Adapted from Tobin et al (2010). The intrapsychics of gender: A model of self-socialization. *Psychological Review*, 117(2), 601-622.

Tension arises when there is a discrepancy between the idealization of traditional masculine norms and an identity that emerges when confronted with a health vulnerability<sup>11</sup>. Denial, avoidance and downplaying of symptoms, psychological distancing from the health condition, suppress the strain of a reality, for example, physical or mental vulnerability. However, the avoidant behaviors are barriers to diagnosis and timely treatment and, rather than reduce strain, they heighten risk for psychopathology and suicide<sup>12</sup>.

Empirical research suggests the following hypotheses, or predictors of men's health:

**H<sub>1</sub>:** Younger men are more inclined to seek help, act to receive health services<sup>13</sup>.

**H<sub>2</sub>:** One's engagement with community, for example, attending clubs and meetings, will be associated with one's good health<sup>14</sup>.

**H<sub>3</sub>:** One's level of education will positively correlate with one's good health<sup>15</sup>.

<sup>11</sup> Boman, E. K. O. & Walker, G. A. (2010). Predictors of men's health care utilization. *Psychology of Men & Masculinity* **11**, 113-122.

<sup>12</sup> Levant, R. F. (2011). Research in the psychology of men and masculinity using the gender role strain paradigm as a framework. *American Psychologist* **66**, 765-776.

<sup>13</sup> Corboy, D., McDonald, J. & McLaren, S. (2011). Barriers to accessing psychosocial support services among men with cancer living in rural Australia: Perceptions of men and health professionals. *International Journal of Men's Health* **10**, 163-183.

<sup>14</sup> Andersen, R. M. (1995). Revisiting the Behavioral Model and Access to Medical Care: Does it Matter? *Journal of Health and Social Behavior* **36**, 1-10.

<sup>15</sup> Oberoi, D. V., Jiwa, M., McManus, A. & Hodder, R. (2015). Men's Help-seeking Behavior with Regards to Lower Bowel Symptoms. *American Journal of Health Behavior* **39**, 211-220.

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**H<sub>4</sub>:** Contextual factors, specifically rural location, will negatively correlate with good health<sup>16</sup>, and

**H<sub>5</sub>:** Disability and socio-economic disadvantages are negatively related to good health<sup>17</sup>.

Data analysis involved graphical representation of data, for example, stem-and-leaf plots to characterize differences between males and females in health conditions. Descriptive analysis using the framework  $Data = Fit + Residual$  was performed to test the hypotheses. Table 2 lists the variables used in data analysis.

## Methodology

Two sources of microdata were used to learn about the prevalence and predictors of men's health in Illinois: Current Population Survey (CPS) and National Health Interview Survey (NHIS). The CPS data were for Illinois and covered two time periods, January 2023 and December, 2023<sup>18</sup>. Variability in health indicators between the sexes were examined for both the metro and the nonmetro. The month of January, 2023, had a total of 12,380,742 weighted responses; the number for December, 2023, was 12,307,105 cases.

The NHIS, 2022, did not have state-level data<sup>19</sup>, so microdata for the Midwest census region<sup>20</sup> was compiled. The data file had 52,810,561 records or responses of which 22% were from the nonmetro.

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<sup>16</sup> Cole, E. R. (2009). Intersectionality and research in psychology. *American Psychologist* **64**, 170–180.

<sup>17</sup> Griffith, D. M. (2012). An intersectional approach to men's health. *Journal of Men's Health* **9**, 106-112.

<sup>18</sup> <https://www.census.gov/data/datasets.html>.

<sup>19</sup> <https://www.cdc.gov/nchs/nhis/2022nhis.htm>.

<sup>20</sup> The Midwest region includes the East North Central division: Illinois, Indiana, Michigan, Ohio, and Wisconsin; and the West North Central division: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

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**Table 2: Operational Definitions of Variables****(i) CPS Data**

<b>Variable</b>	<b>Definition</b>
Age	CPS label: PRTAGE; 00 to 79 age in years; 80 = 80-84 years old; 85 = 85+ years old.
Metro	CPS label: GTMETSTA; 1 = Metro; 2 = Nonmetro.
Edu	CPS label: PEEDUCA; 1 = LT high school; 2 = High school; 3 = Some college; 4 = Bachelors degree; 5 = Graduate or professional degree.
pedisdrs	Have difficulty in dressing or bathing; 1 = Yes; 2 = No.
pediseye	Is blind or have serious difficulty seeing even when wearing glasses; 1 = Yes; 2 = No.
pedisout	Because of a physical, mental or emotional condition...have difficulty doing errands alone such as visiting a doctor's office or shopping; 1 = Yes; 2 = No.
pedisphy	Have serious difficulty walking or climbing stairs; 1 = Yes; 2 = No.
pedisrem	Because of a physical, mental or emotional condition, have serious difficulty concentrating, remembering or making decisions; 1 = Yes; 2 = No.
ptdtrace	1 = White; 2 = Black; 3 = American Indian, Alaskan Native Only; 4 = Asian; 5 = Others, mixed race.
pesex	1=Male; 2 = Female.
wgt	Person's final weight.

