

Maternal Weight Change in Pregnancy is Associated with Women's Long-term Mortality

Stefanie N. Hinkle, Sunni L. Mumford, Katherine L. Grantz, Pauline Mendola, James L. Mills, Edwina H. Yeung, Anna Z. Pollack, Sonia M. Grandi, Rajeshwari Sundaram, Yan Qiao, Enrique F. Schisterman, Cuilin Zhang



What we know:

High weight gain in pregnancy is associated with greater postpartum weight retention.

What we don't know:

Whether weight gain in pregnancy impacts women's long-term health and mortality.

What we found:

Women's pregnancy weight change had a U-shaped relationship with long-term mortality.

Compared to women with average pregnancy weight gain, women with weight loss or lowest weight gain, and women with highest weight gain, had a 7% and 9% increased mortality risk, respectively.

METHODS

Prospective cohort of pregnant women in 1959-1965 linked to death records for vital status through 2016.



n=46,042

Mean age 24.5
(SD 6.2)

45% Black
46% White



Total Gestational Weight Change

Median 9.5 kg
(IQR 6.4-12.2)
2.5% lost weight during pregnancy



Records linked to the NDI and social security death master file

52 years follow up
(IQR 45-54)

38.9% of women died

RESULTS

Total pregnancy weight change in quintiles and the association with all-cause and cause specific mortality.

	Total Pregnancy Weight Change				
	Adjusted Hazard Ratio (95% CI)				
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
All causes	1.07 (1.01, 1.12)	1.03 (0.98, 1.09)	1.00 (ref)	1.01 (0.96, 1.07)	1.09 (1.03, 1.14)
Cancer	1.20 (0.99, 1.46)	1.15 (0.95, 1.40)	1.00 (ref)	0.99 (0.81, 1.23)	1.19 (0.98, 1.45)
Cardiovascular	1.05 (0.96, 1.15)	1.00 (0.90, 1.11)	1.00 (ref)	1.04 (0.94, 1.15)	1.14 (1.03, 1.27)
Respiratory Disease	1.14 (0.96, 1.37)	1.00 (0.84, 1.19)	1.00 (ref)	0.79 (0.65, 0.95)	0.95 (0.78, 1.14)
Diabetes	0.92 (0.72, 1.17)	0.88 (0.69, 1.11)	1.00 (ref)	1.10 (0.85, 1.41)	1.52 (1.20, 1.92)
Dementia	1.15 (0.85, 1.56)	1.02 (0.76, 1.38)	1.00 (ref)	1.08 (0.83, 1.42)	0.96 (0.67, 1.37)
Infection	1.14 (0.84, 1.54)	1.10 (0.84, 1.45)	1.00 (ref)	1.16 (0.85, 1.58)	1.29 (0.96, 1.71)
Kidney Disease	1.18 (0.84, 1.64)	1.02 (0.71, 1.47)	1.00 (ref)	1.09 (0.74, 1.60)	0.99 (0.68, 1.45)
Liver Disease	1.21 (0.76, 1.92)	1.37 (0.90, 2.07)	1.00 (ref)	0.90 (0.56, 1.45)	1.04 (0.66, 1.65)
Other Causes	0.95 (0.83, 1.09)	0.97 (0.86, 1.10)	1.00 (ref)	0.93 (0.82, 1.07)	0.95 (0.83, 1.10)

Analyses adjusted for the following index pregnancy variables: age, smoking, race, parity, marital status, income, education, prior medical conditions, site, study year, pre-pregnancy body mass index, gestational week at delivery.

What the results mean:

Pregnancy weight gain has implications beyond the pregnancy window. Pregnancy weight gain should be a target for advancing women's health over the life span.