The influence of socioeconomic status on health trajectories among older long-term cancer survivors

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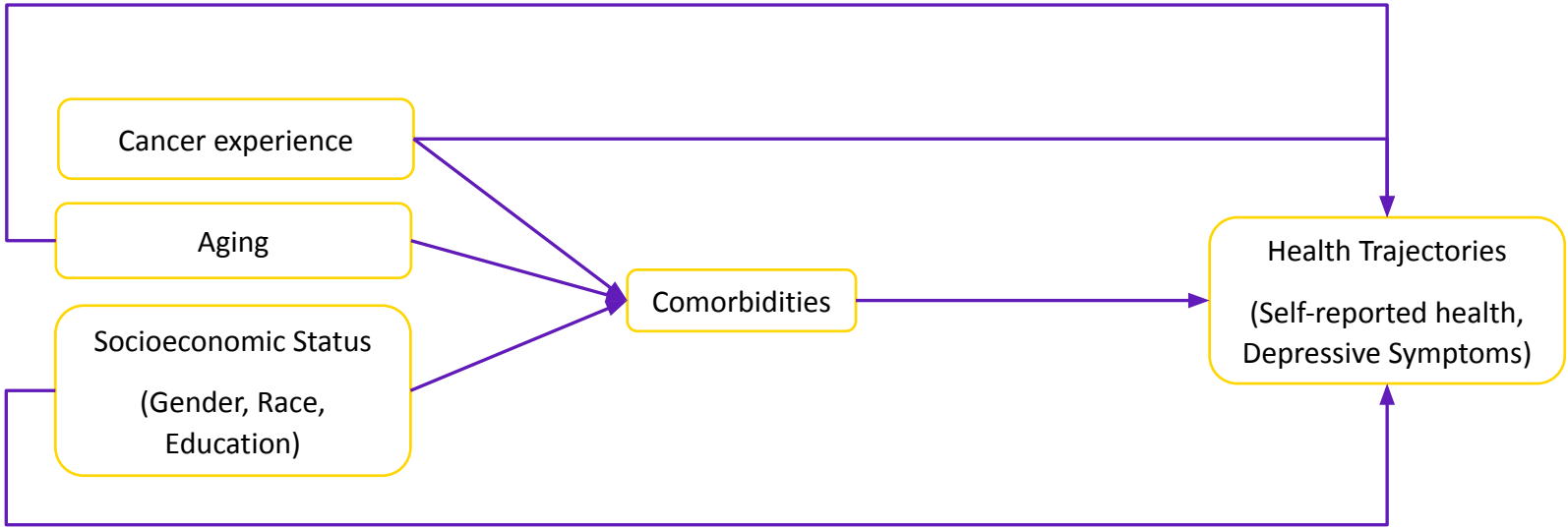
Background

- The population of older, long-term cancer survivors is growing.
- As people age, they are likely to develop other chronic diseases.
- Little is known about how cancer and aging influence older adults' health trajectories differently.

Research Questions

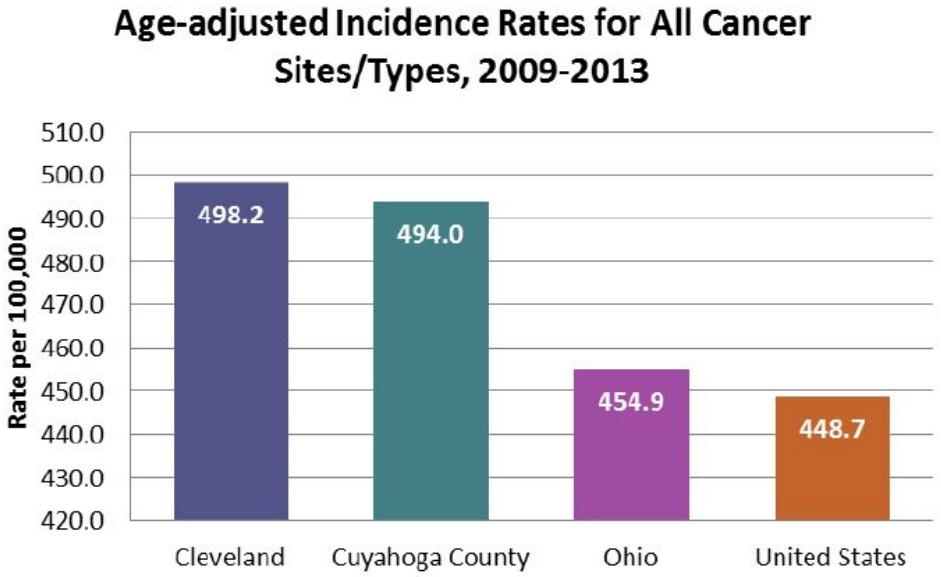
- What are the long-term effects of cancer experience and aging for older adults with and without a history of cancer?
- How socioeconomic status affects the health trajectory of older adults with and without a history of cancer?

