Measuring Obesity and Active Life Expectancy: Does the Comparison Group Matter?

Sandy Reynolds
University of South Florida
School of Aging Studies

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Studies of Obesity in the General Population

- Almost always omit underweight people from the comparison category
- Focus has been on obese and/or overweight vs. normal weight
- WHY? Does it matter?

WHY?

- There is a general thought that Underweight people are a category unto themselves.
- There is also a lack of urgency as being underweight is generally not considered a health risk.
  - BUT – we know it is in old age.

RESEARCH QUESTION

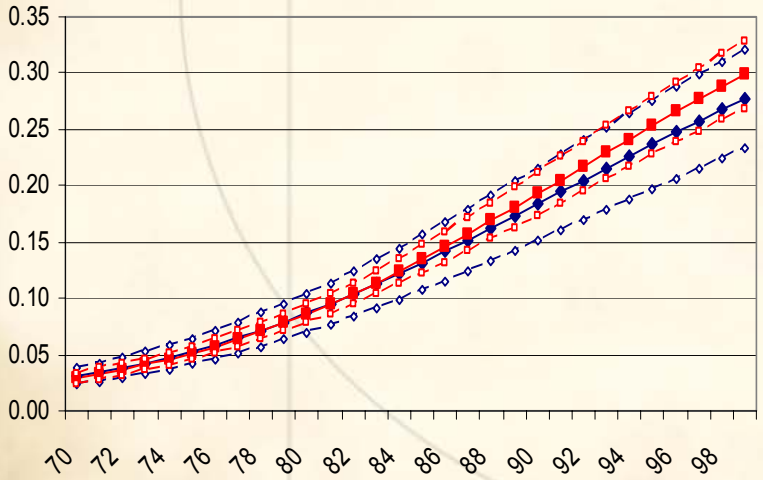
- Does the impact of obesity on active life expectancy differ depending on whether obesity is compared to:
  - The rest of the population
    - (as in Reynolds, Saito, & Crimmins, 2005)
  - OR: the rest of the population with BMI in excess of the “Underweight” category

Design and Methods

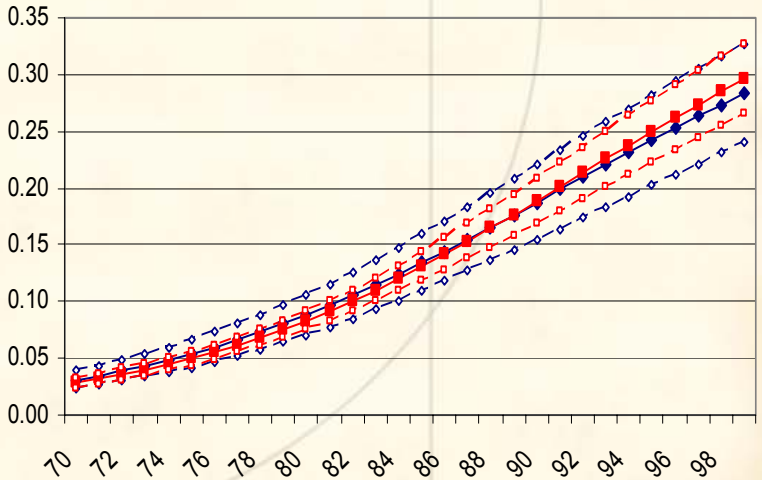
- 1993-1998 AHEAD data
- N=7,381 whole sample
- N=7,016 without underweight
- Multistate Lifetable analysis using IMaCh
- Examination of transition rates and total, active, and disabled years remaining

