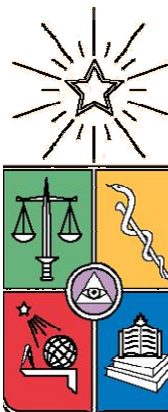


OBESITY, MORTALITY AND FUNCTIONAL LIMITATION IN CHILEAN ELDERS

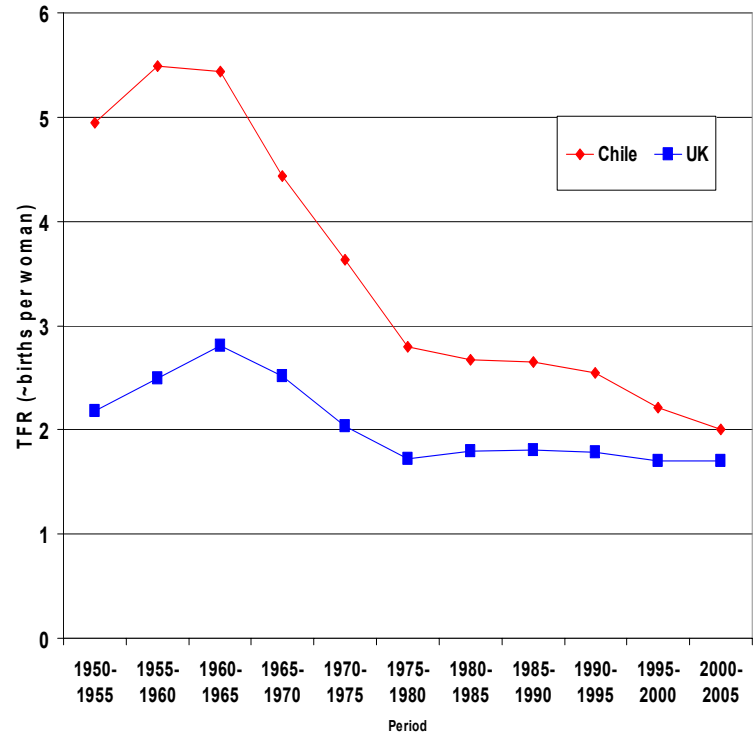
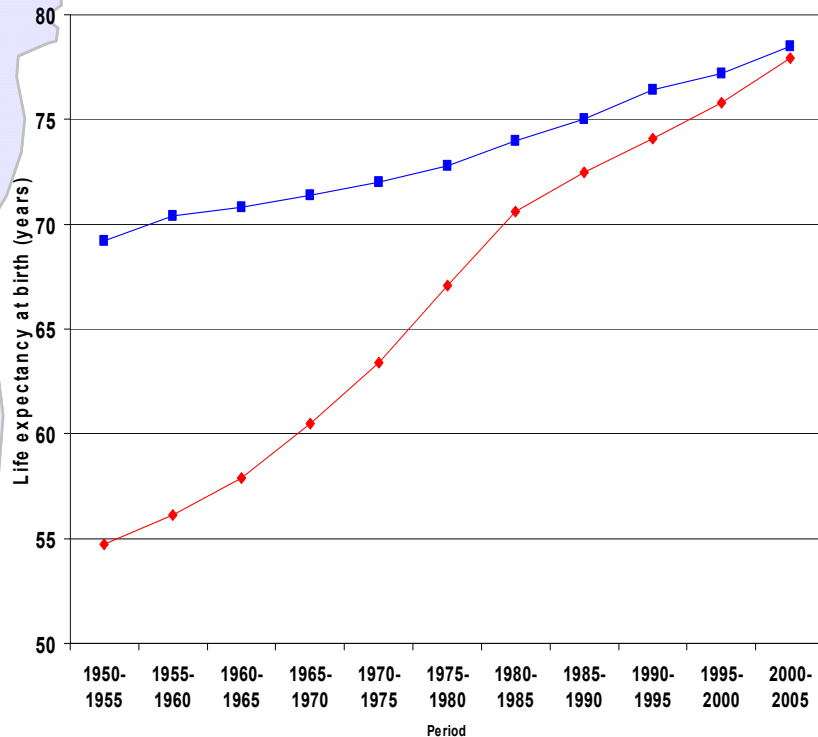
Cecilia Albala, Lydia Lera, Hugo Sanchez,
Carola Garcia, Alejandra Fuentes, Fernando Vio

Public Health Nutrition Unit

***Institute of Nutrition and Food Technology
(INTA)/University of Chile***



Trends in fertility (TFR) and mortality Chile and the UK, 1950-2005.