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**(ii) NHIS Data**

<b>Variable</b>	<b>Definition</b>
PHSTAT_A	Would you say your health in general is excellent, very good, good, fair, or poor? 1 = Excellent; ...; 5 = Poor.
AGEP_A	Age in years.
SEX_A	1 = Male; 2 = Female.
EDUCP_A	Educational level of the respondent; 1 = Never attended; ...; 10 = Professional school or doctoral degree.
IMPNUM_A	Family income.
HYPEV_A	Have you EVER been told by a doctor or other health professional that you had ...Hypertension, also called high blood pressure? 1 = Yes; 2 = No.

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**Table 2: Operational Definitions of Variables (Continued)****(ii) NHIS Data**

Variable	Definition
CHLEV_A	Have you EVER been told by a doctor or other health professional that you had high cholesterol? 1 = Yes; 2 = No.
CHDEV_A	Have you EVER been told by a doctor or other health professional that you had Coronary heart disease? 1 = Yes; 2 = No.
ASEV_A	Have you EVER been told by a doctor or other health professional that you had asthma? 1 = Yes; 2 = No.
CANEV_A	Have you EVER been told by a doctor or other health professional that you had Cancer or malignancy of any kind? 1 = Yes; 2 = No.
SOCSCLPAR_A	Because of a physical, mental, or emotional condition, do you have difficulty participating in social activities such as visiting friends, attending clubs and meetings, or going to parties? 1 = No difficulty; ...; 4 = Cannot do at all.
DIFF_A	Do you have difficulty walking or climbing steps? Would you say no difficulty, some difficulty, a lot of difficulty, or you cannot do this at all? 1 = No difficulty; ...; 4 = Cannot do at all.
URBRRL	2013 NCHS Urban-Rural Classification Scheme for Counties; see <a href="https://www.cdc.gov/nchs/data_access/urban_rural.htm">https://www.cdc.gov/nchs/data_access/urban_rural.htm</a>
WTFA_A	Person's final weight.

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**Findings**CPS, Illinois Data

Females are the majority in the nonmetro; the proportion of men residing in the nonmetro has decreased by 14 percentage points from January, 2023 to December, 2023. On average, older folks live in the nonmetro. The modal value for the “level of education” variable is “less

than high school” for both men and women in the metro; females in the nonmetro are better educated than males (Table 3).

**Table 3: Demographics of the Respondents**

Variable	January, 2023		December, 2023	
	Metro	Nonmetro	Metro	Nonmetro
Male	53%	47%	54%	34%
Female	47%	54%	46%	66%
Median Age	52 Years	50 Years	59 Years	52 Years
Education, Modal Value; Male	Less Than High School	High School	Less Than High School	Less Than High School
Education, Modal Value; Female	Less Than High School	Some College / Associate Degree	Less Than High School	High School

**Note:** Number of respondents in the metro totaled 3,085,133 for January, 2023 and 3,049,658 for December, 2023. Number of cases in the nonmetro equaled 221,899 for January, 2023 and 223,705 for December, 2023.

