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The Illinois Institute for Rural Affairs (IIRA) works to improve the quality of life for rural residents by partnering with public and private agencies on local development and enhancement efforts.



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Worker Burnout in Healthcare: Metro vs. Non-Metro

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Abstract

This study shows that more than one-in-two healthcare workers, both in the metro and the non-metro, are burned out. Data are from the USA Today / Ipsos survey of healthcare workers, fielded during February 9-16, 2022. Demographics such as education and income do not correlate with burnout; in other words, one's level of education and income are independent of being burned out on the job. Prevention strategies such as humanization of work schedules are recommended.

Introduction

The lexical definition of burnout “is exhaustion of physical or emotional strength or motivation usually as a result of prolonged stress or frustration”². Burnout prevalence is high among healthcare professionals; for example, a national study of general surgery residents estimates that anywhere from 43.2% to 93% of respondents suffer from burnout³. Burnout predicts job turnover, effect size, Fisher's $z = 0.46^4$.

¹ Professor, Illinois Institute for Rural Affairs, Western Illinois University.

² Merriam Webster, <https://www.merriam-webster.com/>.

³ Hewitt, D. B., Ellis, R. J., Hu, Y. Y., Cheung, E. O., Moskowitz, J. T., Agarwal, G., & Bilimoria, K. Y. (2020). Evaluating the association of multiple burnout definitions and thresholds with prevalence and outcomes. *JAMA surgery*, 155(11), 1043-1049.

⁴ Park, E. Y. (2021). Meta-analysis of factors associated with occupational therapist burnout. *Occupational Therapy International*, 2021. Fisher's z is computed using the expression, $(\ln(1+r) / (1+r)) / 2$, where r = correlation between burnout and turnover intentions.

Table 1 shows changes to the number of healthcare professionals in the metro and the non-metro; it is clear that the number of healthcare practitioners is declining in the non-metro, annual compound growth rate (ACGR) during 2019 - 2022 = -1.26%. Is it because the prevalence of burnout is

higher among healthcare professionals in the non-metro is resulting in turnover? This paper addresses this and other related questions using data from a national survey of 1,170 healthcare professionals conducted during February 9-16, 2022

5.

Table 1: Healthcare Professionals by Occupation and Geography, 2019 and 2022

Occupation	Metro			Non-Metro		
	2019	2022	ACGR	2019	2022	ACGR
Healthcare practitioner and technical occupations	8,784,620	9,031,419	0.92%	1,035,582	997,229	-1.26%
Healthcare support occupations	3,261,975	4,334,582	9.48%	557,536	687,017	6.96%

Theory

From a behavioral perspective, burnout is 'extinction'⁶. Extinction occurs when a behavior that has been previously reinforced no longer results in the reinforcing consequences. For example, treating a Covid-19 patient without success could weaken the relationship between the stimulus (medical treatment for severe acute respiratory syndrome) and the response (patient recovery, or physician's satisfaction with the outcome of the treatment). Because medical

practice produces intermittent reinforcement, for example, not all patients would respond positively to a treatment, it would take more than one failure for the physician to stop prescribing or administering the Covid-19 medication⁷.

In general, when a previously reinforced behavior is no longer reinforced, the behavior decreases and stops. Table 2 lists some of the risk factors for burnout in the healthcare sector, technically extinction.

⁵ The "Methodology" section contains details about the survey.

⁶ Reynolds, G. S. (1968). *A Primer of Operant Conditioning*. Glenview, IL: Scott Foresman and Company.

⁷ This explains the modest correlation between burnout and turnover; the behavior would decrease gradually and stop.

Table 2: Risk Factors for Burnout, Extinction of Behavior, some Examples

Factor	Risk
Work Environment	Meaningless tasks Inflexible schedules Inadequate compensation Organizational culture that shames people for mistakes
Personal	High exposure to trauma

Methodology

Data are from the USA Today / Ipsos survey of healthcare workers⁸. The survey, which targeted adults employed in

the healthcare sector, assessed respondents cognitions, emotions, and attitude toward their job (Table 3).