Source: Emily Grundy, UN 2006.

In Chile, low rates of fertility and mortality were achieved much more rapidly than in the now developed world.

AGING AND HEALTH

Aging is associated with:

Chronic and degenerative diseases

Metabolic diseases

Changes in body composition

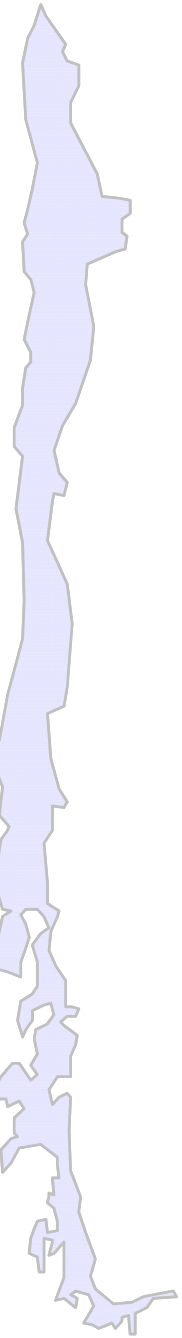
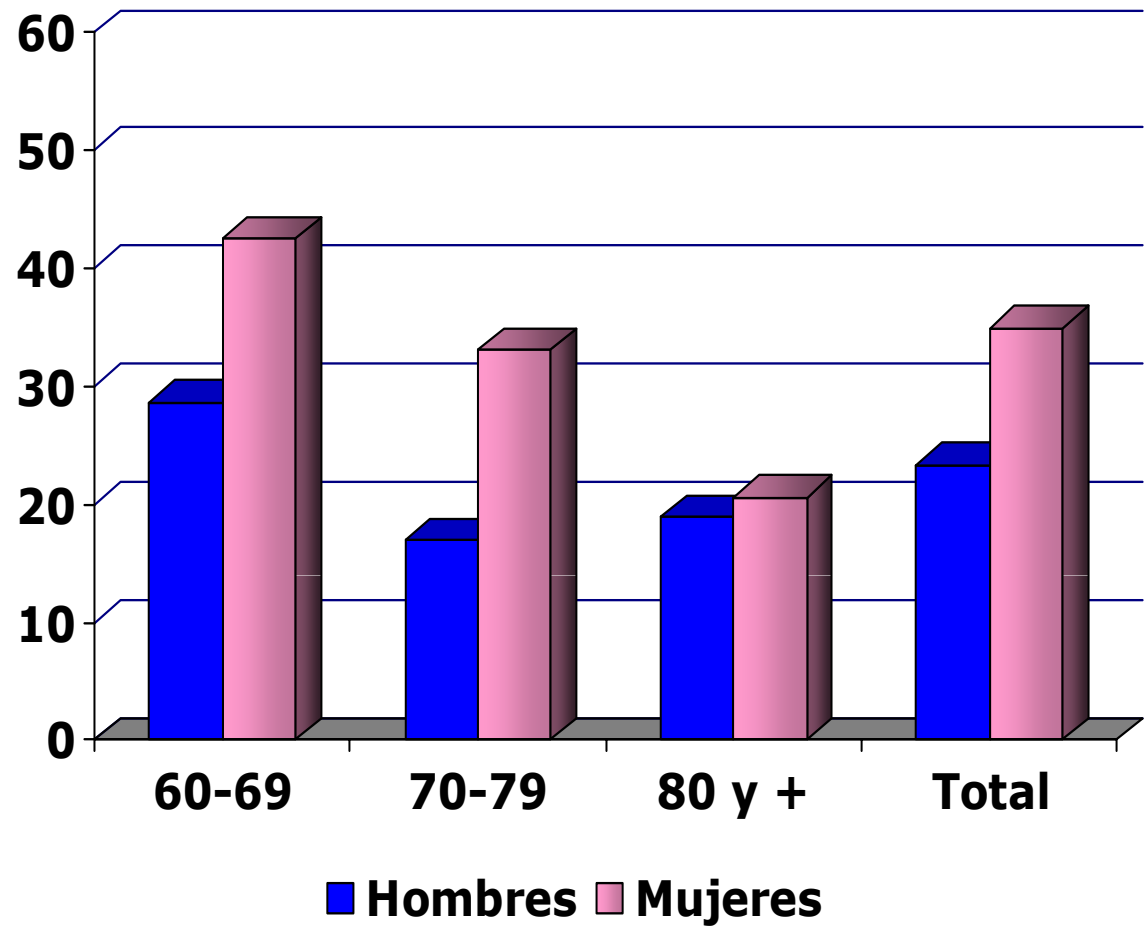
Altered immune function

