

# Depressive symptoms, socioeconomic position and mortality in older people with cancer

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# Outline



Background



Aims



Methods



Results



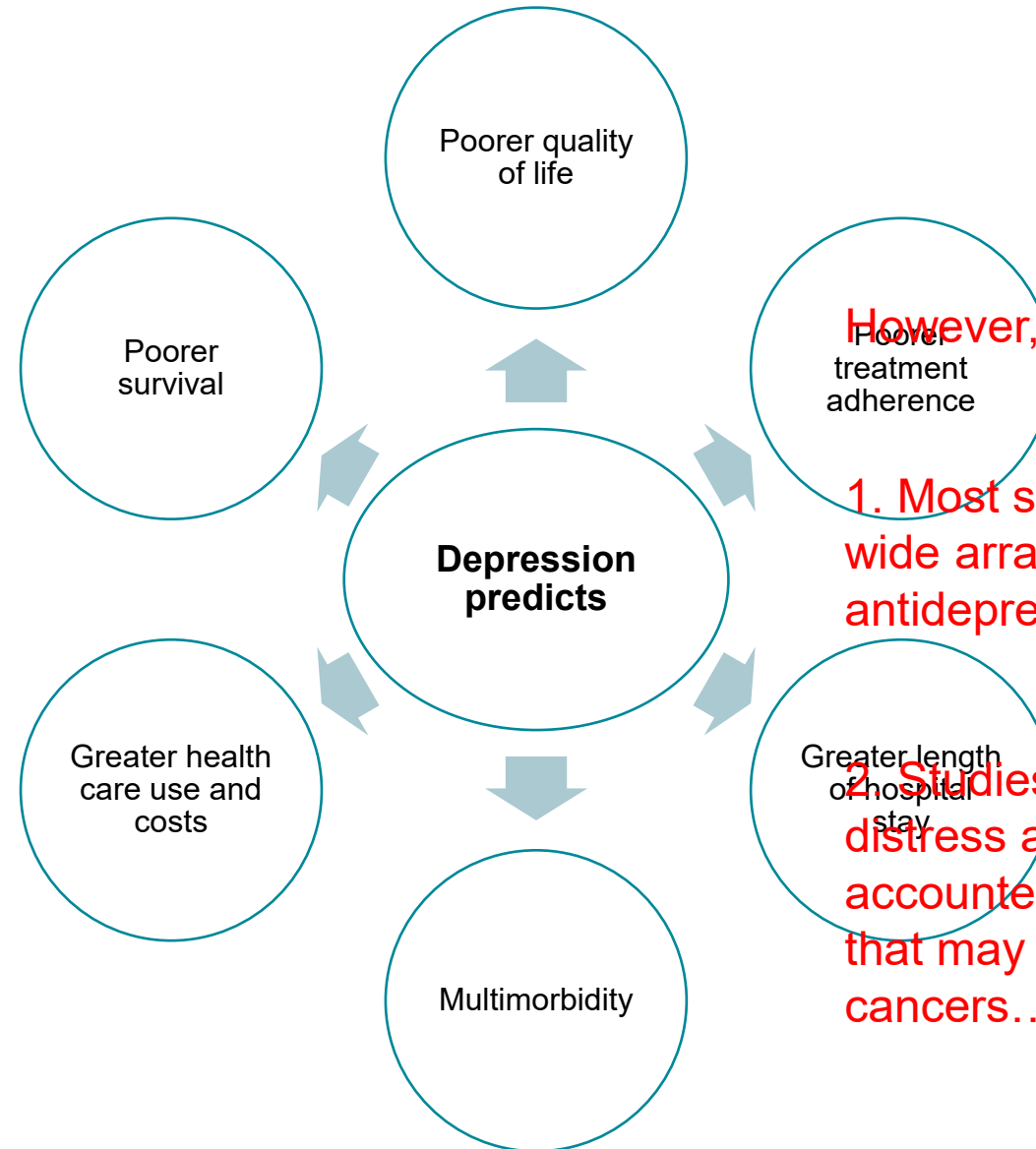
Conclusions

# Depression and cancer



A young woman with dark, curly hair is shown in profile, looking down with a thoughtful or distressed expression. Her hand is resting on her chin. The background is a soft, out-of-focus indoor setting.