Framework


Cancer experience
Aging
Socioeconomic Status
(Gender, Race, Education)
Comorbidities
Health Trajectories
(Self-reported health, Depressive Symptoms)

Cleveland Context

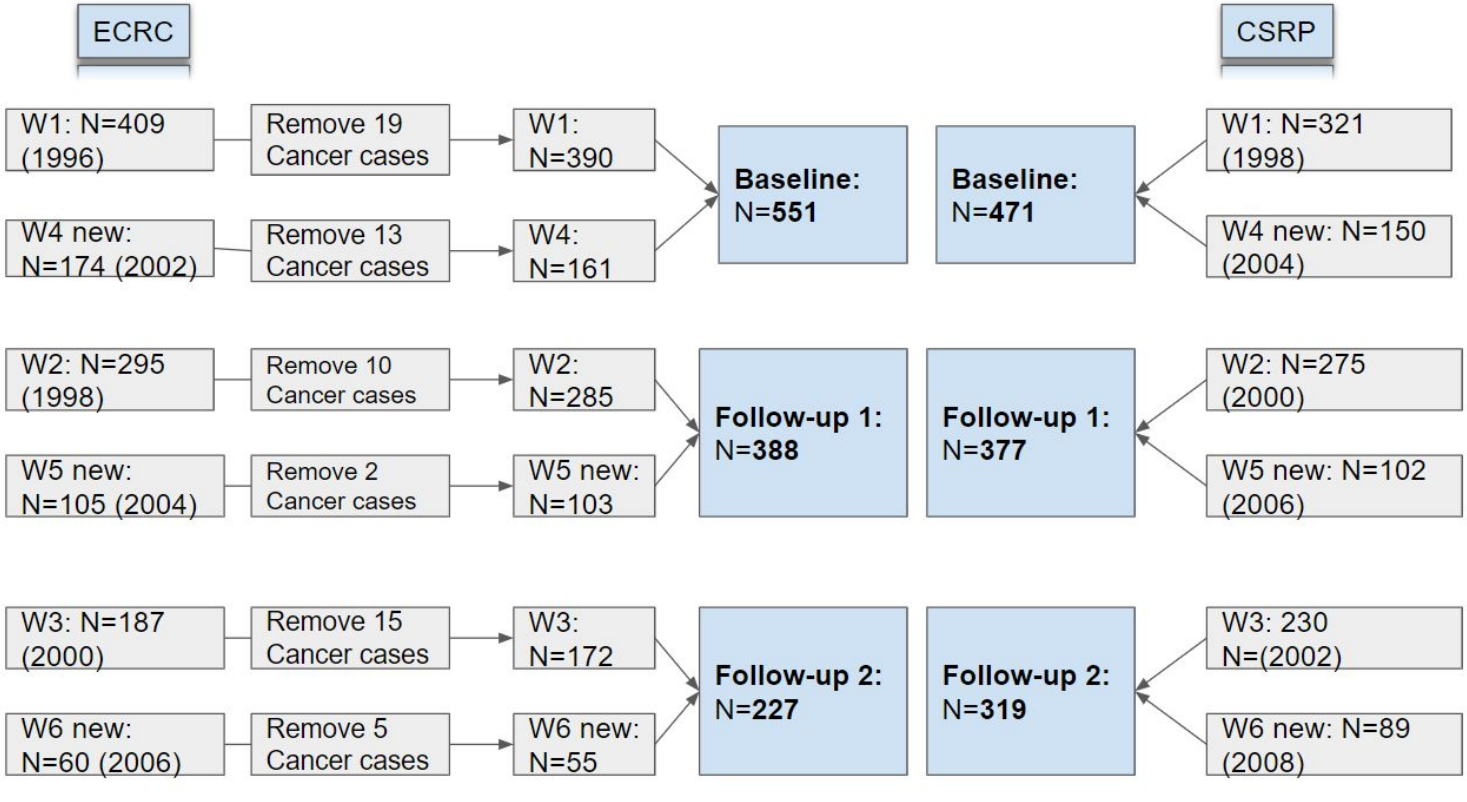
- Demographic features of the city
- Higher cancer incidence
  - African Americans in Cleveland were disproportionately affected by cancer



