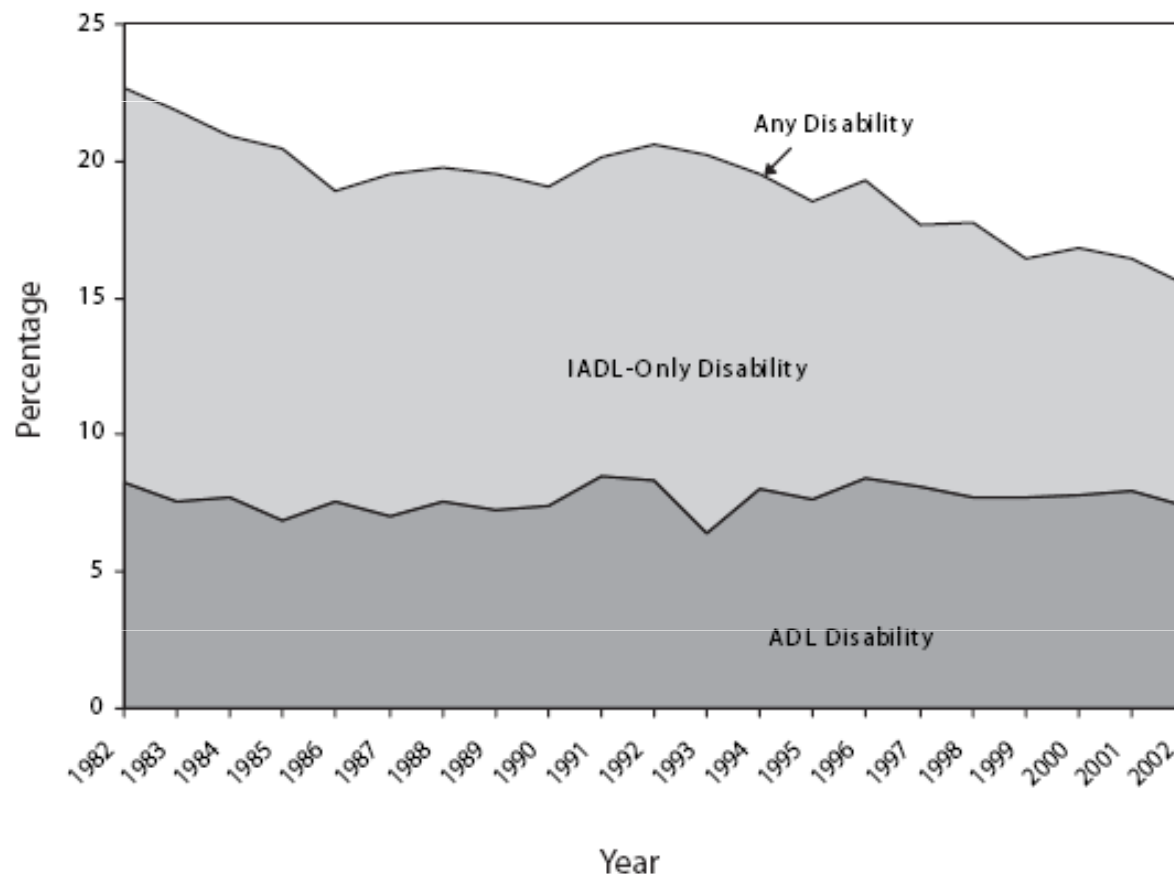


Functioning and recovery
in later life.

Does obesity matter?

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Percent of the population 70 and older who have a disability: 1982 to 2002



Note. IADL = instrumental activity of daily living; ADL = activity of daily living.

FIGURE 1—Percentage of the population 70 years of age and older with ADL, IADL-only, and any disability, 1982–2002.

Some previous work on recovery

- Recovery is included in transition models
 - Crimmins, Hayward, Saito, Freedman, Manton, Jagger, Deeg, Robine, etc.
- Wolf, et al. 2007
 - Downward trend in the probability of recovering from disability (EPESE)
- Gill and Hardy, several studies using EPESE
 - Health behaviors play a role in recovery
- Melzer et al. 2001
 - Mobility recovery declines with age, recovery not assoc. with educational level

- Past studies don't differentiate by ADL or by disease
- Can recovery, or trends in recovery, explain any part of the overall disability picture?

Some people recover ADL functioning

- Does recovery vary by ADL? Are some “easier” to recover than others?
- Are some ADL limitations more strongly related to mortality than others?
- Do the associated chronic conditions vary by ADL and by recovery?
 - Are some diseases “easier” to recover from?
- Is obesity associated with recovery?