**50%**

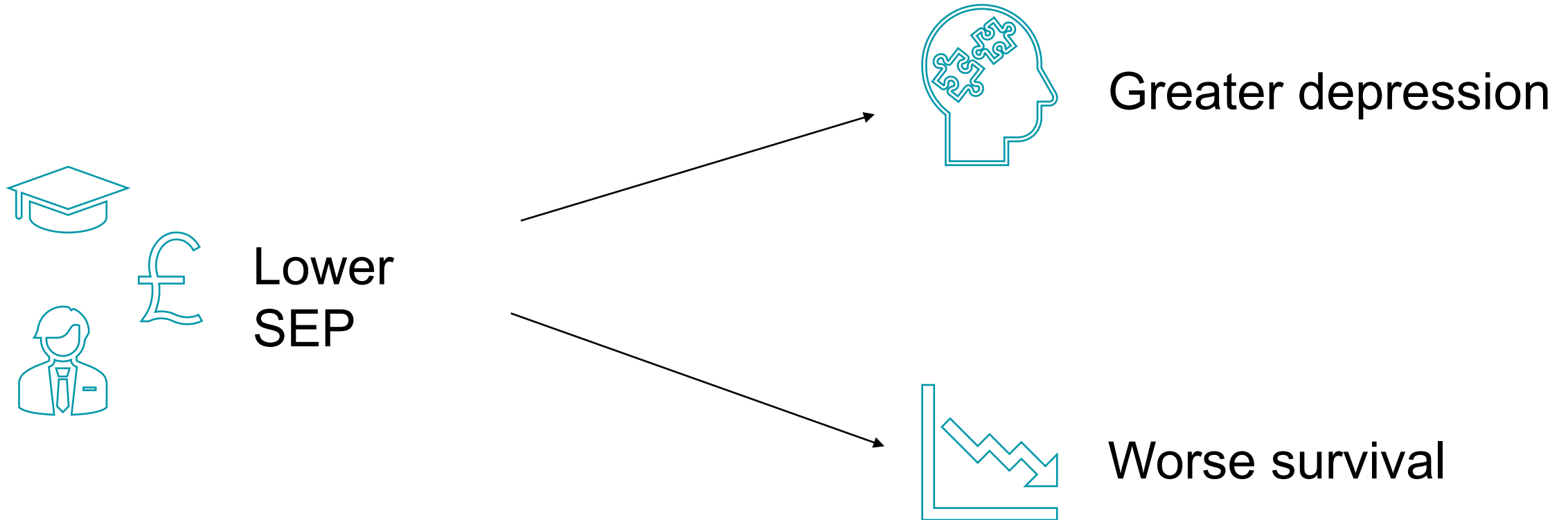


However, research is limited...  
 Poorer treatment adherence

1. Most studies have not controlled for a wide array of potential confounders e.g. antidepressant use...

2. Studies looking at association between distress and cancer mortality have not accounted for competing causes of death that may have precluded death from cancers...

# Socioeconomic position (SEP)



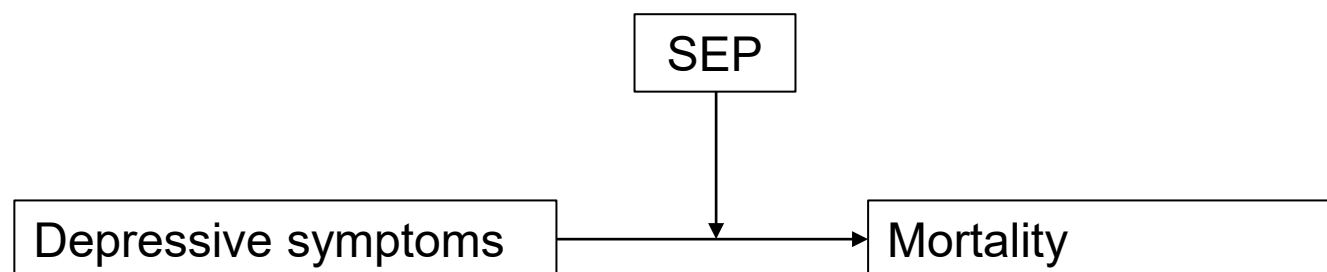
Kogevinas M, Marmot MG, Fox AJ, Goldblatt PO. Socioeconomic differences in cancer survival. *J Epidemiol Community Health*. 1991;45(3):216-9.