Methods

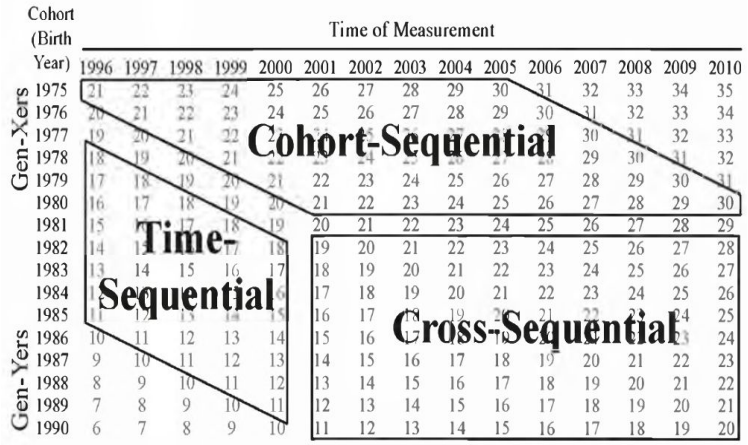
- Merged two National Institutes of Health (NIH) funded longitudinal studies in Cleveland from 1998 - 2010.
  - Cancer Survivor Research Project Data
    - long-term (5 years +) older cancer survivors (breast, prostate, and colorectal cancer)
    - The average years since diagnosis for these cancer survivors was 9.5 years. Nighty-one percent of cancer survivors were diagnosed with stage 3 or less at the first cancer diagnosis.
  - Elderly Care Research Center Data
    - Demographically-matched older adults without a history of cancer

Data


ECRC
CSRP
W1: N=409 (1996)
Remove 19 Cancer cases
W1: N=390
W4 new: N=174 (2002)
Remove 13 Cancer cases
W4: N=161
Baseline: N=551
Baseline: N=471
W1: N=321 (1998)
W4 new: N=150 (2004)
W2: N=295 (1998)
Remove 10 Cancer cases
W2: N=285
W5 new: N=105 (2004)
Remove 2 Cancer cases
W5 new: N=103
Follow-up 1: N=388
Follow-up 1: N=377
W2: N=275 (2000)
W5 new: N=102 (2006)
W3: N=187 (2000)
Remove 15 Cancer cases
W3: N=172
W6 new: N=60 (2006)
Remove 5 Cancer cases
W6 new: N=55
Follow-up 2: N=227
Follow-up 2: N=319
W3: 230 N=(2002)
W6 new: N=89 (2008)