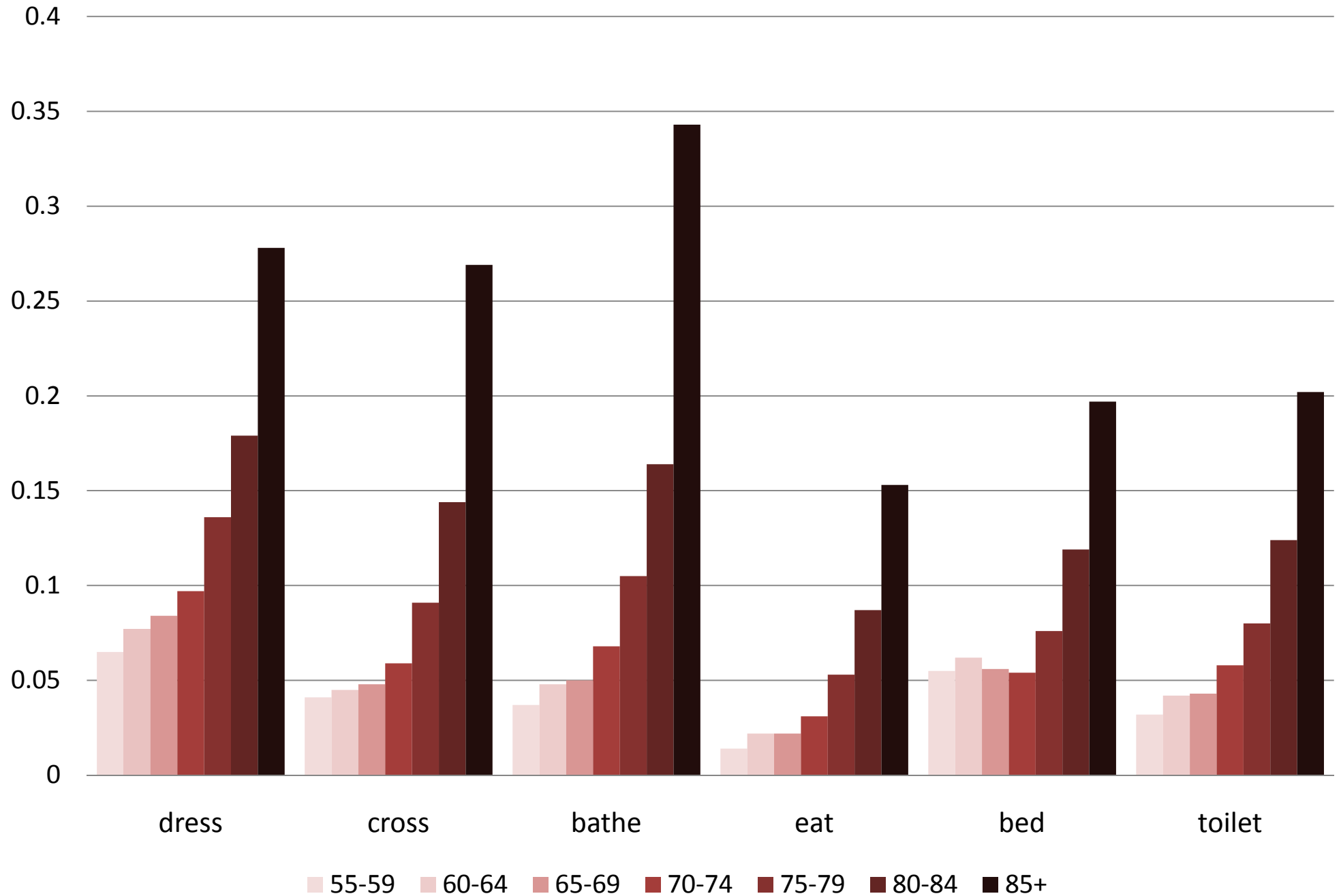
Data

- HRS, start with 1998 wave
- Aged 55 and older in 1998
- Since ultimate goal is to examine obesity,
I include only those with BMI ≥ 18.0
 - Excludes many very frail with ADL limitations

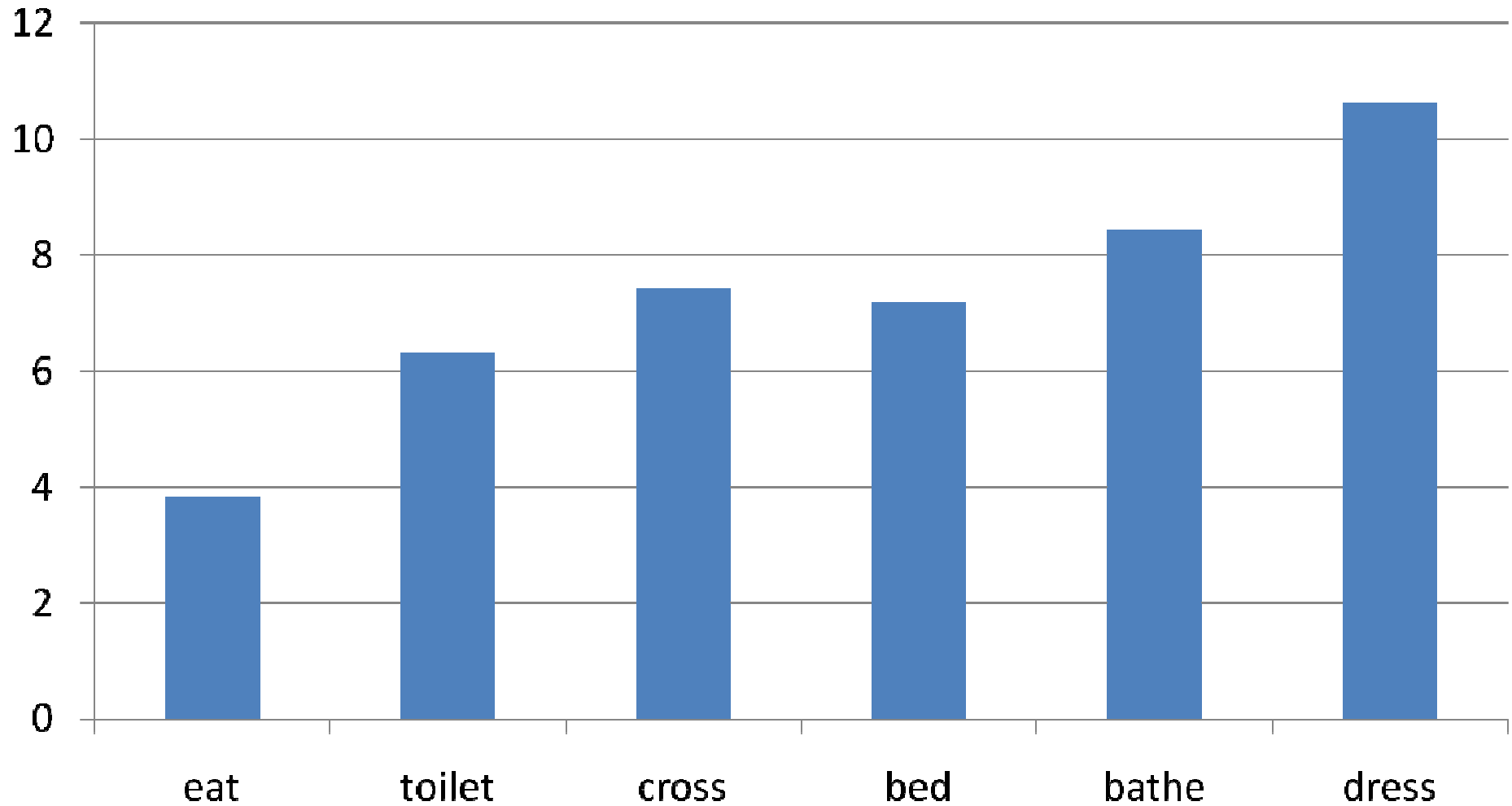
Baseline characteristics; HRS 1998 wave

	Men	Women
Mean Age	68.2	69.3
Mean BMI	26.97	26.74
% Obese	20.2%	22.5%
% zero ADL limitations	85.1%	79.0%
% zero Chronic conditions	19.1%	16.3%
N	7,783	9,859