2 – Year Transition Probabilities: Probability of Dying -- MALES

1a. Obese vs. All



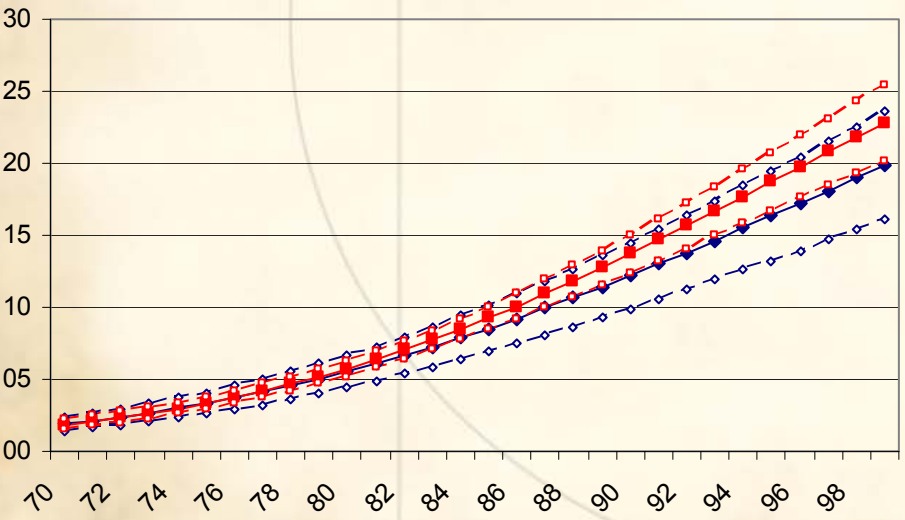
1b. Obese vs. All But Underweight



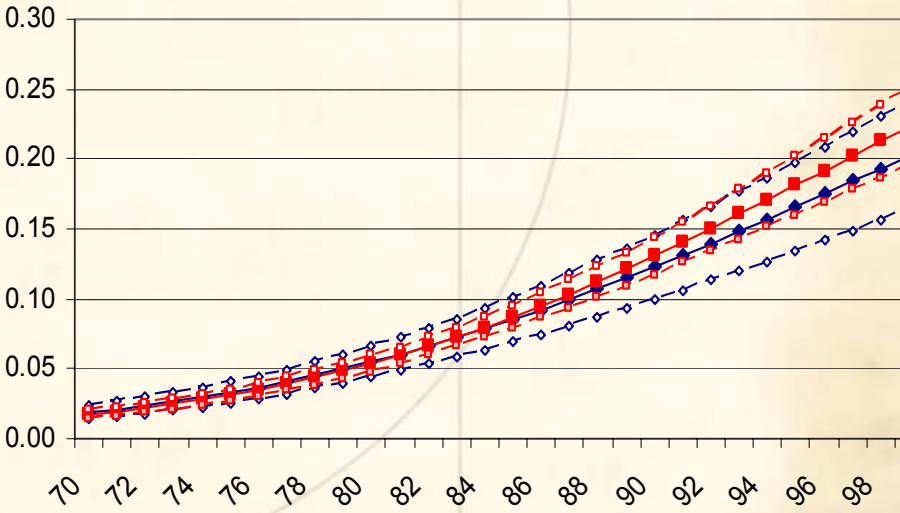
♦ = Obese ◊ = Obese C.I. ■ = Not Obese □ = Not Obese C.I.