Decline in cognitive function

Prevalence (%) Of Chronic Diseases In The Elderly National Health Survey. Chile 2003

	Men	Women
Hypertension	74.6	81.8
Metabolic Syndrome	47.2	48.7
Muscle skeletal disorders	39.8	56.8
Diabetes	15.8	14.8
Chronic respiratory Disease	31.3	30.6
Hearing impairment	94.5	88.7
Possible CHD	21.4	31
Obesity	27.8	29.8

Prevalence of obesity by groups of age. SABE 2000



**Total Life Expectancy. Active life expectancy & unhealthy years
By gender in the Santiago SABE Sample 2000-2005***

Age	ALE	Unhealthy years	TLE Years	% LE in Healthy state
MEN				
60	15.3	6.4	21.7	70.5
70	9.7	5.4	15.1	64.4
80	5.7	4.1	9.8	58.1
WOMEN				
60	12.4	12.0	24.4	50.7
70	8.2	9.5	17.8	46.3
80	4.3	7.3	11.6	36.8

***MSLT IMACH 0.96**



Objective

To determine the association of obesity with Functional limitation and mortality

METHODS I

Follow up of the Santiago SABE survey

The SABE study was done in 2000 in 1306 subjects 60 and older residing in Santiago Chile, from which 1202 individuals had complete measurements.

In 2000 All the subjects completed home interviews including sociodemographic characteristics, common measures of self reported chronic Diseases, disability/functional limitations, observed physical performance and anthropometry.

Cognitive impairment was evaluated with the MMSE & Depression with GDS-15

METHODS II

In 2005, 64.4% of the original group was interviewed, 15,7 % were died and 19.9% were lost to follow-up.

Mortality data were obtained from death certificates of the National Civil Registry.

All the available people free of functional limitation in 2000 was evaluated in 2005 to determine the Relative Risk of having functional limitation according baseline BMI and other chronic conditions.

Survival estimates according BMI were also calculated

Measurements

ADL and IADL items included Katz scale, Lawton & Brody scale and OARS.

Self reported physical performance included 3 Items from Rosow & Breslau and 7 from Nagi.

Cognitive impairment,
Performed physical activities,
Anthropometry,
Chronic diseases
Handgrip strength
Blood pressure.

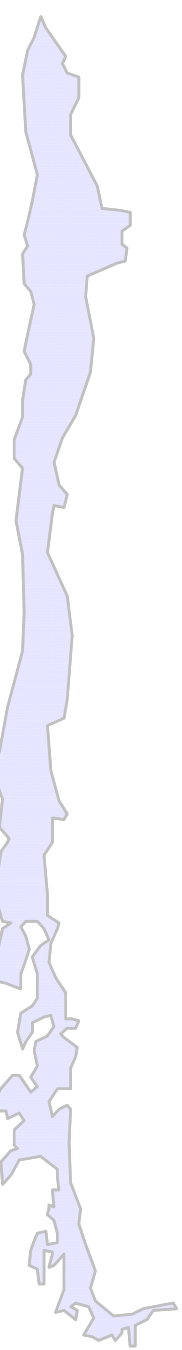
Definition of functional limitation

Functional limitation is defined as limitation in 1 ADL and /or 1 IADL and/or any 2 items of mobility