ADL Limitation by age group

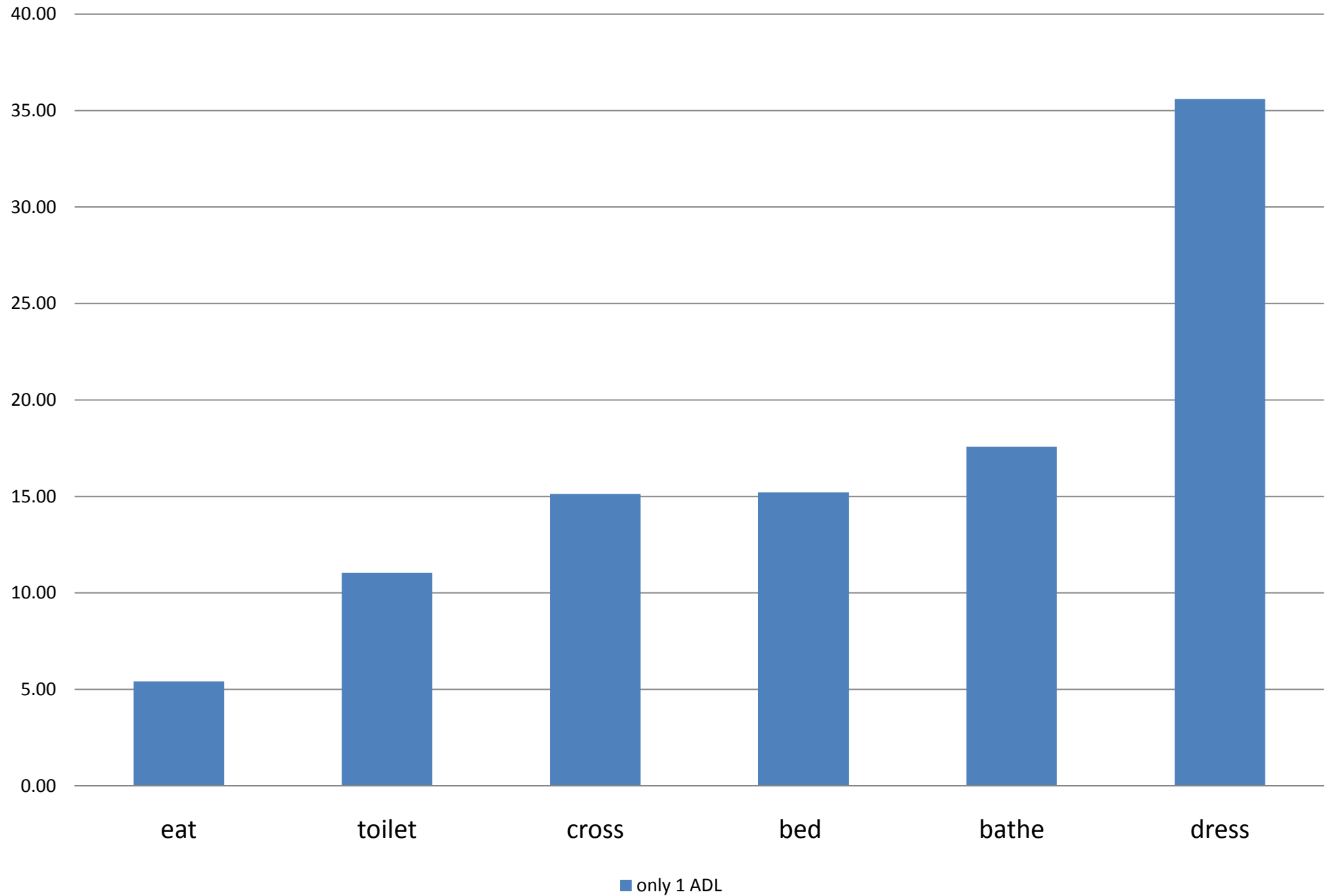


Percent with any ADL limitation

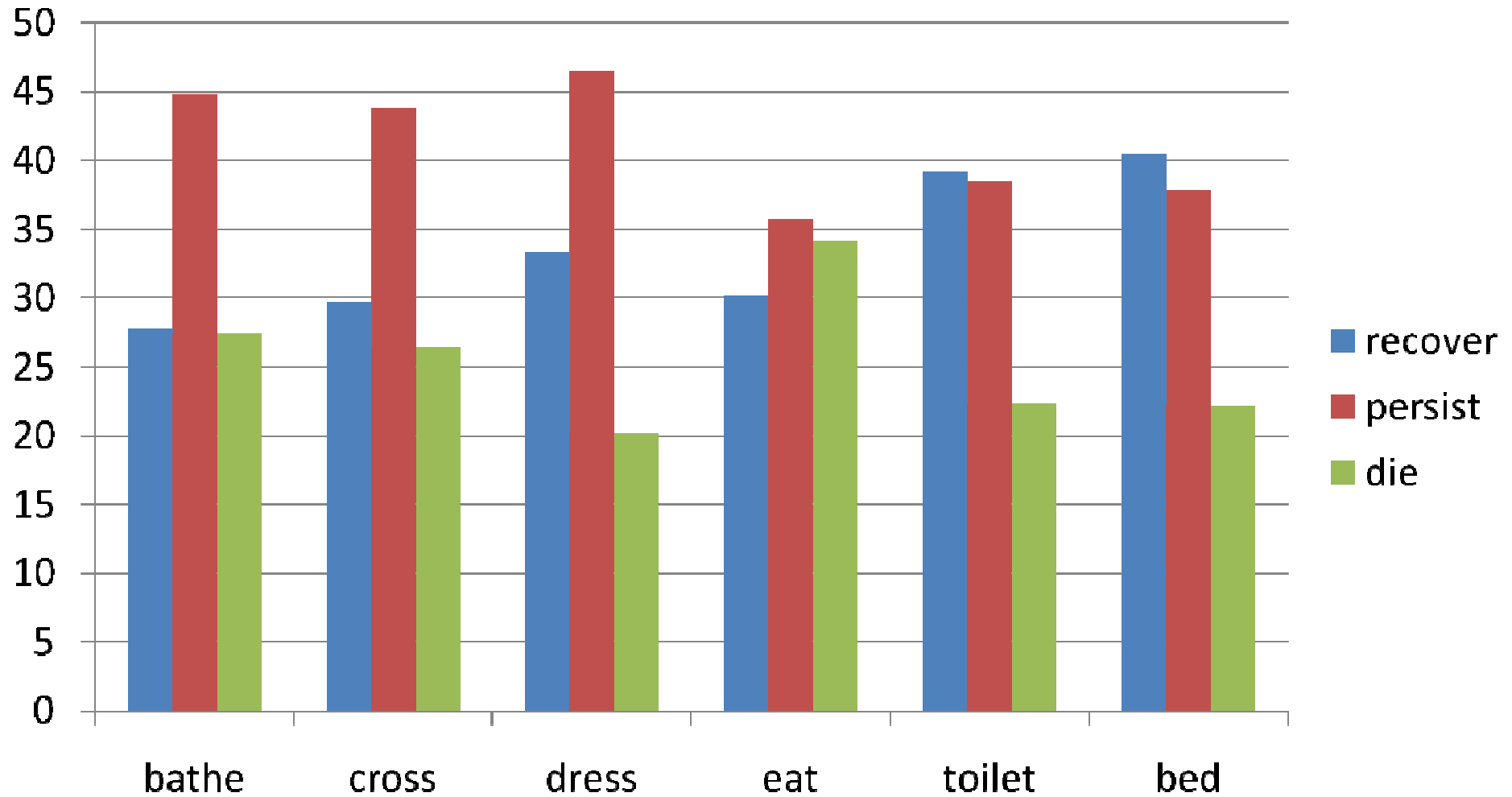


- Look at LEAST disabled, those with only 1 ADL limitation....

