Healthy life expectancy in the elderly in Santiago Chile

Cecilia Albala MD, MPH[1]
Hugo Sanchez MD, MPH1
Lidia Lera PhD[1]
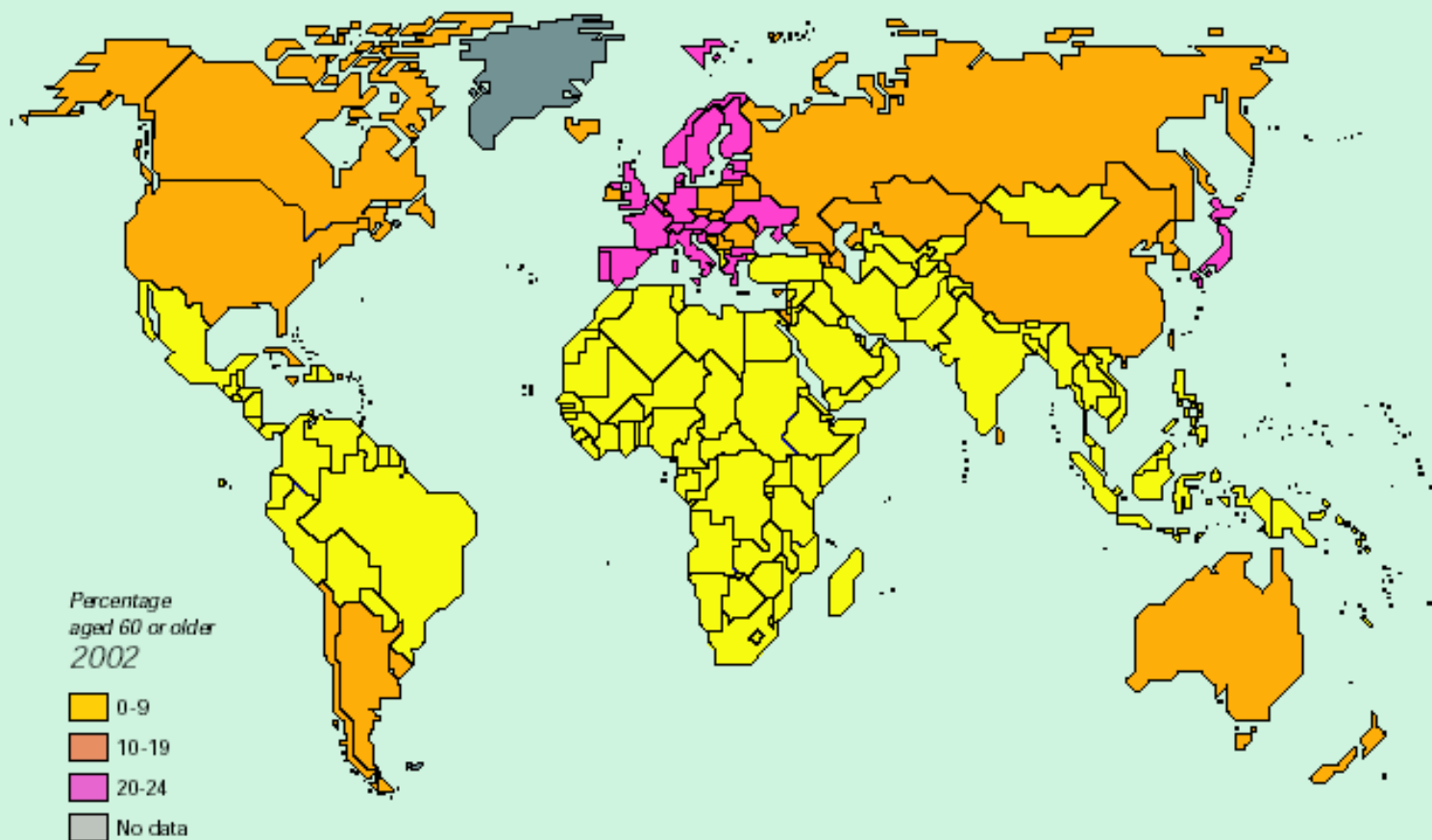## Carola Garcia MSc[1]
Marco Mendez PhD[1]