2 – Year Transition Probabilities: Probability of Dying -- FEMALES

1c. Obese vs. All



1d. Obese vs. All But Underweight



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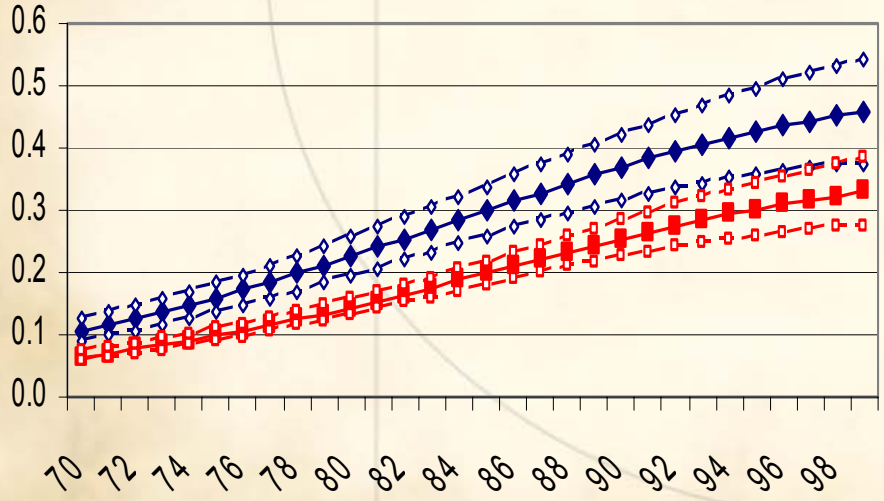
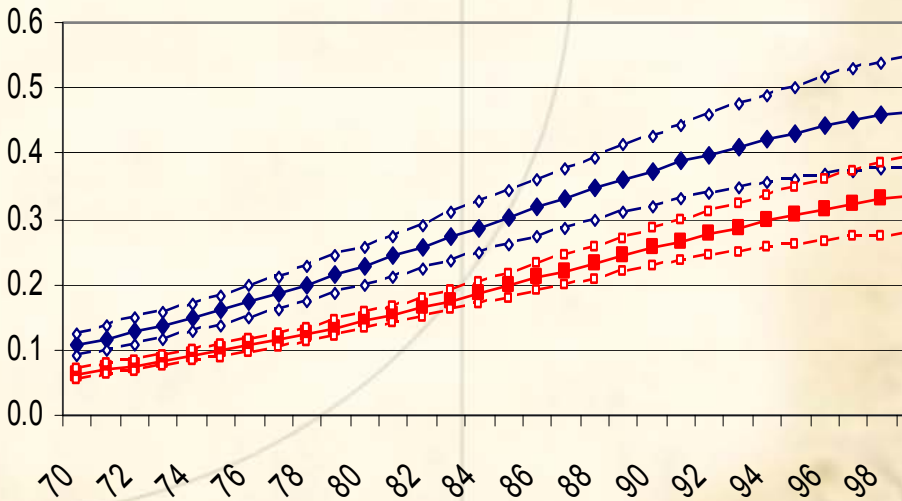
2 – Year Transition Probabilities: Probability of Becoming Disabled -- MALES

2a. Males - Obese Vs. All Others



2b. Males -- Obese Vs. All But Underweight



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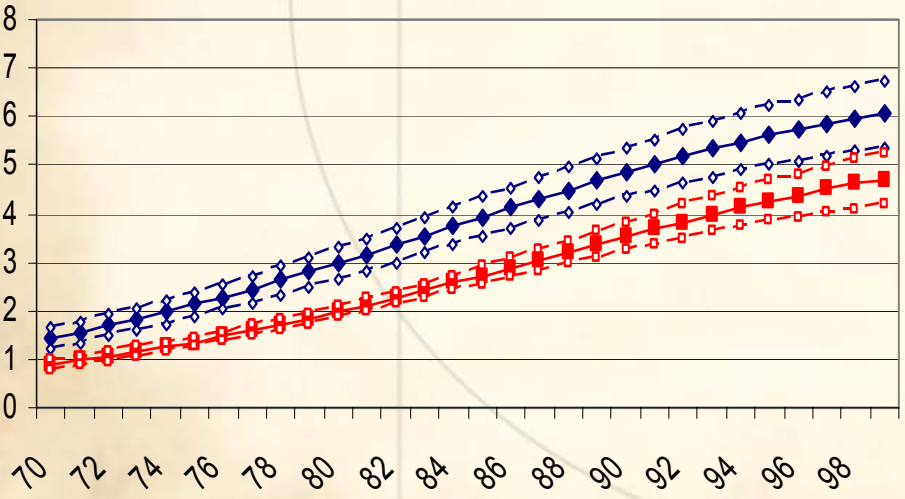
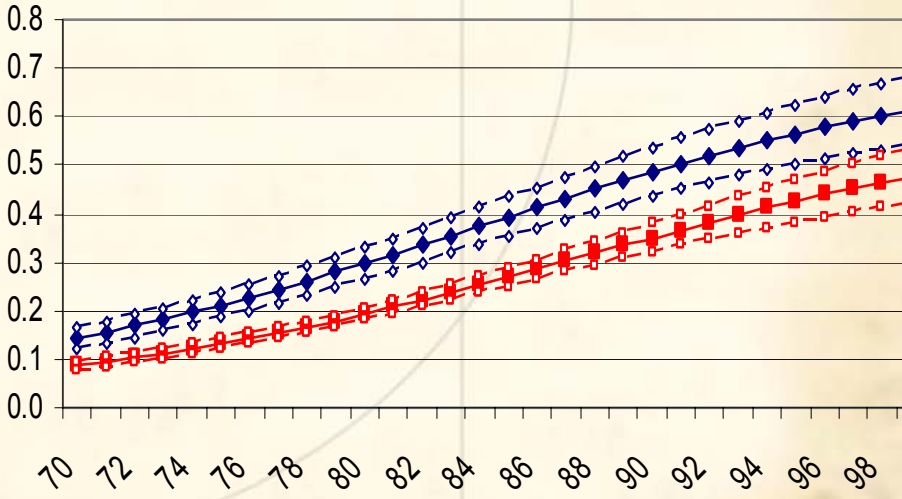
2 – Year Transition Probabilities: Probability of Becoming Disabled -- FEMALES