Severe Functional limitation was defined as
Limitation in ≥ 1 ADL or ≥ 2 IADL

Moderate or mild Functional limitation was defined
as
Limitation in 1-2 IADL ≥ 2 Nagi/Rosow

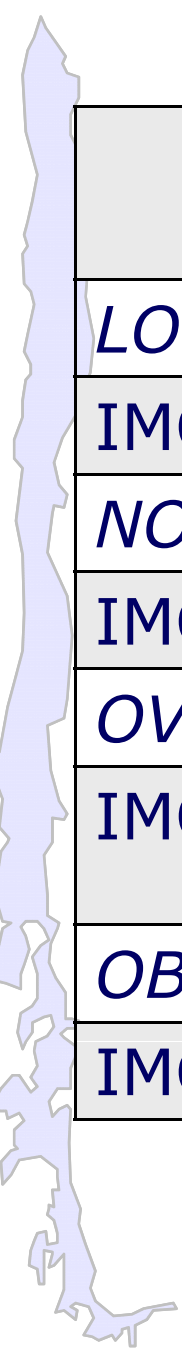
Ref:Albala et als 2004.



RESULTS

Frequency of Functional limitation

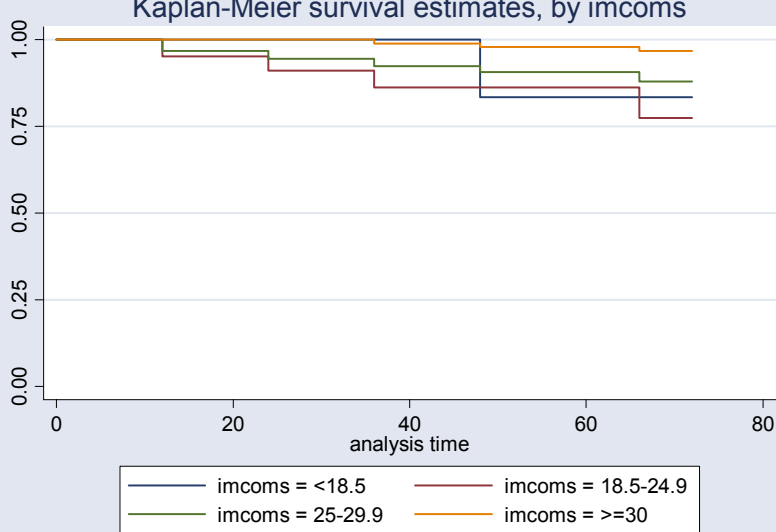
Gender	Functional Limitations	
	2000 N (%)	2005 N (%)
MEN	156 (35,3)	51 (37,5)
WOMEN	536 (63,3)	151 (63,7)
Total with limitation	692/1202 (57,6)	202/377 (54,2)



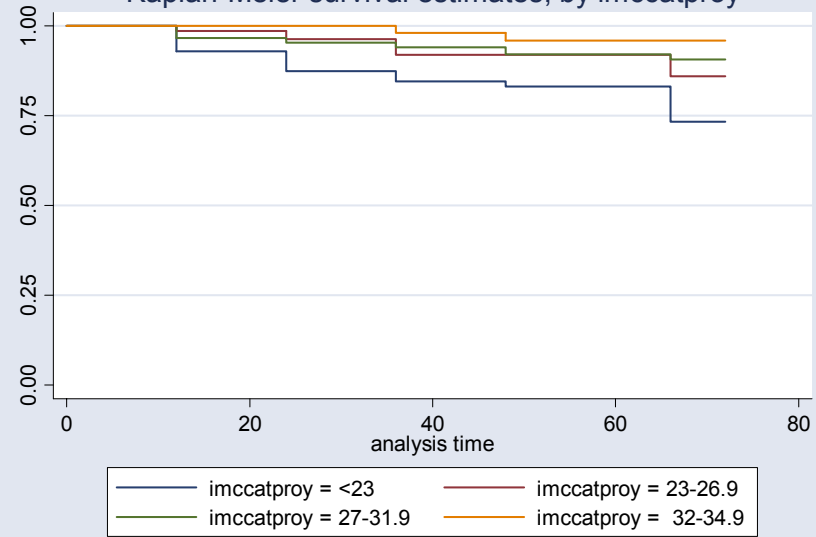
	5y survival probability	95% IC
<i>LOW WEIGHT</i>		
IMC <18.5	0.5262	0.2421 - 0.7478
<i>NORMAL</i>		
IMC 18.5-24.9	0.8290	0.7718 - 0.8731
<i>OVERWEIGHT</i>		
IMC 25-29.9	0.8928	0.8545 - 0.9214
<i>OBESE</i>		
IMC ≥30	0.9564	0.9219 - 0.9759