[1] *INTA, University of Chile*

calbala@uchile.cl

Percentage of total population aged 60 years or older
2002

Percentage
aged 60 or older
2002

- 0-9
- 10-19
- 20-24
- No data

The boundaries shown on these maps do not imply official endorsement or acceptance by the United Nations.
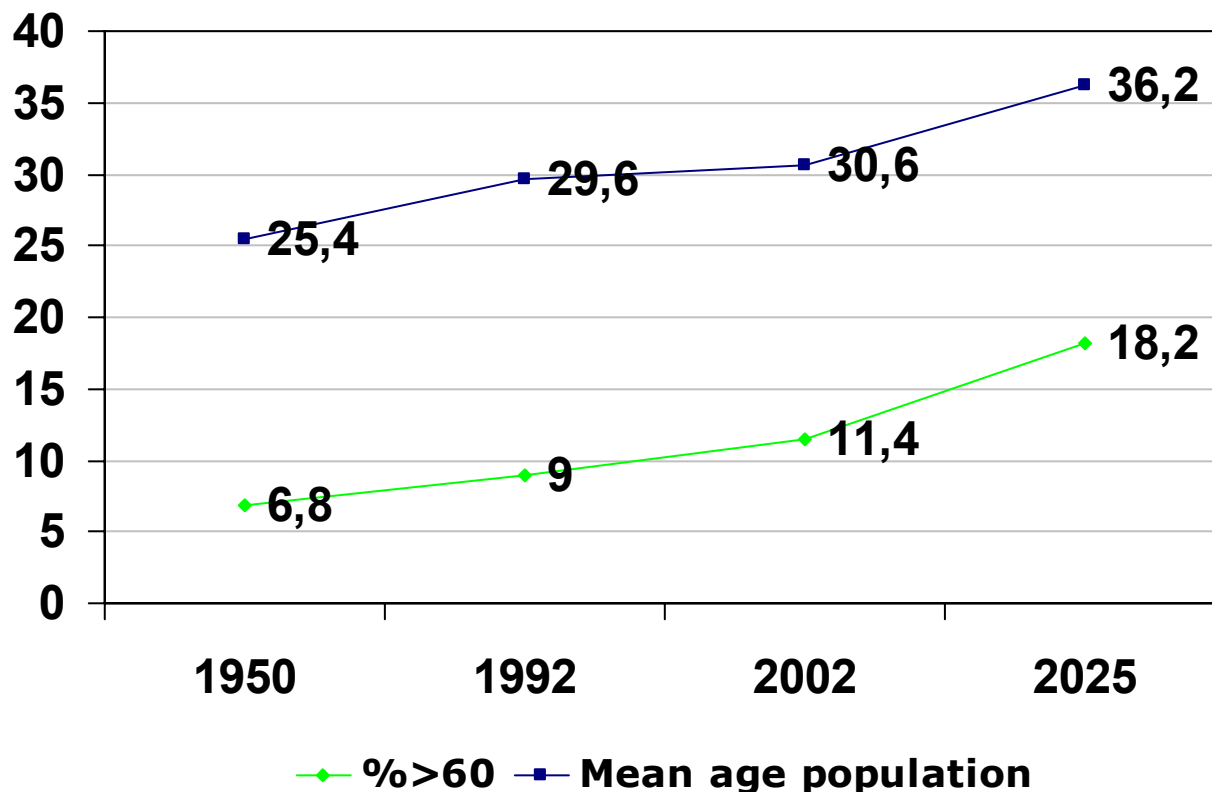
COMPONENTS OF THE POPULATION CHANGE, CHILE 1982-2002

	Natality Rate*	Mortality rate*	Fertility rate	Population growth**	Infant mortality rate***
1982	23,9	6,1	3,1	1,8	23,6
1992	21,7	5,5	2,4	1,6	14,3
2002	16,1	5,2	2,0	1,2	7,8