2c. Females - Obese vs. All Others



2d. Females --Obese Vs. All But Underweight



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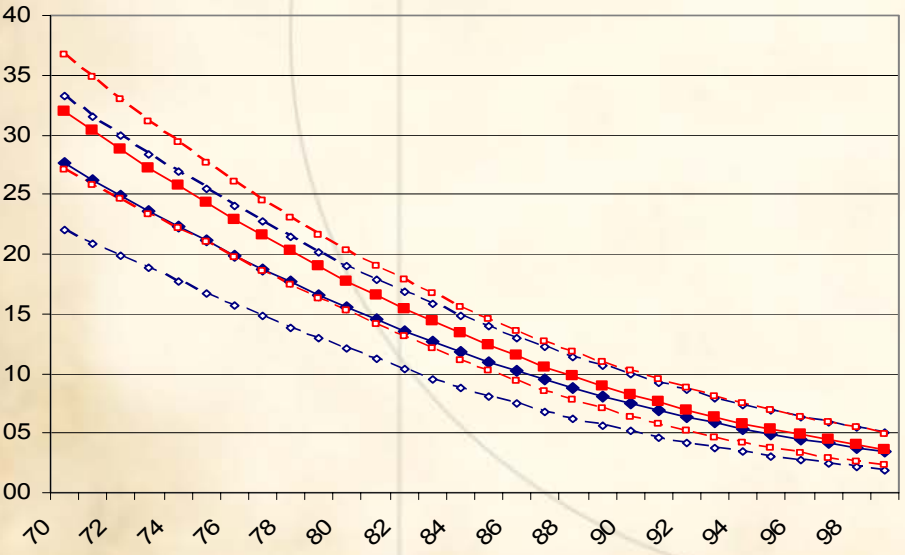
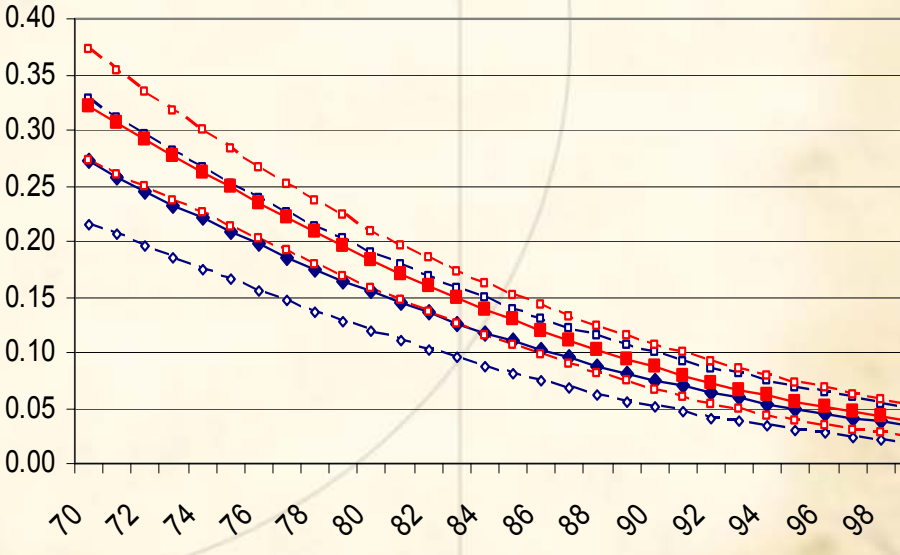
2 – Year Transition Probabilities: Probability of Recovery -- MALES