Table 3: Variables and Measures

Variable	Measure
Work Type	Nominal; responses range from “registered nurse” to “dispensing optician”.
Work Setting	Nominal; 10 categories; include hospital, doctor’s office, assisted care facility, etc.
Job satisfaction	The question asked the respondent, “how satisfied are you with your current job”. Responses were coded using four ‘ordinal’ categories: very satisfied, somewhat satisfied, somewhat dissatisfied, and very dissatisfied.
Affect, extinction, and drive	“Would you say you feel the following about going to work these days, or not?” Response categories were: anxious, hopeful, angry optimistic, burned out, and motivated. Responses were Boolean.
Cognition	Five items, all Boolean: “I am likely to leave the health care field in the near future”; “I love working in healthcare”; “The American health care system is on the verge of collapse”; “If I could pick a career all over again, I would still decide to go into health care”; “Politics is making job harder”.
Demographics	Respondent’s: race, gender, age, education, and income.
Geography	Respondent’s location, state and metro / non-metro region.
Weights	Weights for responses, to be representative of the US population.

⁸ See, https://proxy.cc.uic.edu/login?url=https://ropercenter.cornell.edu/iPOLL/login/ipoll_login.html

Statistical analysis include measures of correlation, tests of goodness of fit, tests of independence in contingency tables, and logistic regression.

Illinois had 34 respondents of which 21% were from the non-metro. Figure 1 shows the job distribution in the healthcare sector for the metro and the non-metro; a majority of the jobs are 'line' jobs. 'Staff' positions such as IT support are few in both the geographies.

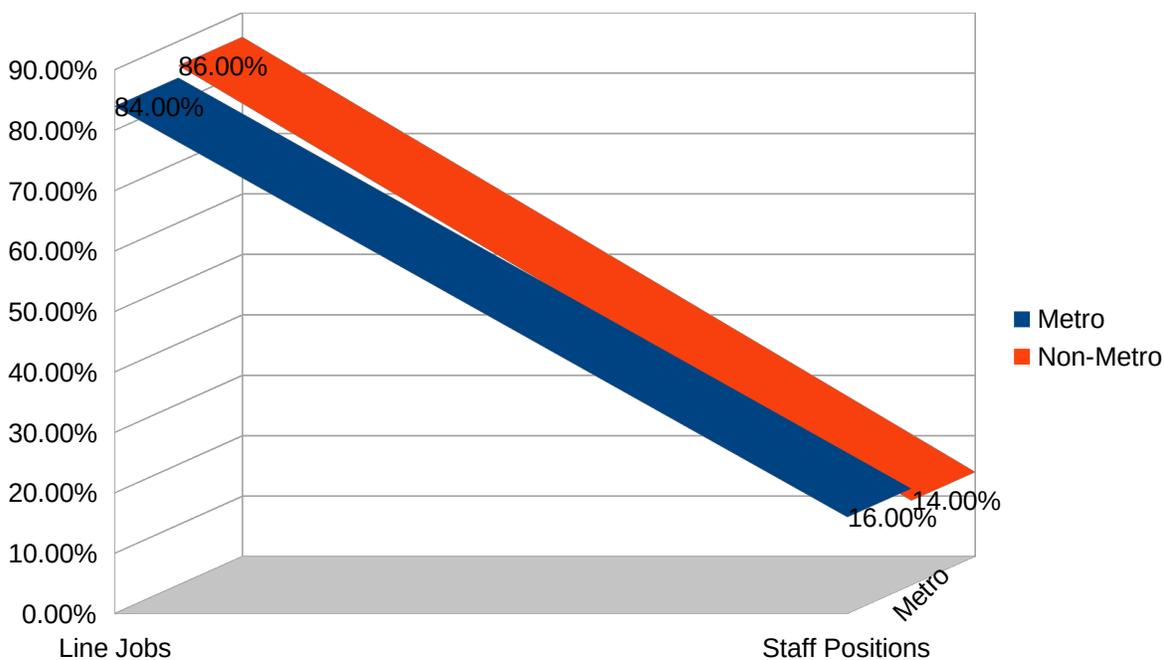
Findings

Of the 1,170 respondents to the survey, 14% were from the non-metro (Table 4);

Table 4: Geographical Locations of the Respondents

Attribute	% of Responses	n
State of residence, IL	3%	34
State of residence, other than IL	97%	1136
Metro location	86%	1006
Respondents from the non-metro	14%	164

Figure 1: Work Categories: Metro and Non-Metro



Note: Line jobs are upstream jobs, for example, nursing; staff positions refer to support jobs such as information technology.