* per 1000 inhab   ** per 100 inhab   *** per 1000 LB

% population ≥60 years & Mean age of the population
Chile 1950-2025
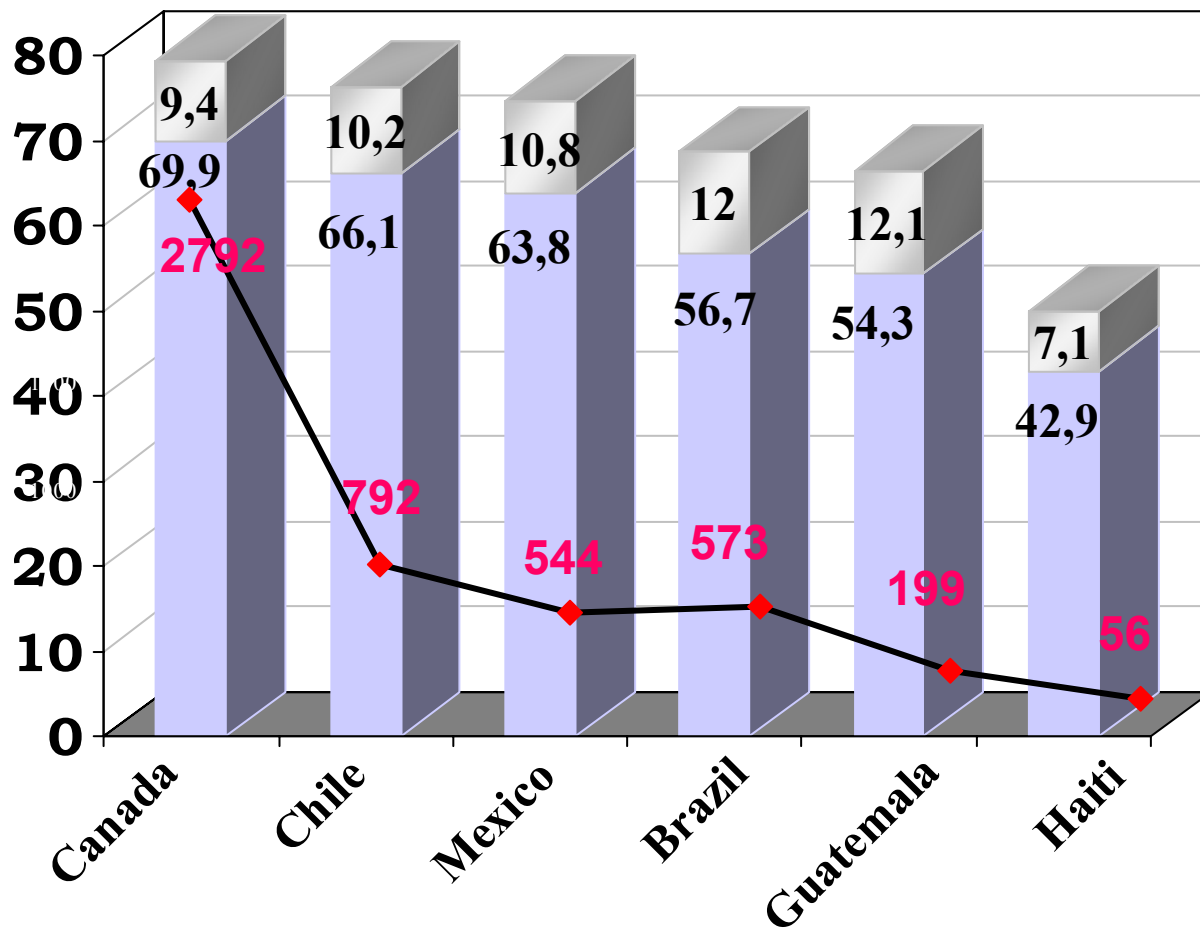
Life Expectancy at birth. Chile 1970-2025