MEN

Kaplan-Meier survival estimates, by imcoms

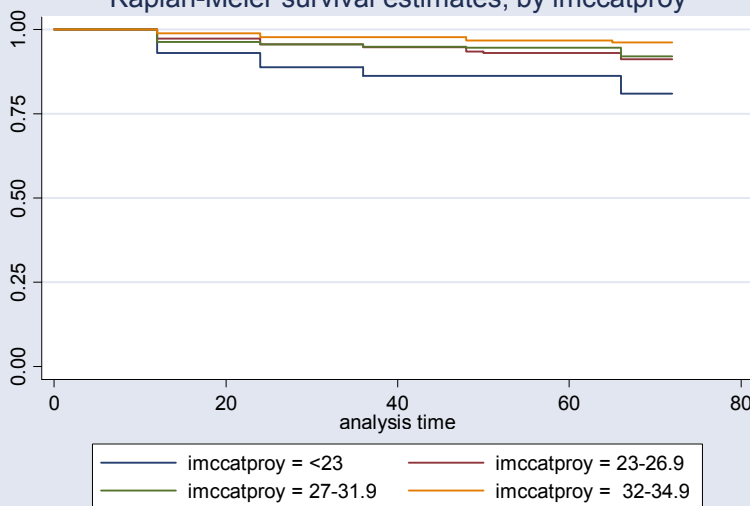


Kaplan-Meier survival estimates, by imccatproy

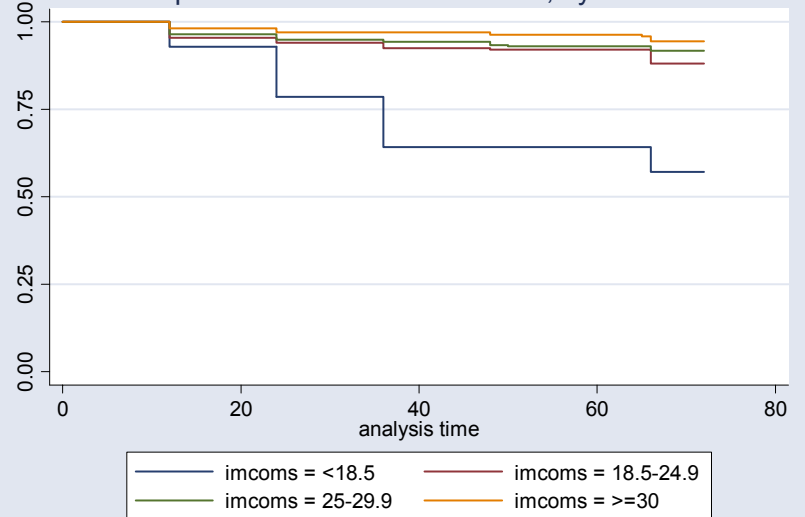


WOMEN

Kaplan-Meier survival estimates, by imccatproy



Kaplan-Meier survival estimates, by imcoms



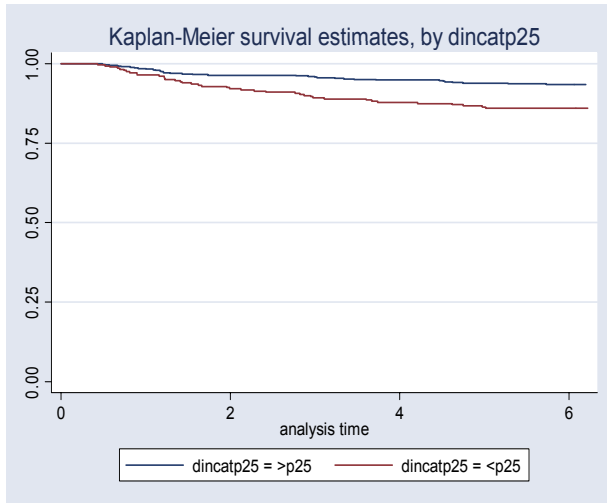
Step Back logistic regression for Functional Limitation as outcome and anthropometric variables as independant variable

	Men (n=136)			Women (n=236)		
Functional Limitation	OR	p	95% IC	OR	p	95% IC
Hand-grip strength (Kg)	0,93	0,002	0,867 -0,968	0,958	0,039	0,917 - 0,998
Age	1,04	0,122	0,975 -1,117	1,098	0,000	1,043 - 1,155