3a. Obese Vs. All



3b. Obese vs. All But Underweight



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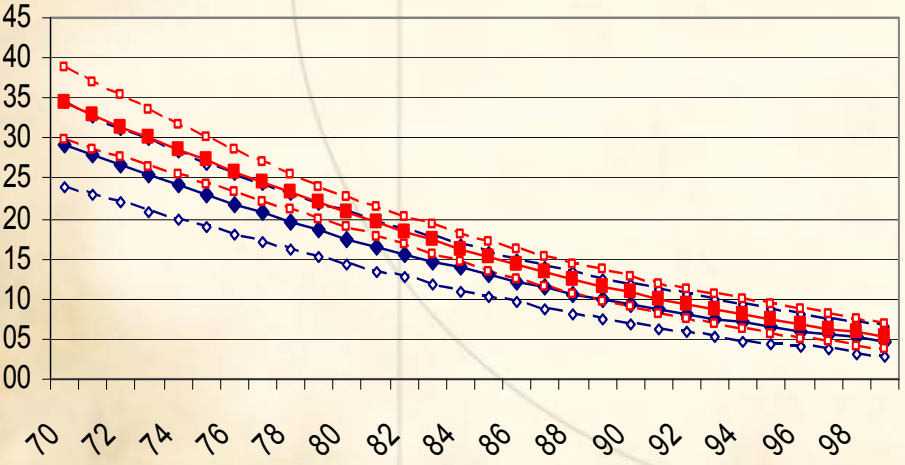
2 – Year Transition Probabilities: Probability of Recovery -- FEMALES

3c. Obese Vs. All



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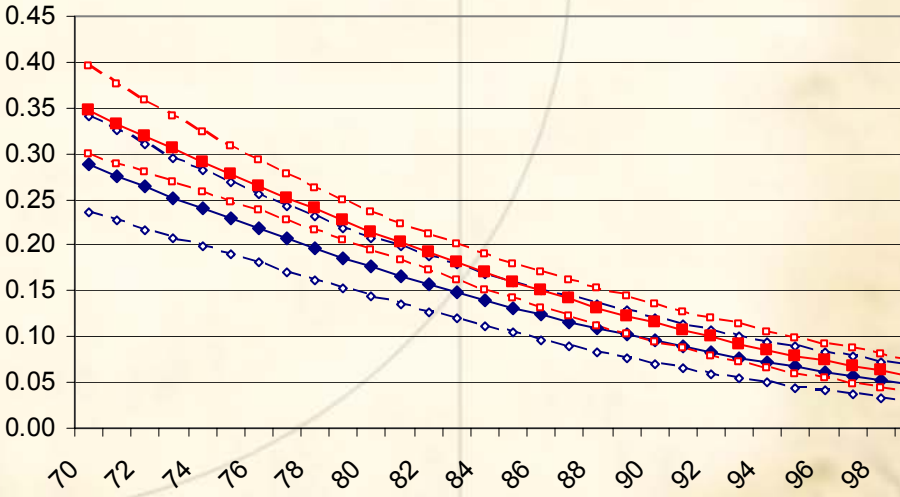
3d. Obese Vs. All But Underweight



■ = Not Obese □ = Not Obese C.I.