The Cross-sequential design – combines longitudinal and cross-sectional methods

Monitors individuals of different ages for abbreviated periods of time



The cross-sequential design in the current study

Cohort (Birth Year)	Time of Measurement		
	1998	2000	2002
1903	95	97	99
1904	94	96	98
1905	93	95	97
1906	92	94	96
1907	91	93	95
1908	90	92	94
.	.	.	.
.	.	.	.
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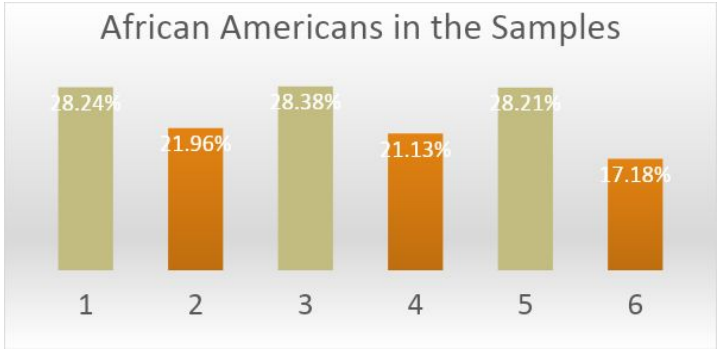
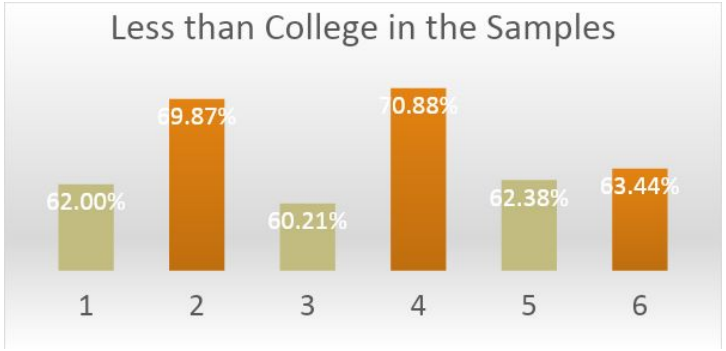
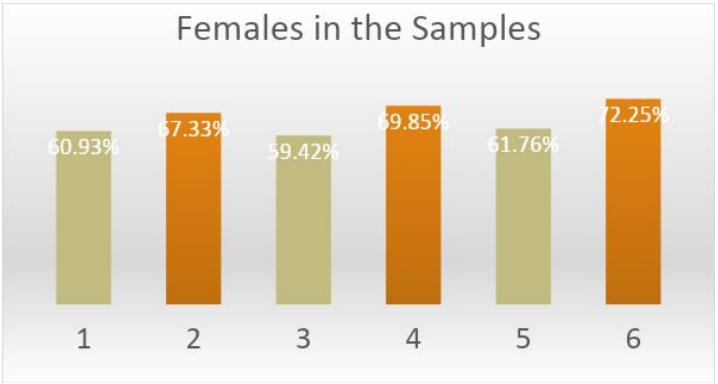
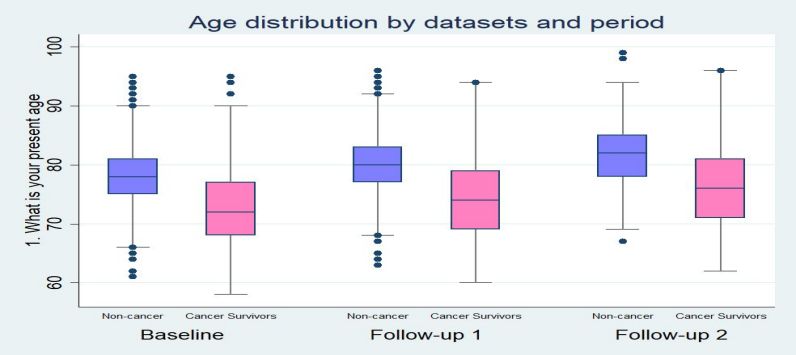
1940	58	60	62