BMI (kg/m ²)	0,95	0,398	0,830- 1,077	1,105	0,039	1,005 - 1,214

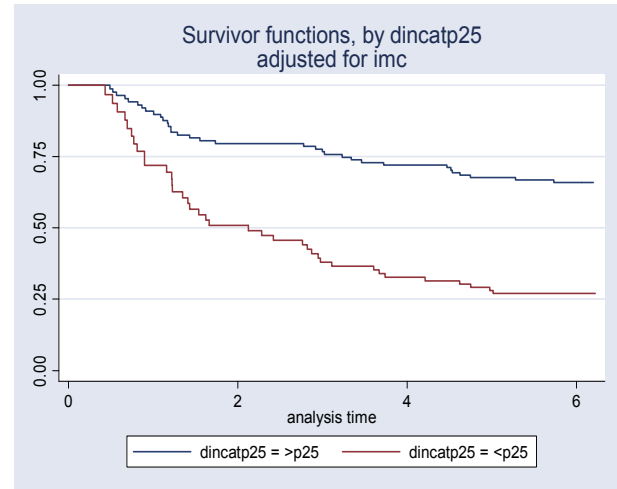
Limitations in mobility items as outcome and age, Hand-grip Strength & lean mass a independent variables

	2 Limitations		3 Limitations	
MEN	b	p	b	p
lean mass(Kg)	-0,193	0,073	0,020	0,305
Hand-grip Strength (Kg)	- 0,221	0,002	-0,224	0,001
BMI	- 0,119	0,570	-0,354	0,111
Waist Circumference	0,165	0,059	0,279	0,003
Age(years)	- 0,294	0,450	0,042	0,613
WOMEN				
lean mass(Kg)	0,105	0,138	0,153	0,061
Hand-grip Strength(Kg)	-0,230	0,000	-0,353	0,000
BMI	0,088	0,404	0,144	0,241
Waist Circumference	0,002	0,967	-0,101	0,842
Age(years)	0,061	0,119	0,0872	0,044