Chidobem I, Tian F, Mgbodile C, Mgbodile F, Jokar TO, Ogbuokiri E, et al. Assessing the Relationship between Socioeconomic Status, Race, and Psychological Distress in Cancer Survivors: A Population Based Study. *Current Oncology*. 2022;29(4):2575-82.

Link BG, Phelan J. Social conditions as fundamental causes of disease. *J Health Soc Behav*. 1995;Spec No:80-94.

# Aims

1. To examine the associations between depressive symptoms and both cancer and all-cause mortality in people affected by cancer, adjusting for multiple confounders.
2. To examine whether SEP moderates the associations of depressive symptoms with cancer and all-cause mortality.



# Methods

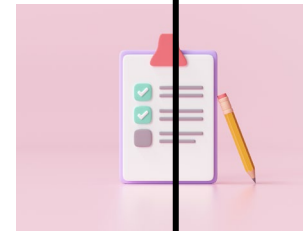
## Dataset



## Participants

People diagnosed with cancer who had a measure of depressive symptoms within 4 years after diagnosis (Trudel-Fitzgerald et al., 2020)

## Depressive symptoms



Centre for Epidemiologic Studies Depression Scale (CESD-8) (Turvey et al., 1999)

## SEP



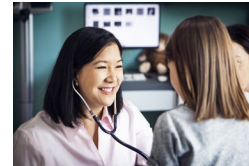
Total non-pension household wealth

## Cancer and mortality data



Digital

## Covariates



## Analysis

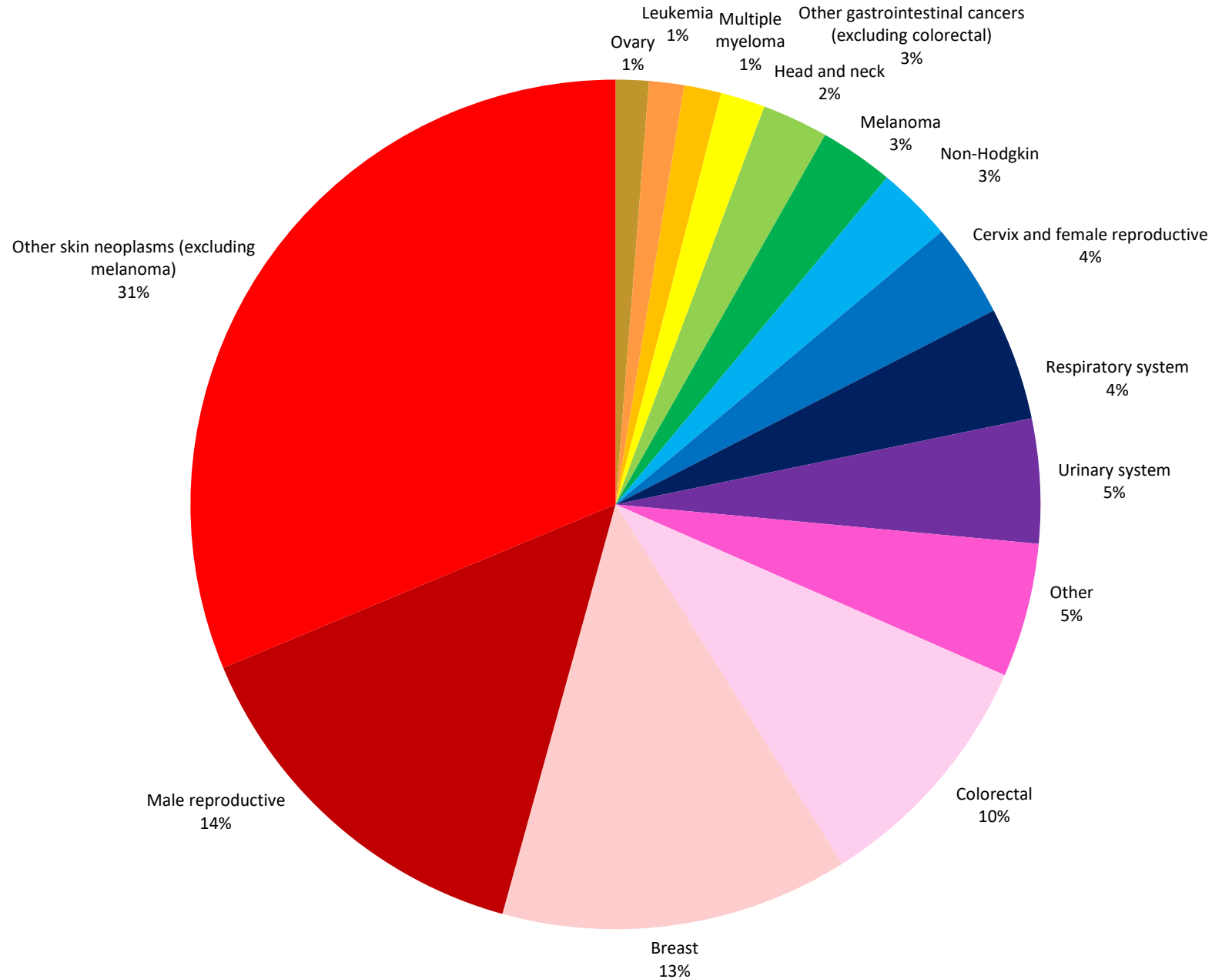
- Multiple imputation
- Cox proportional hazards regression
- Competing risk regression
- Sensitivity analyses