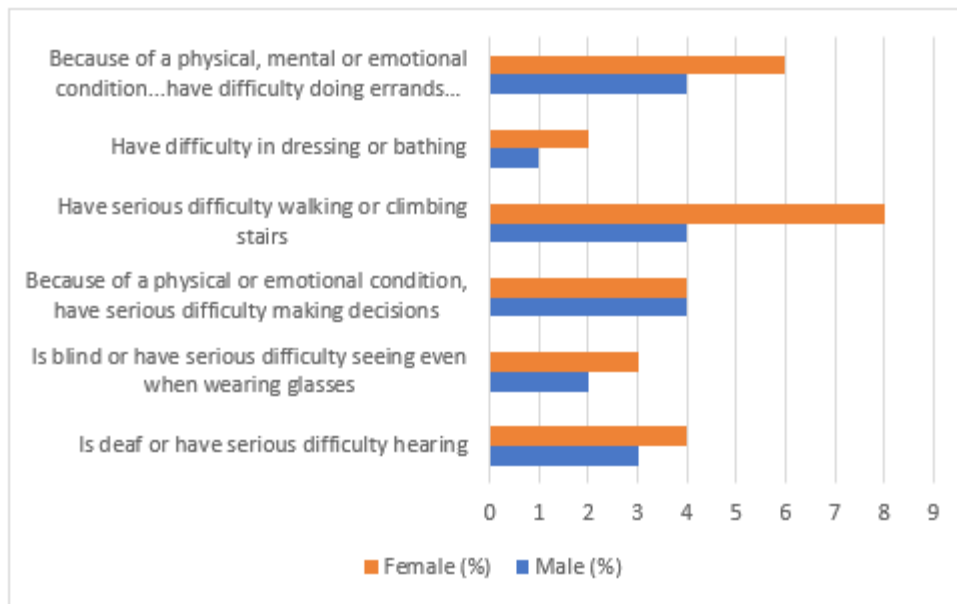
Figures 1 and 2 profile the health status of metro and nonmetro Illinoisans by sex as at December, 2023. In the metro, females report more health problems than males. The reverse is true for the nonmetro, men report more ill-health.

A clearer picture emerges with longitudinal analysis (Tables 4 and 5). In the metro, compared to January, 2023, men's health conditions improved in December, 2023, whereas women's health either deteriorated or showed little or no sign of improvement (Table 4).

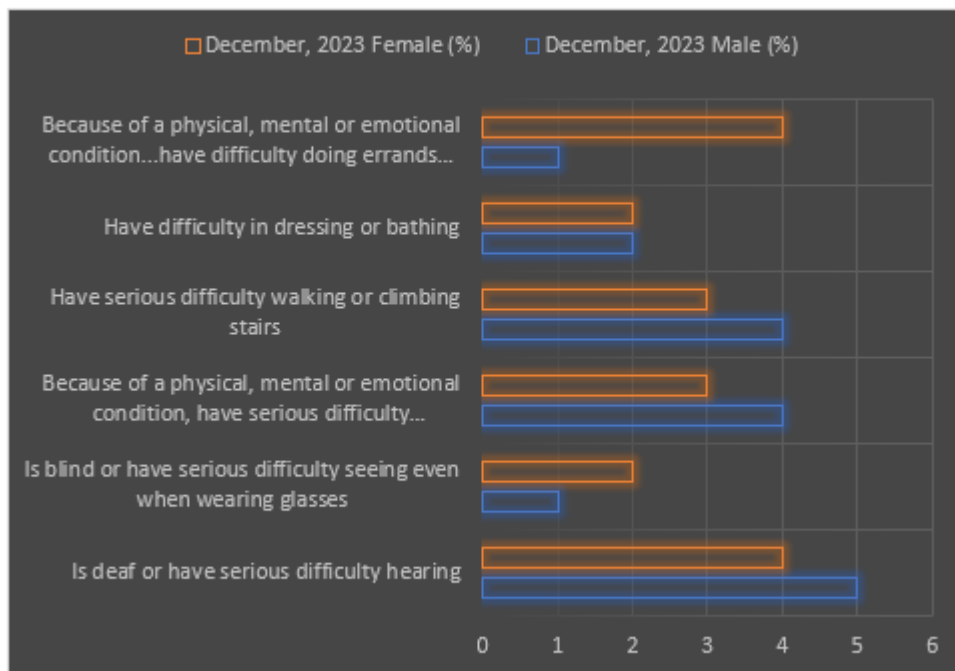
In the nonmetro, women's health improved more than men's health; the median rate of improvement for women's health is -4,

compared to -3.5 for men (Table 5). It could be that one's level of education influences one to seek medical help (see Table 3); we explore this association in the next section using NHIS data.

**Figure 1: Health Problems of Metro Illinoisans, December 2023**



**Figure 2: Health Problems of Nonmetro Illinoisans, December 2023**





**Table 4: Metro Illinoisans' Health Conditions, Longitudinal Analysis**

Health Condition	January, 2023			December, 2023			Difference Score	
	Male (%)	Female (%)	Phi	Male (%)	Female (%)	Phi	Male	Female
Is deaf or have serious difficulty hearing	2	2	0.02	3	4	-0.03	1	2
Is blind or have serious difficulty seeing even when wearing glasses	1	2	-0.02	2	3	-0.02	1	1
Because of a physical, mental or emotional condition, have serious difficulty concentrating, remembering or making decisions	5	4	0.02	4	4	0	-1	0
Have serious difficulty walking or climbing stairs	5	6	-0.02	4	8	-0.08	-1	2
Have difficulty in dressing or bathing	2	2	0.01	1	2	-0.03	-1	0
Because of a physical, mental or emotional condition...have difficulty doing errands alone such as visiting a doctor's office or shopping	5	4	0	4	6	-0.05	-1	2