Examination of Transition Probabilities

- For Males and Females, Both Groups Show:
  - No Impact of Obesity on Mortality or Recovery
  - Negative Impact of Obesity on Disability
- ERGO: No difference whether we leave out Underweight or not.

Males Obese

Males Not Obese

bese vs. All Others

	Total	Active	Disabled	% Disabled	Total	Active	Disabled	% Disable
0	**12.4**	8.4	4.0	32.0	**12.3**	9.8	2.5	20.
0	**6.8**	3.3	3.5	51.1	**6.7**	4.5	2.3	33.
0	**4.3**	1.8	2.4	57.1	**3.9**	2.1	1.7	45.

bese vs. All but Underweight

0	**12.3**	8.3	3.9	32.0	**12.5**	10.0	2.6	20.
0	**6.7**	3.3	3.4	50.9	**6.9**	4.6	2.3	33.
0	**4.2**	1.8	2.4	56.8	**3.9**	2.1	1.8	45.

Males Obese

Males Not Obese

bese vs. All Others

	Total	Active	Disabled	% Disabled	Total	Active	Disabled	% Disable
0	12.4	8.4	**4.0**	**32.0**	12.3	9.8	**2.5**	**20.**
0	6.8	3.3	**3.5**	**51.1**	6.7	4.5	**2.3**	**33.**
0	4.3	1.8	**2.4**	**57.1**	3.9	2.1	**1.7**	**45.**
bese vs. All but Underweight								
0	12.3	8.3	**3.9**	**32.0**	12.5	10.0	**2.6**	**20.**
0	6.7	3.3	**3.4**	**50.9**	6.9	4.6	**2.3**	**33.**
0	4.2	1.8	**2.4**	**56.8**	3.9	2.1	**1.8**	**45.**

Females Obese

Females Not Obese

bese vs. All Others

	Total	Active	Disabled	% Disabled	Total	Active	Disabled	% Disable
0	**15.5**	8.1	7.4	47.7	**15.3**	10.5	4.8	31.
0	**9.6**	3.7	5.9	61.5	**8.9**	4.8	4.2	46.
0	**5.8**	1.5	4.3	74.2	**5.1**	2.1	3.2	62.
bese vs. All but Underweight								
0	**15.6**	9.2	7.4	47.6	**15.7**	10.8	4.9	31.
0	**9.6**	4.6	5.9	61.1	**9.3**	5.0	4.3	46.
0	**5.8**	2.0	4.2	73.7	**5.3**	2.1	3.3	61.

Females Obese

Females Not Obese

bese vs. All Others

	Total	Active	Disabled	% Disabled	Total	Active	Disabled	% Disable
0	15.5	8.1	**7.4**	**47.7**	15.3	10.5	**4.8**	**31.**
0	9.6	3.7	**5.9**	**61.5**	8.9	4.8	**4.2**	**46.**
0	5.8	1.5	**4.3**	**74.2**	5.1	2.1	**3.2**	**62.**
bese vs. All but Underweight								
0	15.6	9.2	**7.4**	**47.6**	15.7	10.8	**4.9**	**31.**
0	9.6	4.6	**5.9**	**61.1**	9.3	5.0	**4.3**	**46.**
0	5.8	2.0	**4.2**	**73.7**	5.3	2.1	**3.3**	**61.**

Summary of Differences by Comparison Group – TLE, ALE, DLE

- For Males and Females, Both Groups Again Show:
  - No Impact of Obesity on Total, or Active LE
  - Negative Impact of Obesity on Disabled LE
- Again, no difference whether we leave out Underweight or not.

Implications

- For the study of the Impact of Obesity in older adults, results suggest that comparison group choice does not matter.
- Unknown if that would be the same for adult population.
- If it is, there is little reason to leave out the Underweight in Obesity studies.