WOMEN

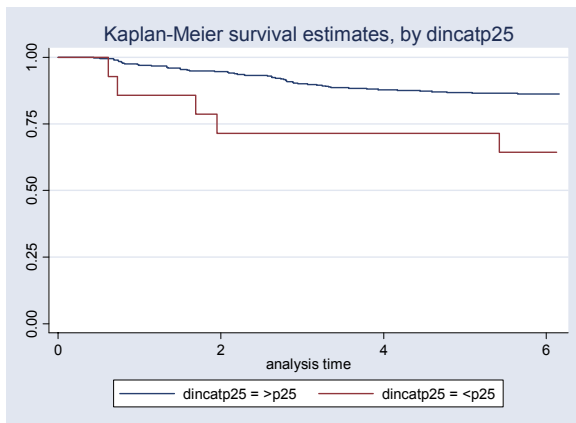


crude

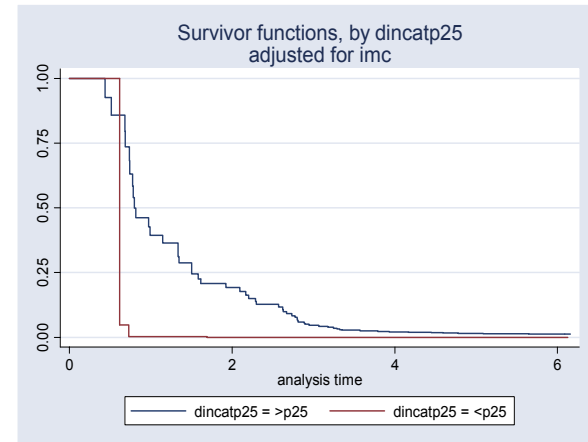


BMI adjusted

MEN



crude



BMI adjusted

RR of functional limitation for obesity in men and women

	Functional Limitation		
	MEN	WOMEN	Total
Obese	10/35	59/75	69/110
Non obese	41/102	92/152	133/254
RR	0.71	1.85	1.35
95%CI	0.40-1.26	1.50-2.99	0.97-1.87

Risk of functional limitation in 2005 according BMI, age, Self Perception of Health, Waist Circumference & Hypertension in 2000

	Women= 120			men=100		
MILD	OR	p	95% IC	OR	p	95% IC
BMI	1.05	0,47	0,919 – 1.203	0,94	0,039	0,917 - 0,998
Self Perception Of Health	1.85	1.78	0.754 - 4.539	2.45	0.148	1.850– 0.847
Waist Circumference	1,04	0.57	0.289 4.634	0.40	<0,001	1,043 - 1,155
Age	0,95	0.42	0.978- 1.149	1,08	0,039	1,005 - 1,214
Hypertension	1.53	0.421	0.542- 4.323	0.50	0.28	0.1451- 0.746
SEVERE						
BMI	0.96	0.574	0.814- 1.121	1.2	0.106	0.963-1.477
Self Perception Of Health	3.26	0.031	1.114- 9.550	3.5	0.060	0.945- 12.89
Waist Circumference	1.89	0.363	0.478- 7.487	0.22	0.081	0.039- 1.207
Age	1.14	0.007	1.035- 1.245	1.20	0.001	1.081 - 1.335
Hypertension	2.35	0.237	0.571- 9.684	0.51	0.347	0.125 - 2.078

Functional limitation as outcome and BMI, age, Self Perception of Health, Waist Circumference, diabetes & Hypertension as Ind Va

	MEN		WOMEN	
	R2 = 0.2888		R2= 0.1633	
Functional limitation	RR	95%CI	RR	95%CI
<i>Mild/Moderate</i>				
Obesity	4.10	0.047- 361.899	0.52	0.157 - 1.726
Autopercep	1.48	0.339 6.460	1.83	0.672- 4.998
waist	0.05	0.0005- 4.352	3.40	1.064- 10.882
age	1.14 **	0.999- 1.306	1.03	0.947- 1.127
hypertension	0.46	0.097- 2.169	1.63	0.533 -4.954
diabetes	2.75	0.393- 19.256	0.13	0.012 - 1.311
>8 y education	0.26	0.017- 3.943	0.08**	0.011- 0.604
<i>Severe</i>				
Obesity	2.12	0.237- 19.068	0.49	0.114- 2.106
Autopercep	3.37*	0.800- 14.204	2.36	0.726 - 7.634
waist	0.25	0.0285- 2.176	1.76	0.476 -6.490
age	1.27***	1.105 - 1.453	1.16 **	1.043- 1.278
hypertension	0.39	0.085 - 1.812	2.24	0.517 9.711
diabetes	3.29	0.371 - 29.198	2.85	0.559- 14.502
>8 y education	0.11**	0.013- 0.930	0.67	0.055- 6.372

rsburg, Florida

*p < 0.10 **p < 0.05 ***p < 0.001

Conclusions

The results confirm the negative association of BMI and mortality.

Obesity was associated with 5 y incidence of functional limitation risk in women but not in men

After adjustment (logistic regression), there was no association between obesity and 5y Risk of functional limitations