Distribution of ADL limitations for those with only 1 limitation

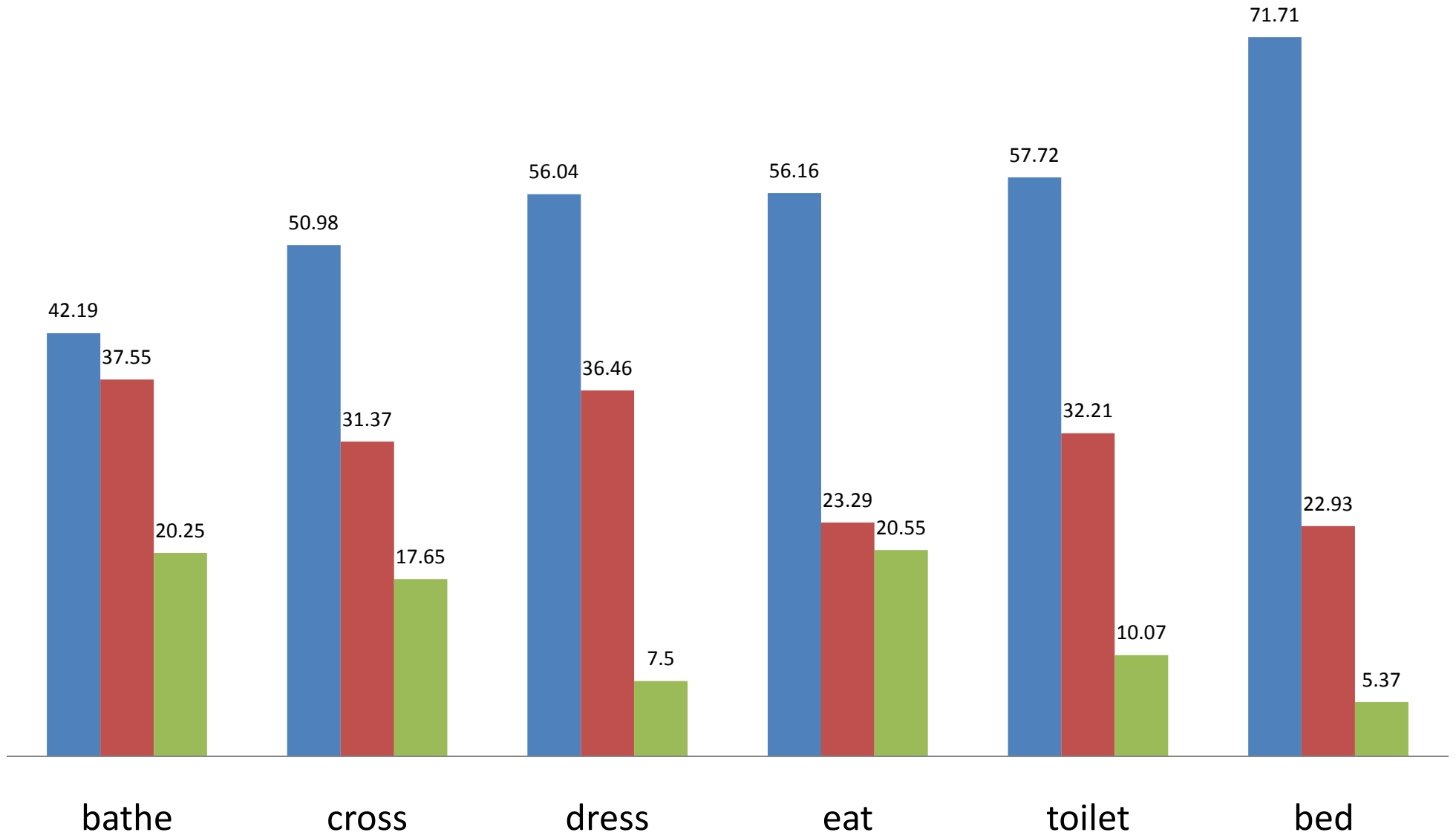


1998 to 2000 status change, any ADL limitation



Of those with only 1 ADL limitation in 1998, outcome in 2000

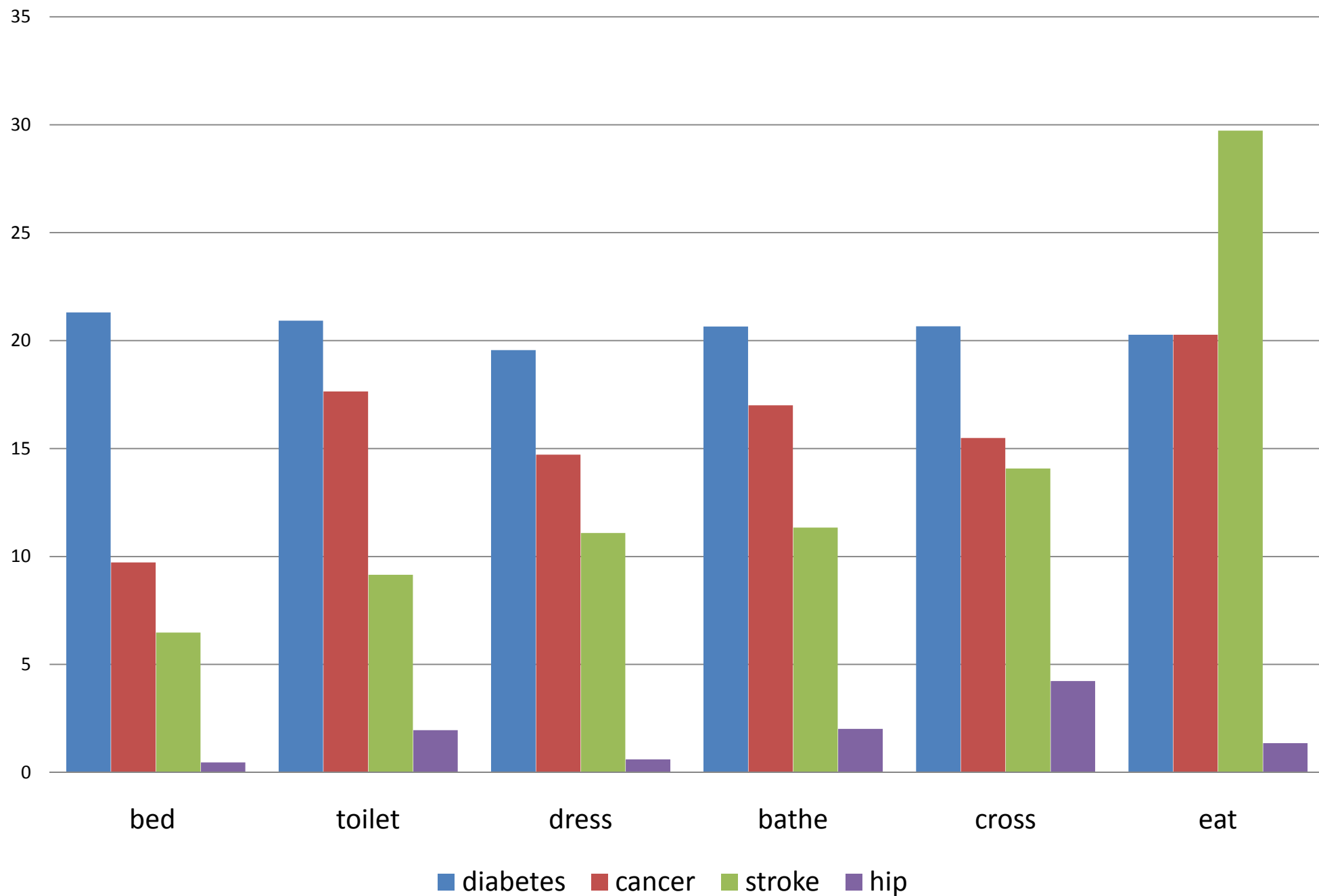
■ recover ■ persist ■ die



Are some ADLs associated with mortality ?