# Participants

N = 1352  
 596 died (44.1%)  
 335 died from cancer (24.5%)  
  
 Mean follow up: 7.3 years  
 (range: 0-16 years)  
  
 Mean age: 69.6 years  
 51.5% male  
  
 26.1% reported elevated depressive symptoms



# Results – all-cause mortality

**No interactions with SEP**

Follow-up	Model	HR (95% CI)	P value
<b>&lt;4 years</b>		<i>N deaths/N total = 314/1352</i>	
	Model 1	2.35 (1.87-2.95)	<0.001***
	Model 2	1.93 (1.52-2.45)	<0.001***
<b>4-8 years</b>		<i>N deaths/N total = 154/919</i>	
	Model 1	1.74 (1.23-2.46)	0.002**
	Model 2	1.48 (1.02-2.13)	0.037*
<b>≥8 years</b>		<i>N deaths/N total = 128/509</i>	
	Model 1	1.12 (0.72-1.74)	0.621
	Model 2	1.07 (0.67-1.70)	0.777

Model 1 adjusted for age and sex.

Model 2 adjusted for age, sex, ethnicity, marital status, wealth, number of comorbidities, alcohol-related cancer type (yes/no), smoking-related cancer type (yes/no), age at cancer diagnosis, time between cancer diagnosis and depressive symptoms assessment, and antidepressant medication (yes/no).

# Results – cancer mortality

No interactions with SEP

	SHR (95% CI)	P value
	N deaths/N total = 335/1352	
Model 1	1.42 (1.12-1.81)	0.004*
Model 2	1.38 (1.07-1.78)	0.014*

However, after excluding people who died within 1 year of baseline assessments (reverse causality), there was **NO association!**

SHR = subdistribution hazard ratio

Model 1 adjusted for age and sex.

Model 2 adjusted for age, sex, ethnicity, marital status, wealth, number of comorbidities, alcohol-related cancer type (yes/no), smoking-related cancer type (yes/no), age at cancer diagnosis, time between cancer diagnosis and depressive symptoms assessment, and antidepressant medication (yes/no).

# Conclusions

- High depressive symptoms are associated with increased risk for all-cause mortality in people diagnosed with cancer when the follow-up is **<8 years**
- Stronger association when follow-up is **shorter** (<4 years vs 4-8 years)
- Association between depressive symptoms and cancer mortality might be due to **reverse causality**
- **SEP** does not moderate associations between depressive symptoms and mortality in people diagnosed with cancer

# Implications

- It is crucial to screen for and effectively treat depression following a cancer diagnosis
  - Particularly in the early phases of diagnosis
- Future work: what are the underlying mechanisms?
- Strengths: many confounders, competing risk regression, long follow-up, data linkage, multiple imputation
  - Limitations: could not adjust for measures of cancer severity, CESD is not cancer-specific, combining different cancer types

# Thank you for listening!

## Any questions?

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