# Mortality and Obesity among Older Adults: The Role of Polygenic Risk

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# Background

- What we know: The relationship between obesity and mortality
- What we do not know: How does the pathway to obesity impact this relationship?
- Why is this important: Implications for public health, population research, and health practitioners

## Data and Measures

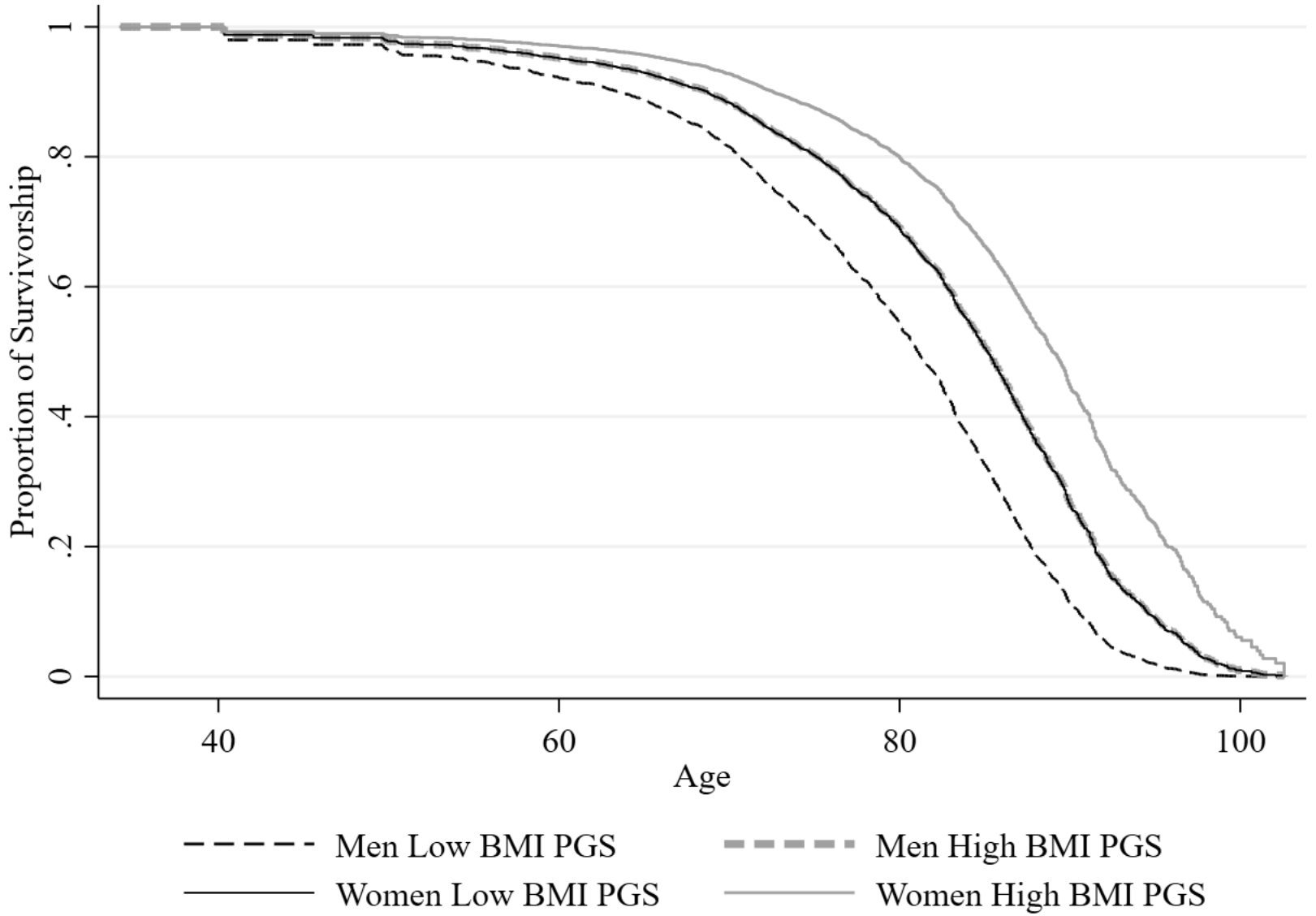
- Health and Retirement Study 1992-2014
- 11,843 non-Hispanic white adults aged 50 or older
- Body Mass Index
  - Non-Obese (BMI < 30.0)
  - Obese 1 (BMI 30.0 – 34.9)
  - Obese 2/3 (BMI ≥ 35.0)
- Polygenic Risk for Obesity
  - Low (≤ -1σ)
  - Average (-1σ < X < 1σ)
  - High (≥ 1σ)

## Methods

- Cox Proportional Hazard Models
  - Males
  - Females
  - Total
- Control for top ten PC

# Results

| | Total | | Female | | Male | |
|---|---|---|---|---|---|---|
| | HR | 95%C.I. | HR | 95%C.I. | HR | 95%C.I. |
| Body Mass Index [Ref. 18.5-29.9] | | | | | | |
| Obese I [30.0-34.9] | 0.79 | 0.48, 1.31 | 0.61 | 0.25, 1.50 | 0.84 | 0.46, 1.57 |
| Obese II/III [≥35.0] | 3.17 | 1.73, 5.81 | 3.94 | 1.72, 9.04 | 2.63 | 1.07, 6.46 |
| BMI PGS [ Ref. Low ≤ -1σ ] | | | | | | |
| Average [-1σ< PGS < 1σ] | 1.18 | 1.02, 1.37 | 1.31 | 1.06, 1.63 | 1.07 | 0.88, 1.31 |
| High [PGS ≥ 1σ] | 1.33 | 1.09, 1.61 | 1.62 | 1.18, 2.09 | 1.10 | 0.84, 1.44 |
| Interaction Effects | | | | | | |
| Obese I x Average | 1.37 | 0.80, 2.32 | 1.79 | 0.71, 4.52 | 1.23 | 0.64, 2.36 |
| Obese II/III x Average | 0.45 | 0.24, 0.85 | 0.39 | 0.16, 0.94 | 0.53 | 0.20, 1.39 |
| Obese I x High | 1.38 | 0.78, 2.46 | 1.73 | 0.65, 4.66 | 1.29 | 0.63, 2.65 |
| Obese II/III x High | 0.37 | 0.18, 0.75 | 0.33 | 0.13, 0.86 | 0.41 | 0.14, 1.17 |
| Years of Education | 0.95 | 0.94, 0.97 | 0.94 | 0.92, 0.97 | 0.95 | 0.93, 0.97 |
| Average Self-Report Limitation | 1.42 | 1.32, 1.55 | 1.53 | 1.37, 1.71 | 1.39 | 1.23, 1.57 |


Proportion of Survivorship
0
.2
.4
.6
.8
1
40
60
80
100
Age
Men Low BMI PGS
Men High BMI PGS
Women Low BMI PGS
Women High BMI PGS

# Thank you!

- Main Conclusion:
  - We posit that the pathway to obesity, in this case more socio-behavioral rather than genetic, may influence subsequent risk of death in older adults.

- Contact
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