**Note:** Phi is the zero-order correlation between the row and column variables. See Table 3, "Note", for N.

**Table 5: Nonmetro Illinoisans' Health Conditions, Longitudinal Analysis**

Health Condition	January, 2023			December, 2023			Difference Score	
	Male (%)	Female (%)	Phi	Male (%)	Female (%)	Phi	Male	Female
Is deaf or have serious difficulty hearing	10	12	-0.03	5	4	0.02	-5	-8
Is blind or have serious difficulty seeing even when wearing glasses	3	5	-0.05	1	2	-0.05	-2	-3
Because of a physical, mental or emotional condition, have serious difficulty concentrating, remembering or making decisions	7	4	0.06	4	3	.02	-3	-1
Have serious difficulty walking or climbing stairs	8	15	-0.11	4	3	0.04	-4	-12
Have difficulty in dressing or bathing	5	4	0.03	2	2	0.02	-3	-2
Because of a physical, mental or emotional condition...have difficulty doing errands alone such as visiting a doctor's office or shopping	7	9	-.03	1	4	-0.08	-6	-5

**Note:** Phi is the zero-order correlation between the row and column variables. See Table 3, "Note", for N.

NHIS Data, Midwest

More men live in the nonmetro areas of the Midwest region, 53%. On average, the human capital of the nonmetro boasts a high school education. The metro population is not only younger than the

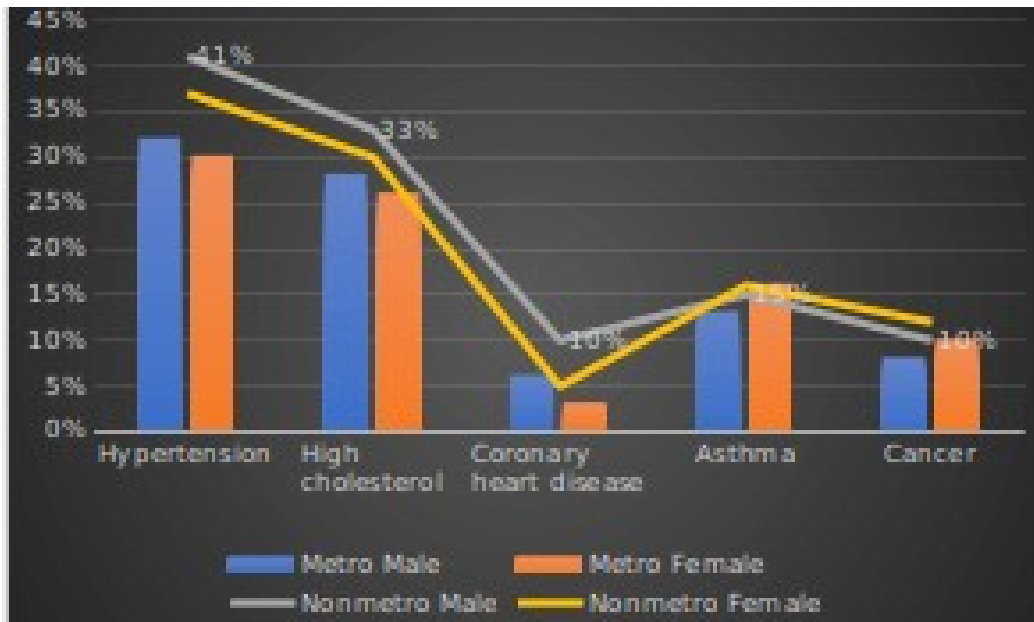
population in the nonmetro, but also has a higher level of education than the nonmetro, the average value is “bachelor’s degree” for the metro and “high school” for the nonmetro (Table 6).

**Table 6: Demographics, Metro versus Nonmetro**

Variable	Metro	Nonmetro
Sex:		
- Male	48%	53%
- Female	52%	47%
Age, Median Years	53	59
Level of Education, Mode	Bachelor’s Degree	High School

Figure 3 provides information on health conditions or disease prevalence among the metro and the nonmetro population by sex. In both the geographies, more men suffer from cardiovascular disease, high cholesterol, and hypertension; nonmetro has more than two out of five men diagnosed with hypertension. More women report having asthma and cancer.