Table 5 lists differences in work settings between the metro and the non-metro. A majority of the respondents, both in the metro and the non-metro, work in a hospital or in a doctor’s office.

Proportionally, more non-metro workers work in a nursing home or assisted care facility, 12% for the non-metro compared to 7% for the metro.

Table 5: Work Settings

Setting	Metro	Non-Metro
Hospital	36%	33%
Doctor's office / outpatient clinic	28%	24%
Patient's home	9%	10%
Nursing home / assisted care facility	7%	12%
Other	21%	21%
n	1006	164

Job Satisfaction and Turnover Intention

One-in-five ‘line’ personnel in the non-metro are dissatisfied with their work; the same number for ‘staff’ personnel is 8%. Proportionally, more staff personnel are satisfied with their work in both the regions (Table 6).

gained support in statistical analysis; the correlation between job satisfaction and turnover intention ranged from 0.31 to 0.35, $p < .05$ (Table 7).

Conceptually, job satisfaction is an overall evaluation of the goodness or badness of the job, an attitude⁹. Since attitude predicts behavior, job satisfaction should predict turnover intentions. This prediction

9 See my discussion about stimulus sampling theory in Athiyaman, A. (2022). Young Illinoisans’ interests in farming. *Research Brief*, 4(14), July 16, 1-17. Available http://www.iira.org/wp-content/uploads/2022/07/Young-Illinoisans-Interests-in-Farming_RB4_14_.pdf.

Table 6: Job Satisfaction by Job Type and Metro / Non-Metro

Level of Satisfaction	Metro		Non-Metro	
	Line Personnel	Staff Personnel	Line Personnel	Staff Personnel
Very Satisfied	39%	48%	46%	57%
Somewhat Satisfied	42%	35%	33%	35%
Somewhat Dissatisfied	13%	10%	14%	4%
Very Dissatisfied	6%	7%	6%	4%
n	837	162	141	23

Note: Chi-square for the metro = 5.78 and the non-metro = 2.09; $p > .05$ in both the cases.

Table 7: Turnover Intentions by Satisfaction and Metro / Non-Metro

Satisfaction	Metro		Non-Metro	
	Likely to Leave	N (All Responses)	Likely to Leave	N (All Responses)
Very Satisfied	15%	355	14%	72
Somewhat Satisfied	32%	329	37%	43
Somewhat Dissatisfied	62%	80	40%	15
Very Dissatisfied	60%	48	57%	7
Chi-square, phi	100, 0.35		13, 0.31	

Note: All Chi-square statistics were significant at the $p < .05$ level; phi is the correlation between the variables satisfaction and turnover intention.

Burnout and Emotions

A majority of healthcare workers, both line and staff personnel, in the metro report being burned out (Table 8(a)); further exploration shows that only line personnel in the non-metro feel burned out. In general, demographics such as education and income do not correlate with burnout; in other words, one's level of education and income are independent of being burned out on the job.

To understand the predictors of burnout, a factorial logistic regression model was calibrated to assess the odds of **not** being burned out (that is, the Boolean variable was coded such that one's status of not

being burned out was assigned a value of "1" and being burned out a value of "0"). Feelings of anxiety, anger, hope, optimism and motivation, and gender were used as predictors; the interaction between anxiety and anger was also explored.

Table 8(b) shows the results of the regression run; the overall model is statistically significant, Likelihood ratio chi-square = 432.1130, $p < .0001$. Individual effects show that the anger * anxiety interaction and "hope" are insignificant. Also, burnout doesn't differ between men and women.