	Odds of dying
Age	1.074*
Female	0.527*
Nonwhite	1.192*
Dress	1.079
Cross	1.795*
Bathe	2.032*
Eat	2.062*
Bed	1.163
Toilet	0.863

Disease conditions associated with a specific ADL

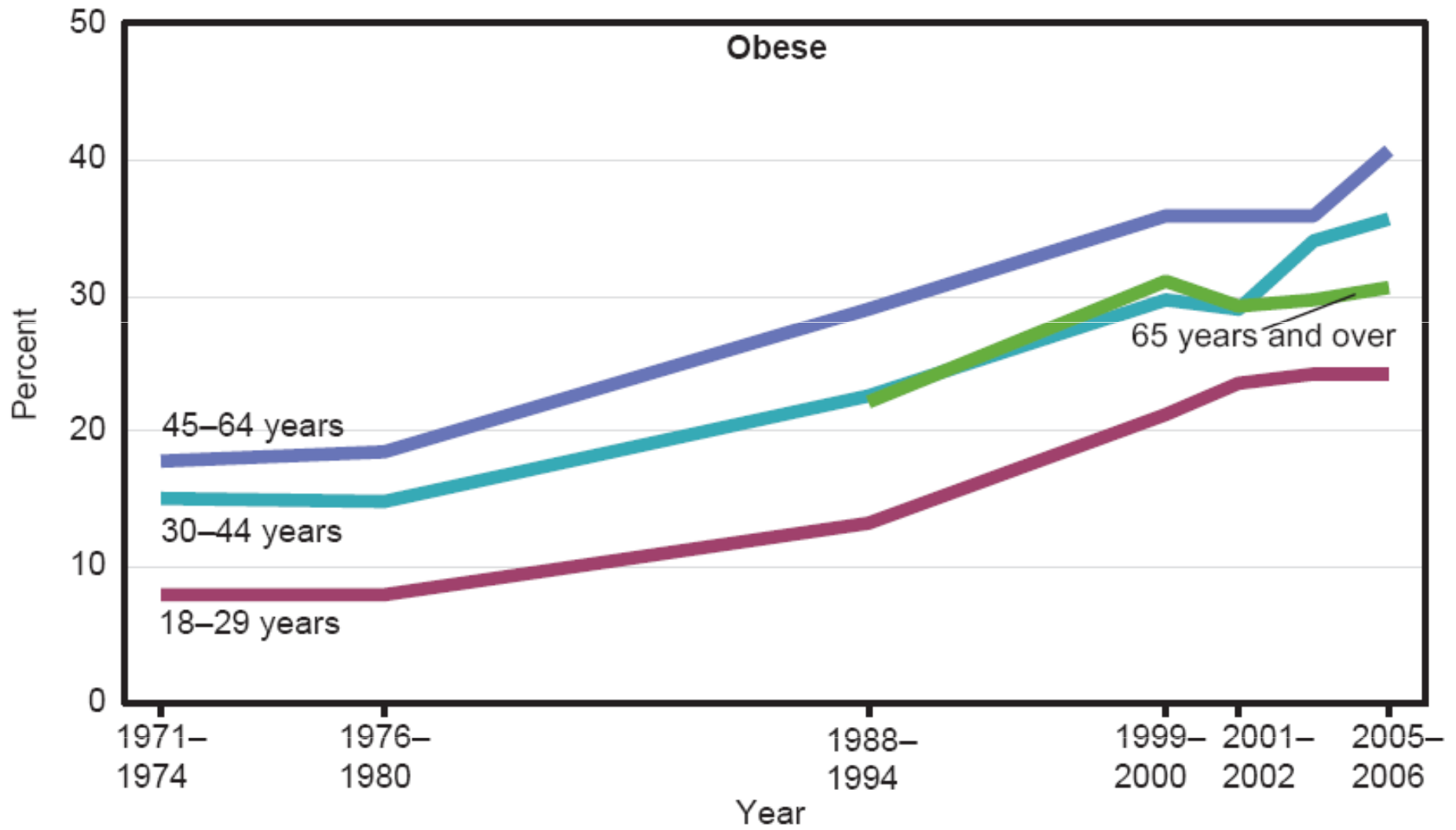


Effect of disease conditions on the odds of recovery of an ADL function

Age	0.963*
Female	1.456*
Non-white	0.990
Hypertension	1.092
Diabetes	0.741*
Cancer	0.575*
Lung disease	0.709*
Heart disease	0.850
Stroke	0.748
Arthritis	0.944
Hip Fracture	1.220

How will obesity affect later life functioning?

- Associated with higher rates of many chronic conditions, particularly diabetes.
- Associated with higher rates of limitation in many activities of daily living
- Is obesity also associated with lower rates of recovery from activity limitation?



NOTES: Overweight (not including obese) is defined as a body mass index (BMI) greater than or equal to 25 but less than 30 and obese as a BMI greater than or equal to 30. See [data table for Figure 7](#) for estimates for children, data points graphed, standard errors, and additional notes.

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.