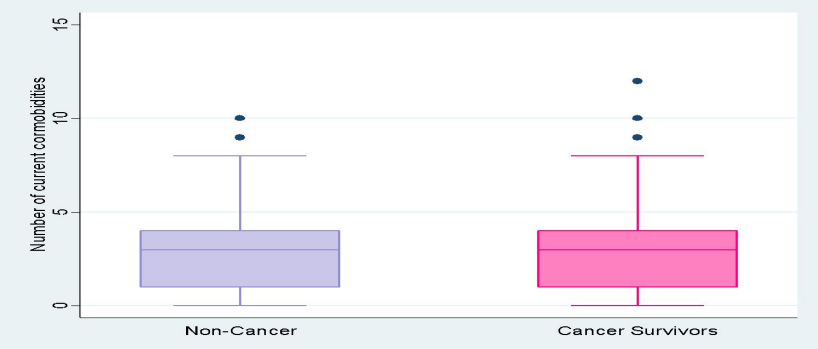


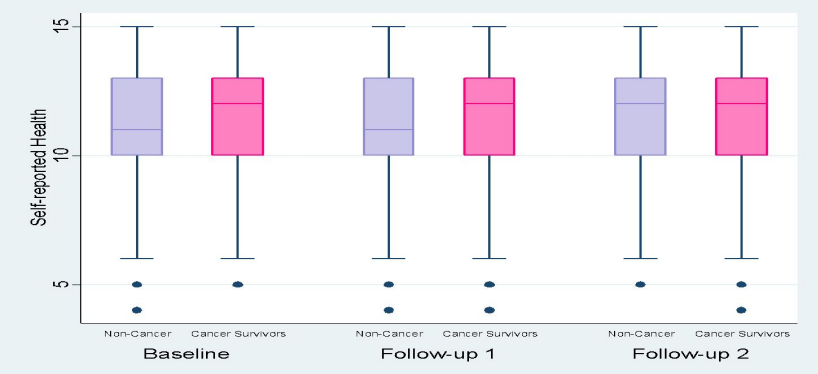


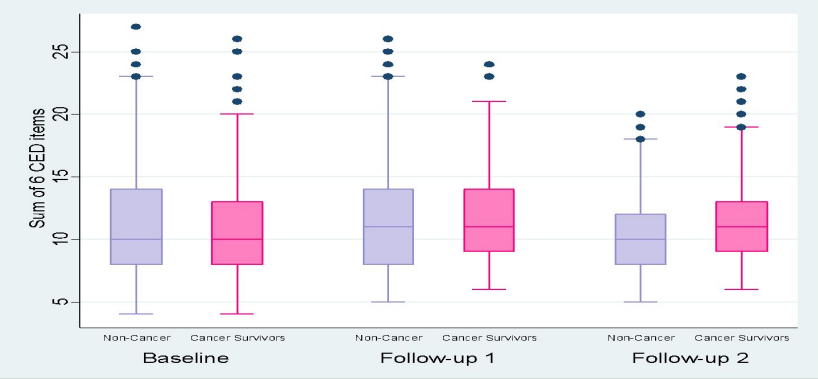


Data Descriptions









Data Descriptions

	Self-reported health				Depressive symptoms			
	M1				M2			
Fixed-Effect	Coef.	Std	Conf.	Interval	Coef.	Std	Conf.	Interval
Cancer	0.26	0.23	-0.19	0.72	0.04	0.21	-0.38	0.46
Age	-0.01	0.01	-0.02	0.01	0.01	0.01	-0.02	0.04
Comorbidities_baseline	-0.31***	0.04	-0.38	-0.24	0.26***	0.05	0.16	0.36
African Americans	-0.42*	0.18	-0.79	-0.06	-0.41+	0.24	-0.88	0.07
Female	-0.07	0.16	-0.38	0.24	0.79***	0.21	0.37	1.21
Less college	-0.58***	0.12	-0.81	-0.34	0.34	0.22	-0.09	0.78
Cancer*Comorbidities	-0.02	0.06	-0.13	0.09				
Cancer*African American	-0.56*	0.25	-1.06	-0.07				
cancer*Less college	0.14	0.23	-0.30	0.59				
Cancer*female	-0.01	0.01	-0.02	0.01				
Intercept	13.48***	0.62	12.26	14.71	9.24	1.14	7.01	11.48
Random-Effect (var.)	Estimate	Std	Conf.	Interval	Estimate	Std	Conf.	Interval
Level-2 Slope	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Level-2 Intercept	1.78	0.61	0.91	3.50	7.44	0.48	6.57	8.43
Level-1 Residual	1.73	0.07	1.60	1.87	5.81	0.23	5.37	6.27
Model fit								
Log Likelihood	-4491.39				-5976.51			
AIC	9010.77				11973.02			