Table 8: Profile of Burned out Respondents and Predictors of Burnout**(a) Characteristics of Burned-Out Respondents**

Trait	Proportion Burned Out	Chi-Square (p value)
Non-metro residents	50%	.359 (.55)
Metro residents	53%	
Line professionals	53%	.4337 (.51)
Staff professionals	50%	
Education: Bachelor or higher	53%	2.7226 (.43)
Some college	52%	
High school graduate	48%	
Less than high school	83%	
Income: \$100k - \$150k	48%	3.6914 (.71)
\$75k - \$99K	55%	
\$150K or more	53%	
\$50k - \$74.99k	55%	
\$25k - \$49.99k	55%	
\$10k-\$25k	50%	
LT \$10k	50%	

(b) Wald Tests of Individual Effects: Predictors of Burnout

Predictor	Wald Chi-Square	P, > Chi-square
Anxiety	28.6885	<.0001
Anger	31.0927	<.0001
Anxiety x Anger (interaction)	0.8832	.3473
Drive	31.52	<.0001
Optimism	10.6578	.0011
Hope	2.5622	.1094
Gender	0.8944	.3443

Anger and anxiety are the results of excessive work, or job demands. The survey was implemented during the mature / decline phases of the Covid-19

pandemic; healthcare workers were still caring for a lot of Covid-19 patients and this could have created negative emotions; in fact, majority of the

respondents in the metro and 47% of the respondents in the non-metro agree that the American healthcare system is on the verge of collapse; also, negative beliefs about politics stimulate emotions (Table 9). However, job resources were plentiful¹⁰, so this would have enhanced

their drive or motivation to work and feel optimistic about work, avoid feeling burned out. One evidence for this argument is the association between 'drive' and 'career' variables - more than four-in-five of the motivated respondents say that they would pick a career in healthcare all over again ($r = 0.27$, $p < .05$).

Table 9: Beliefs about Healthcare

Belief	Metro	Non-Metro
	% Expressing the Belief (n)	% Expressing the Belief (n)
Love working in healthcare	82% (873)	91% (148)
American healthcare system is in the verge of collapse	54% (750)	47% (123)
Politics is making job harder	79% (889)	83% (146)

Summary and Conclusion

Burnout is extinction of behavior, a behavior that had been reinforced for a period of time was no longer reinforced, therefore, the behavior stopped occurring. The prevalence of burnout among healthcare workers was the focus of this research. Since the non-metro suffers from healthcare worker shortages, the empirical analysis involved analysis of burnout and turnover for the metro and the non-metro.

Data were from the USA Today / Ipsos survey of healthcare workers; the survey fielded during February 9-16, 2022, had a

sample size of 1170 adult respondents; 14% of the respondents were from the non-metro.

Data analysis reveals that:

- (i) more than 80% of the respondents from both the geographies were employed in line jobs, for example, physicians and nurses;

10 Athiyaman, A. (2021). Unused human resources in rural Illinois: A profile of "not in the labor force" population, January – October, 2021. *Research Brief*, 3(19), November 28. Available: <http://www.iira.org/wp-content/uploads/2021/11/Unused-human-resources.pdf>.

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- (ii) one-in-five 'line' personnel in the non-metro are dissatisfied with their work;
 - (iii) a majority of healthcare workers, both line and staff personnel, in the metro report being burned out; in contrast, only line personnel in the non-metro feel burned out;
 - (iv) burnout doesn't differ between men and women, and
 - (v) emotions such as anger, anxiety, drive, and hope predict burnout; for example, the motivation to be at work and feelings of optimism reduce burnout.

In conclusion, burnout is a consequence of certain characteristics of the healthcare work, for example, 24-hour shifts¹¹. Motivation to work reduces the impact of these work characteristics, but no one can maintain this level of activity, for example, 24-hour shifts, without becoming exhausted. Prevention strategies such as humanization of work schedules are needed; ideally, working hours exceeding eight hours should be eliminated.

¹¹ See, <https://www.cnn.com/interactive/2020/04/health/coronavirus-first-responders-cnnphotos/>.