

Title: Higher levels of neighborhood deprivation and risk for incident colorectal cancer and mortality outcomes: a systematic review and meta-analysis

Authors: Noelle K. LoConte, MD, Thomas Lawler, PhD, Lauren Giurini, Cibele B. Carroll, MD, Jennifer Weiss, MD, Shaneda Warren Andersen, PhD

Citation: Poster presented at ASCO Quality Care Symposium, 2024.

Funding: This project was supported by pilot funding obtained from the University of Wisconsin Carbone Cancer Center, as well as the University of Wisconsin Carbone Cancer Center Support Grant P30 CA014520.

Scientific Poster:

#131: Higher levels of neighborhood deprivation and risk for incident colorectal cancer and mortality outcomes: a systematic review and meta-analysis

Authors: Noelle K. LoConte, MD, Thomas Lawler, PhD, Lauren Giurini, Cibele B. Carroll, MD, Jennifer Weiss, MD, Shaneda Warren Andersen, PhD

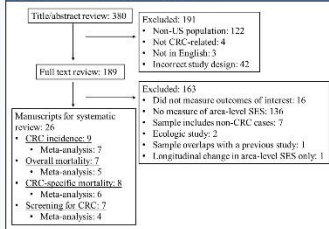
Background

- Colorectal cancer is the 4th most common cancer in the U.S., expected to cause more than 53,000 deaths in 2024¹. Incidence and mortality rates are elevated for the non-Hispanic Black and rural populations².
- Residing in a neighborhood with lower area-level socioeconomic status (SES) is an emerging risk factor for many chronic diseases, including colorectal cancer³.
- Low SES neighborhoods have higher rates of poverty and unemployment and reduced access to healthcare resources and nutritious foods⁴.
- Area-level SES can be measured at the census block or census tract level using composite indices such as the Area Deprivation Index⁵.
- We performed the first systematic review and meta-analysis of area-level SES and colorectal cancer incidence, mortality, and screening.

Methods

- Eligibility criteria: Original research articles concerning area-level SES and colorectal cancer incidence, mortality, and screening, in the U.S. population.
- Studies that measured area-level SES at the census block or census tract level were included.
- We performed an inverse-variance weighted meta-analysis with a fixed effects model to compare colorectal cancer outcomes for the lowest quantile of area-level SES compared to the highest.
- Data presented as hazard ratios (or odds ratios) with 95% confidence intervals.

Figure 1: Literature review flowchart



References

1. Siegel RL, Miller KD, Nogueira M, et al. Cancer statistics, 2024. *CA Cancer J Clin*. 2023;73(1):17-48. doi:10.3322/cajclin.21707
2. Siegel RL, Miller KD, Fuchs MA, et al. Cancer statistics, 2023. *CA Cancer J Clin*. Published online March 1, 2023. doi:10.3322/cajclin.21717
3. Pampaloni M, Lerner D, Bhatnagar S, et al. The role of area-level socioeconomic disadvantage in incident colorectal cancer: a population-based cohort study. *Cancer Med*. 2023;12(18):1627-1637. doi:10.1093/cnm/ckad063
4. Food and Nutrition Assistance (FNA) Program. <https://www.fns.gov/programs/food/foodbank>. The United States Department of Agriculture. 2023. <https://www.fns.gov/programs/food/foodbank>

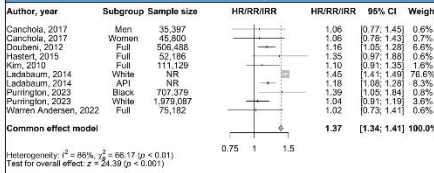
Residing in a neighborhood or area with lower SES is related to...

- 1) Increased risk for colorectal cancer**
- 2) Increased risk for colorectal cancer mortality**
- 3) Lower odds of completing screening for colorectal cancer**

Targeting healthcare resources to vulnerable communities may help to reduce the burden of colorectal cancer and mitigate racial disparities.

Results

Figure 2: Colorectal cancer risk for individuals residing in areas in the lowest quantile of area-level SES, compared to the highest.



Residing in an area in the lowest quantile of area-level SES is associated with 37% increased risk for incidence of colorectal cancer.

Funding

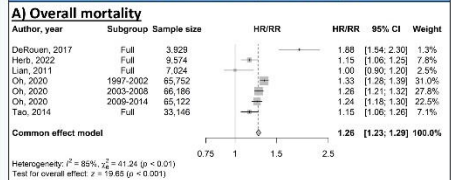
This project was supported by pilot funding obtained from the University of Wisconsin Carbone Cancer Center, as well as the University of Wisconsin Carbone Cancer Center Support Grant P30 CA014520.

Author contact

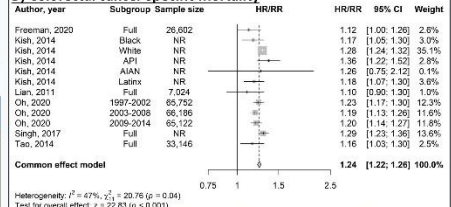
Noelle K. LoConte, MD
Associate Professor
Department of Medicine, University of Wisconsin School of Medicine and Public Health
n3@medicine.wisc.edu
608-265-5883

Results (continued)

Figure 3: Mortality risk for individuals with colorectal cancer residing in areas in the lowest quantile of area-level SES, compared to the highest.



B) Colorectal cancer specific mortality



Residing in an area in the lowest quantile of area-level SES is associated with 20-25% increased risk for mortality among persons with colorectal cancer.

Figure 4: Odds for completing colorectal cancer screening for individuals residing in the lowest quantile of area-level SES, compared to the highest



Residing in an area in the lowest quantile of area-level SES is associated with 24% lower odds for completing screening for colorectal cancer

Future directions

- Additional research is required to facilitate increased uptake of preventative screening for colorectal cancer in low-SES areas or neighborhoods.
- Interventions to increase adherence to screening guidelines must account for differences in neighborhood and individual-level SES that may impact access to healthcare resources.

Written Lay Abstract:

Population studies give us important information about what groups of people may be more likely to develop diseases such as cancer. This information can be used to let healthcare workers and policy makers know where health resources are needed most.

For this study, the researchers combined information from many population studies on the number of people who were screened for, had, or died with colorectal cancer in the US. The researchers found that, compared to areas with higher socioeconomic status, areas with lower socioeconomic status (lower income, education, and job status) tended to have fewer people who had colorectal cancer screening, more people who had colorectal cancer, and more people who had died with colorectal cancer.

This study tells us that areas with lower socioeconomic status may need healthcare resources to increase colorectal cancer screenings and lower the number of people who get or die of colorectal cancer.

Where can we focus our fight against colorectal cancer?



Researchers combined information from many population studies on people who were screened for, had, or died with colorectal cancer.



Lower socioeconomic status areas
(low income, education, and job status)



Fewer people screened for colorectal cancer



More people had or died with colorectal cancer

This study tells us that we could focus resources for colorectal cancer screening and care in areas with lower socioeconomic status.



Carbone Cancer Center
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

LoConte et al. Poster presented at ASCO
Quality Care Symposium, 2024.