+ p<.1; *p<.05; **p<.01; ***p<.001

The effect of cancer, age, comorbidities, demographic features, living arrangement, and interactions on the trend of health status

Note: the random intercept model shows the same results

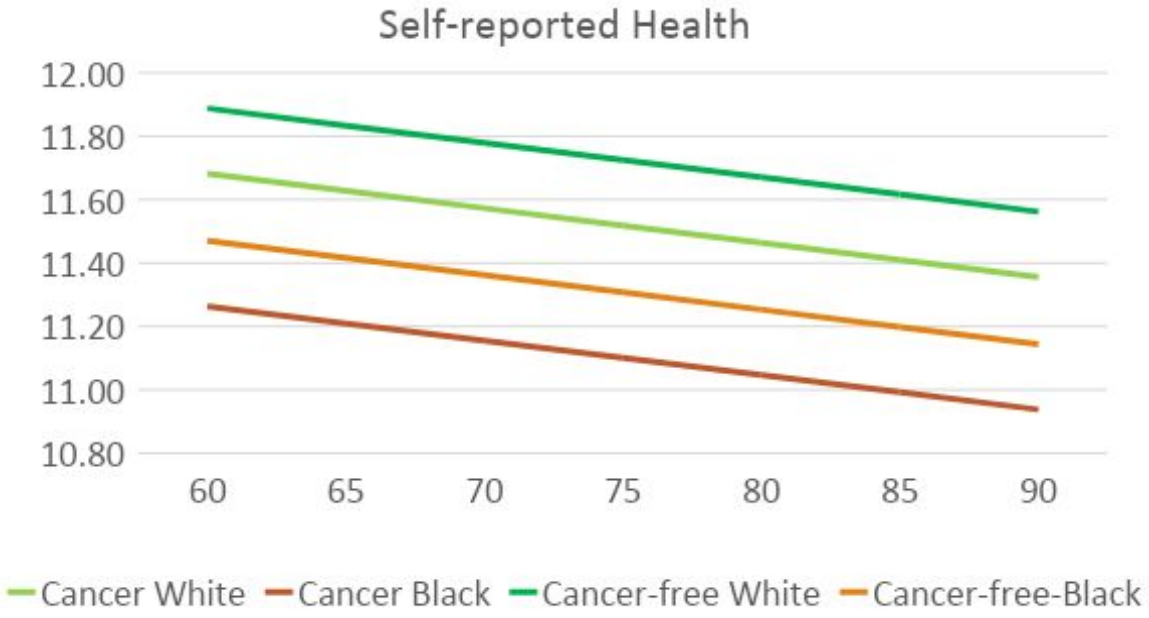
DISCUSSION – finding 1

- Cancer itself did not have an impact on health status.
- Age itself did not have an impact on health status.
- Comorbidities play an important role
- Cancer did not have an association with the number of comorbidities

DISCUSSION – finding 2

- Demographic characteristic did have effects on health status, but the effects on Self-reported health and depressive symptoms were different.
  - *African American older cancer survivors reported poorer health than whites, although cancer did not widen the gap*
  - *African American cancer survivors show little disadvantage in depression risk*
  - *Less than college degrees reported lower levels of self-reported health than others.*
  - *Women reported higher levels of depressive symptoms than their male counterparts.*
  - *The interactions between cancer and gender and between cancer and education were not significant.*

Predicted self-reported health



STUDY LIMITATION & FUTURE RESEARCH

- The study did not include older cancer patients who were institutionalized and did not survive longer than five years.
- Unhealthy people may drop off the study because of health conditions, death, or moving to institutions.
- Future studies could recruit more people to explore the intersectional effects between cancer, gender, race, and education.

CONCLUSION - 1

- The findings showed that early cancer experience did not impact long-term cancer survivors' health status in later life.
- Comorbidities are important to older adults’ health.

CONCLUSION - 2

- The long-term health effects of social structural inequalities
  - African-American, female, having less than a college degree, and living alone significantly influenced the health trajectory in later life for all older adults.

- Compared to other groups, older African-American cancer survivors reported the lowest level in self-reported health after controlling for other conditions.

Thank you!

Q & A?

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