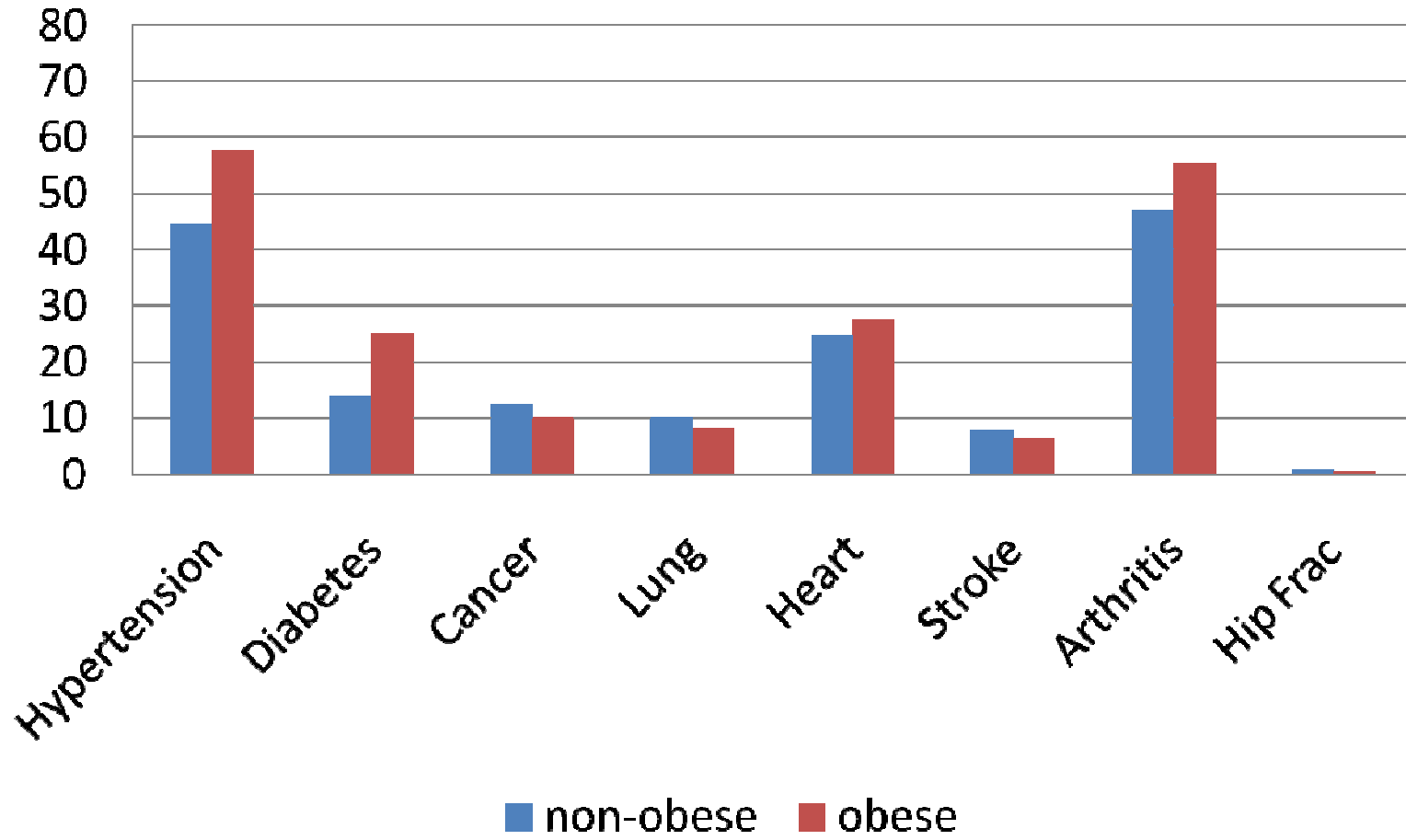
Why might obesity be related to lower rates of recovery?

- Difficult to rehabilitate from injury or surgery
- More co-morbid conditions
- Lower overall health status