**Figure 3: Ill-Health, Population Clustered by Sex and Metro / Nonmetro Geographies**



What factors influence men' health? The predictors of men's health are:

1. Education: higher level of education is associated with good health;
2. Income: income-to-poverty ratio is related to good health, higher ratio leads to better health, and
3. Participating in social activities such as visiting friends and relatives is associated with good health.

model suggest that 30% of the variability in the criterion, perceptions of health assessed using a five-step scale (Table 2), can be explained by the seven predictors including the intercept. The parameter of the geography variable, metro and nonmetro, does not differ from zero; it doesn't help predict men's health.

Table 8 shows that hypotheses  $H_2$ ,  $H_3$ , and  $H_5$  are supported by the econometric model.  $H_1$  is disconfirmed in statistical tests; the zero-order correlation between respondents' age and the act of receiving health services is  $-.21$ ,  $p < .001$ . The hypothesis that rural location will have negative effects on health,  $H_4$ , attained marginal support in data analysis,  $\beta_{age} = 0$ , was rejected at  $p < .10$  level (Table 8).

Tables 7 and 8 show the results of model run; the 'fit' statistics of the econometric

**Table 7: Results of ANOVA, Econometric Model 'Fit'**

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	2615.49509	435.91585	553.95	<.0001
Error	7684	6046.76729	0.78693		
Corrected Total	7690	8662.26238			

Root MSE	0.88709	R-Square	0.3019
Dependent Mean	3.60356	Adj R-Sq	0.3014
Coeff Var	24.61704		

**Table 8: Parameter Estimates**

Parameter Estimates							
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	95% Confidence Limits	
Intercept	1	4.50658	0.06258	72.02	<.0001	4.38392	4.62925
RATCAT_A	1	0.03588	0.00256	14.03	<.0001	0.03087	0.04089
URBRRL	1	-0.05184	0.03007	-1.72	0.0848	-0.11080	0.00711
AGEP_A	1	-0.00956	0.00060614	-15.77	<.0001	-0.01075	-0.00837
EDUCP_A	1	0.04408	0.00475	9.28	<.0001	0.03477	0.05339
DIFF_A	1	-0.56966	0.02139	-26.63	<.0001	-0.61159	-0.52773
SOCSCLPAR_A	1	-0.25802	0.02271	-11.36	<.0001	-0.30254	-0.21350

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## Summary and Conclusion

Public policy on men's health should be made with research evidence. Since lawmakers desire "specific" proof about a topic before they embark on policymaking, we explored Current Population Survey from December 2023 to profile Illinoisans' health condition by sex. Results of data analysis reveal that:

- In the metro, females report more health problems than males. The reverse is true for the nonmetro, men report more ill-health.

To have a forward orientation to the research, we developed a predictive model of men's health using microdata from the National Health Interview Survey, 2022. A statistical model of the form:  $Health = f(\text{personal factors}, \text{contextual factors})$  was estimated. Results of model calibration show:

1. Education: higher level of education is associated with good health;
2. Income: income-to-poverty ratio is related to good health, higher ratio leads to better health, and
3. Participating in social activities such as visiting friends and relatives is associated with good health.

My earlier research on health policy for Illinois argued that disparity in healthcare between the Whites and the minority population is more pronounced in the non-

metro and is getting worse<sup>21</sup>. I called for targeted communications to improve behavioral risk factors such as lack of exercise and smoking<sup>22</sup>.

This study shows that males in the nonmetro have many poorer health outcomes than females. It is time that Illinois put forward a comprehensive men's health strategy, similar to that of Australia which crafted and implemented a men's health policy in 2010 and South Africa in 2020.

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<sup>21</sup> Athiyaman, A. (2023). Health policy for rural Illinois, data for policy development. *Research Brief*, 5(4), February 25. Available: [https://iira.org/wp-content/uploads/2023/07/RB5\\_4-Health-Policy-for-Rural-Illinois-Data-for-Policy-Development.pdf](https://iira.org/wp-content/uploads/2023/07/RB5_4-Health-Policy-for-Rural-Illinois-Data-for-Policy-Development.pdf).

<sup>22</sup> Athiyaman, A. (2023). Health and healthcare disparities in Illinois, Metro vs. Nonmetro. *Research Brief*, 5(3), February 16. Available: [https://iira.org/wp-content/uploads/2023/07/RB5\\_3-Health-and-Healthcare-Disparities-in-Illinois-Metro-vs-Nonmetro.pdf](https://iira.org/wp-content/uploads/2023/07/RB5_3-Health-and-Healthcare-Disparities-in-Illinois-Metro-vs-Nonmetro.pdf).