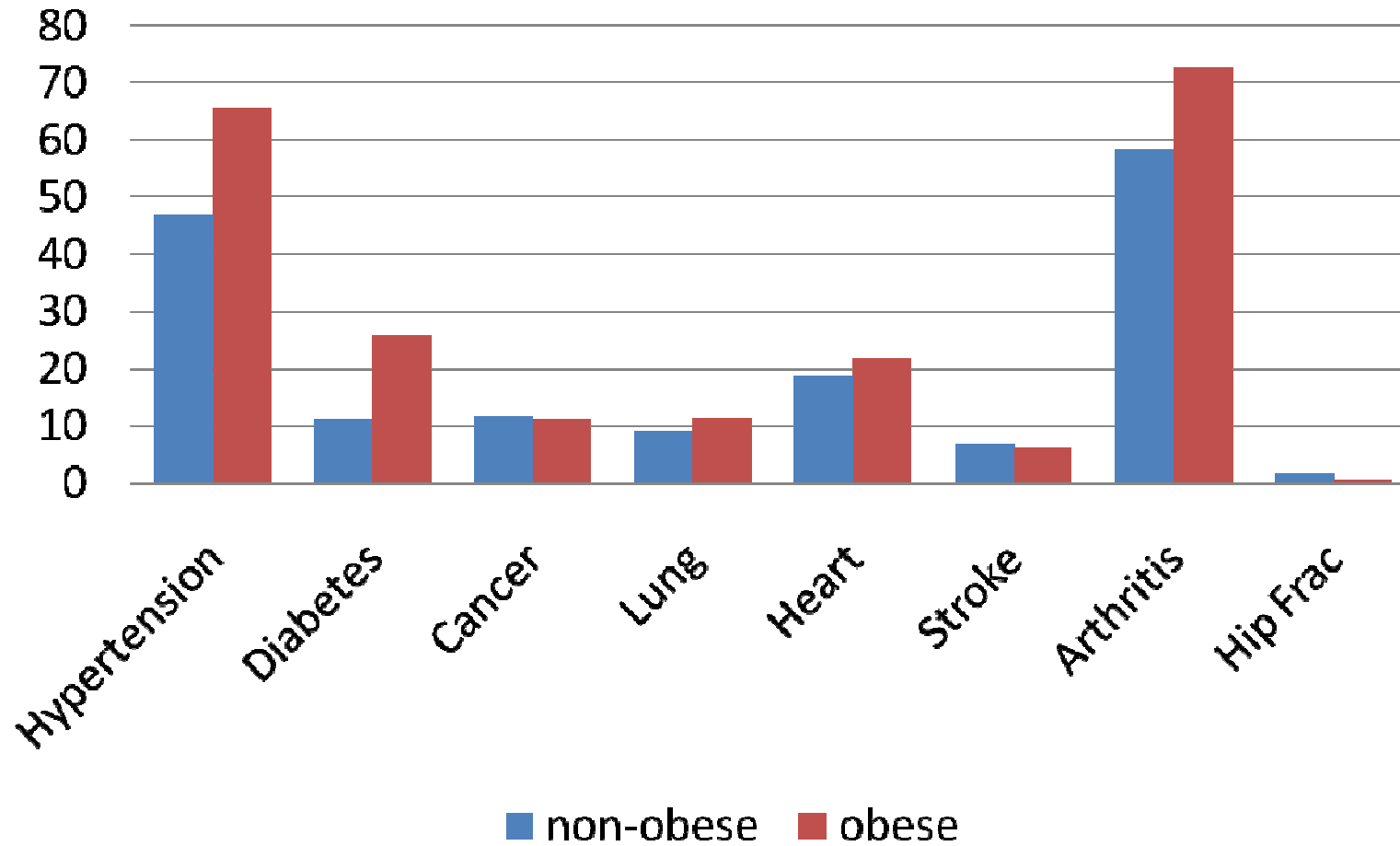
Obesity and disease

- Higher rates of cardiovascular disease
- Type 2 diabetes
- Osteoarthritis

Males, HRS 1998



Females, HRS 1998



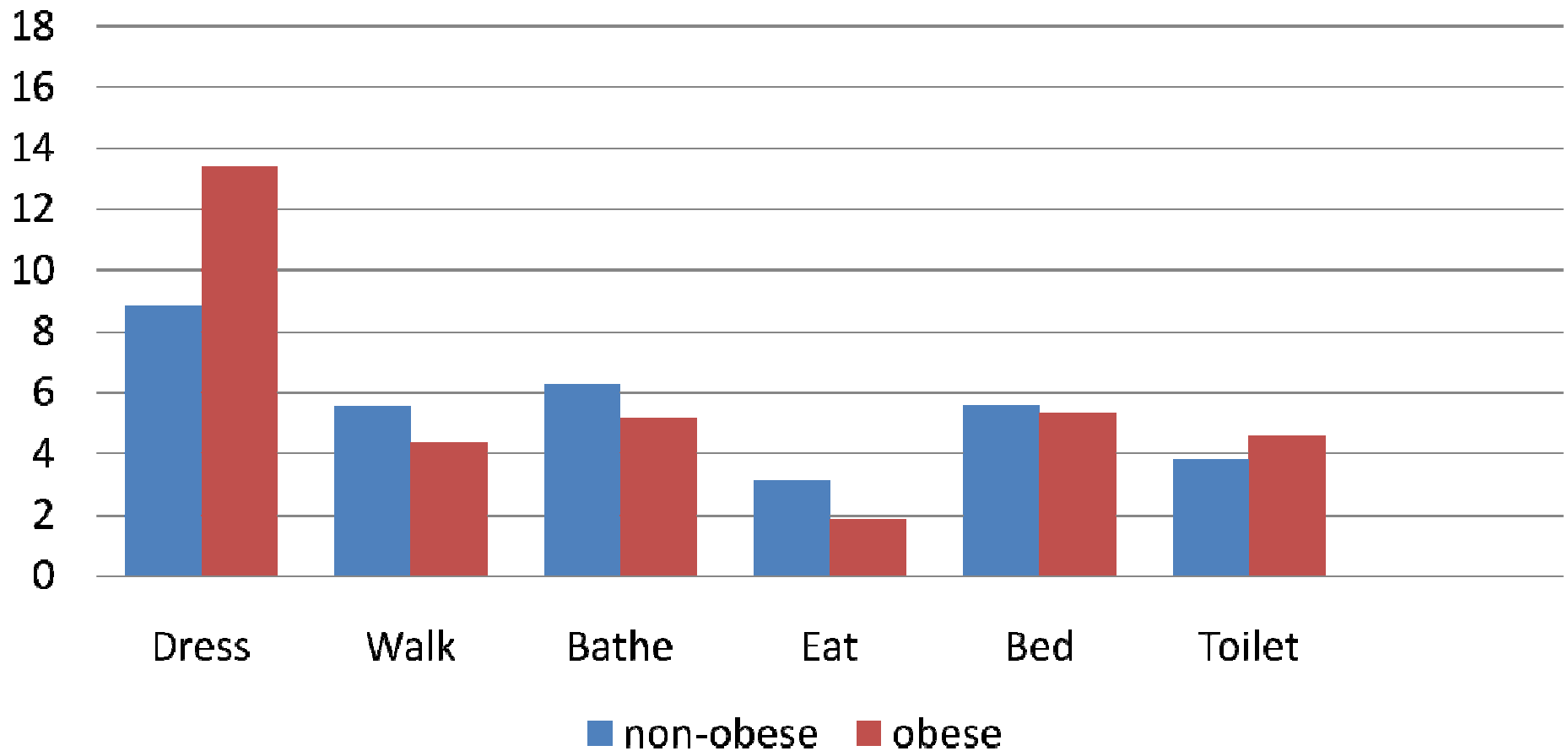
Effect of obesity of odds of having a disease condition; females HRS 1998

	Arthritis	Diabetes	Heart	Hip Fract	Stroke	Hyperten
Age	1.03*	1.01*	1.03*	1.11*	1.05*	1.03*
Afr Amer	1.26*	1.87*	1.08	0.55	1.24	2.17*
Educ	0.97*	0.94*	0.97*	1.00	0.97*	0.96*
Obese	1.99*	2.55*	1.34*	0.75	1.07	2.15*

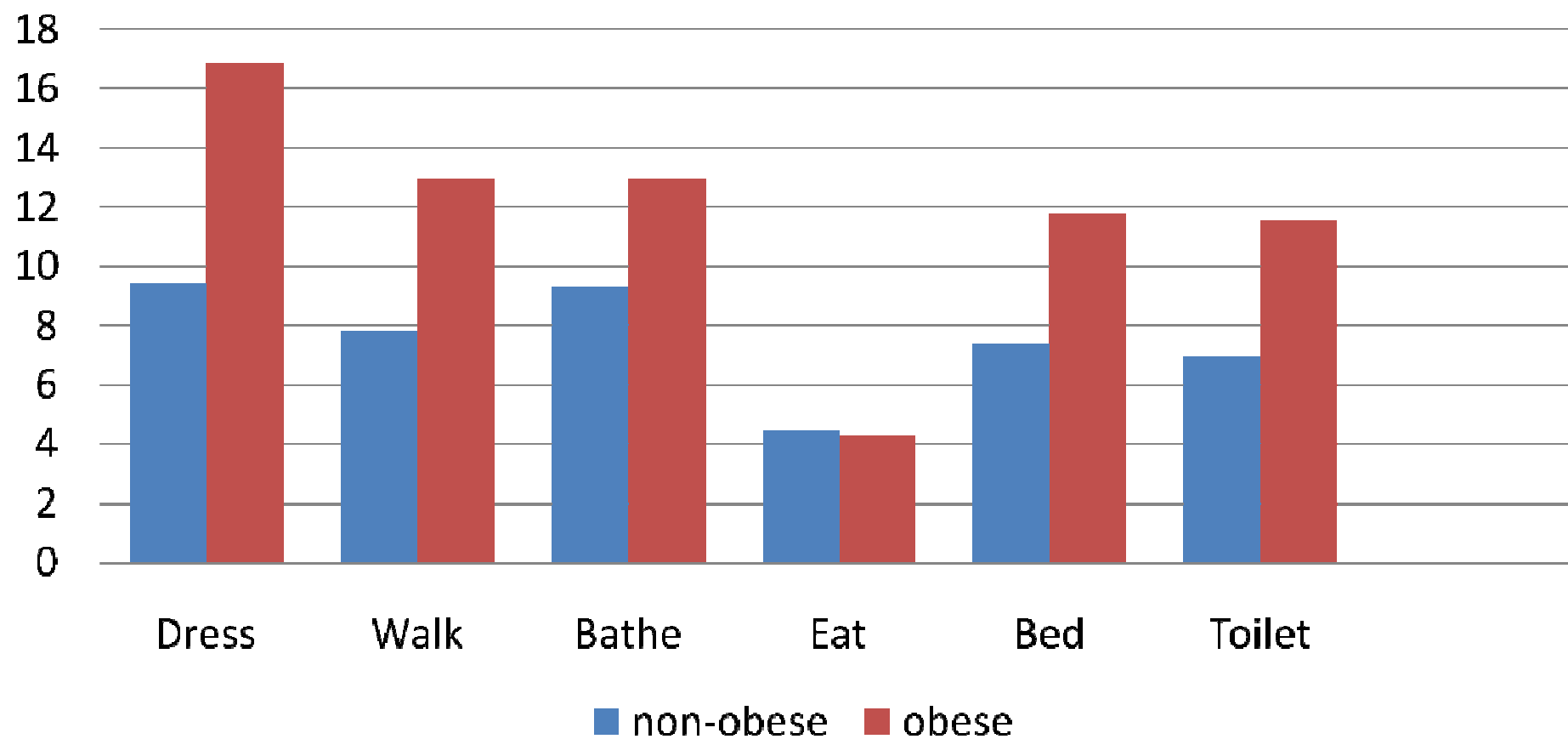
Obesity and Functioning

- Women report more limitations than men
- Obese women report the most limitations
- Among men, obesity status appears to have little effect
- Among women, only 1 ADL, eating, is not affected

Limitation by obesity status; Males, HRS 1998



Limitations by obesity status; females HRS 1998

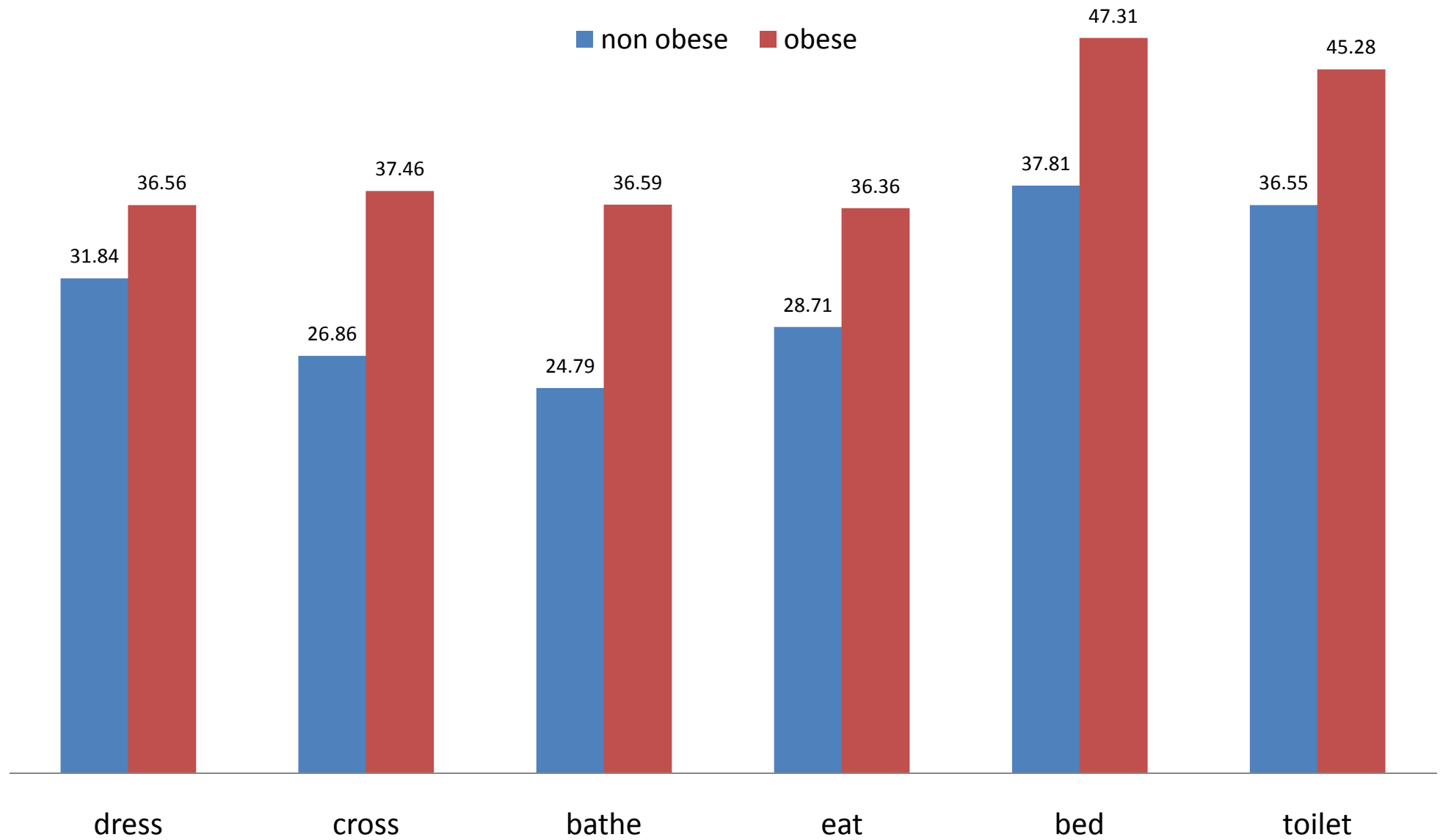


Effect of obesity on odds of having a specific ADL limitation; HRS 1998

	Dress	Cross	Bathe	Eat	Bed	Toilet
Age	1.049*	1.067*	1.084*	1.073*	1.032*	1.056*
Female	0.938	1.486*	1.495*	1.360*	1.355*	1.763*
Non-white	1.770*	1.757*	1.729*	1.738*	1.609*	1.510*
Obese	1.889*	1.489*	1.456*	0.916	1.292*	1.667*
Hypertension	1.230*	1.354*	1.197*	1.232*	1.201*	1.265*
Diabetes	1.406*	1.700*	1.606*	1.709*	1.416*	1.487*
Cancer	1.00	1.010	0.959	1.068	0.962	0.980
Lung disease	1.767*	2.051*	2.052*	1.354*	1.707*	1.585*
Heart disease	1.484*	1.521*	1.528*	1.326*	1.640*	1.505*
Stroke	3.226*	3.695*	3.714*	6.133*	3.179*	3.247*
Arthritis	2.584*	2.391*	2.166*	1.644*	2.924*	2.818*
Hip Fracture	3.349*	4.534*	3.703*	3.232*	3.050*	4.467*

Percent with a limitation in 1998 who report recovery in 2000

Females



Effects of obesity on the odds of recovery; females HRS 1998

	Walking	Bathing	Eating
Age	0.97*	0.96*	0.96*
Afr Amer	0.95*	0.72	0.97
Educ	1.03	1.00	0.97
Obese	0.85	1.01	0.70
Diabetes	0.94	.80	1.01
Arthritis	1.56	1.05	1.76
Heart	0.85	0.95	1.34
Hip Fract	0.89	0.65	1.60
Stroke	0.61*	0.55*	.48*
Hypertension	1.24	1.10	1.60

conclusions

- There is recovery
- While obesity is related to increased odds of ADL limitations
- Obesity does not seem to be related to recovery