Men Women
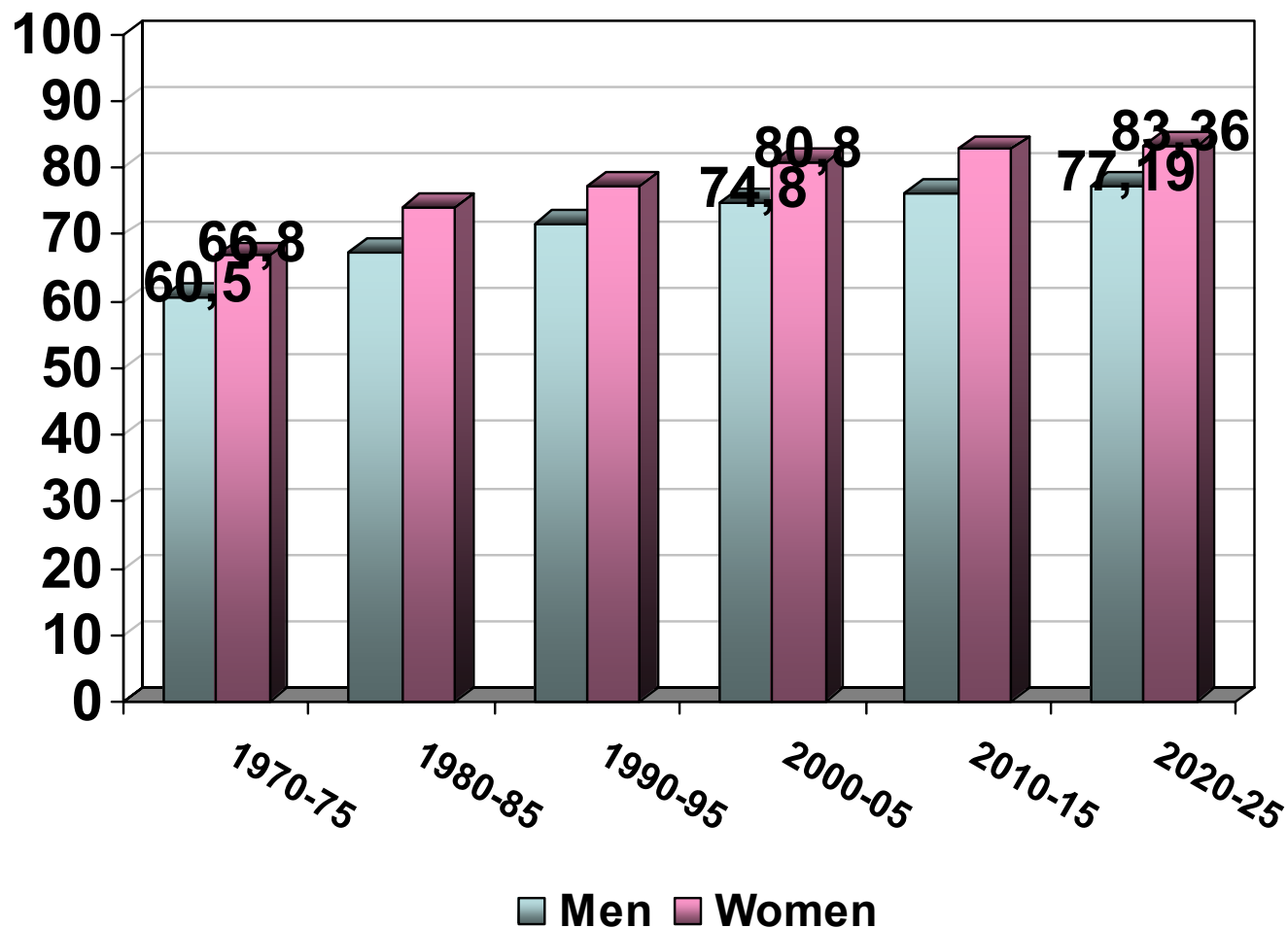
Background

- ❑ **The aging process in Chile & LA is characterized by an unprecedented speed and massiveness.**

- ❑ **The aging process has impact on a wide range of dimensions of the societies, but probably the most influential is the health status and health conditions of the elderly.**

- ❑ **The gradual impairment of physical and mental health conditions that accompany the individual aging process and the resulting reduction in the expected years of active and healthy life expectancy dictate that the growth of the elderly population should increase the demand for health care and health services.**

- ❑ **Since the most relevant health conditions of older persons are chronic rather than acute and progressive rather than regressive this demand can also entail steep escalation of health care costs.**

LEB, HALE at birth & Health Expenditure * p.c 2002 Selected Latin American Countries

Chart data:

Country	HALE	LEB	Health Expenditure
Canada	9,4	69,9	2792
Chile	10,2	66,1	792
Mexico	10,8	63,8	544
Brazil	12	56,7	573
Guatemala	12,1	54,3	199
Haiti	7,1	42,9	56

*US$ Internacional
Fuente: The World Health Report 2004

Equity and the health conditions of the elderly

The health problem associated with the ageing process involves important equity issues.

❑ **class differentials**

Since members of different social classes experience different health profiles as a consequence of past and future differentials in exposure, resistance and recovery rates. Moreover, the quality of health care may differ substantially across social strata.
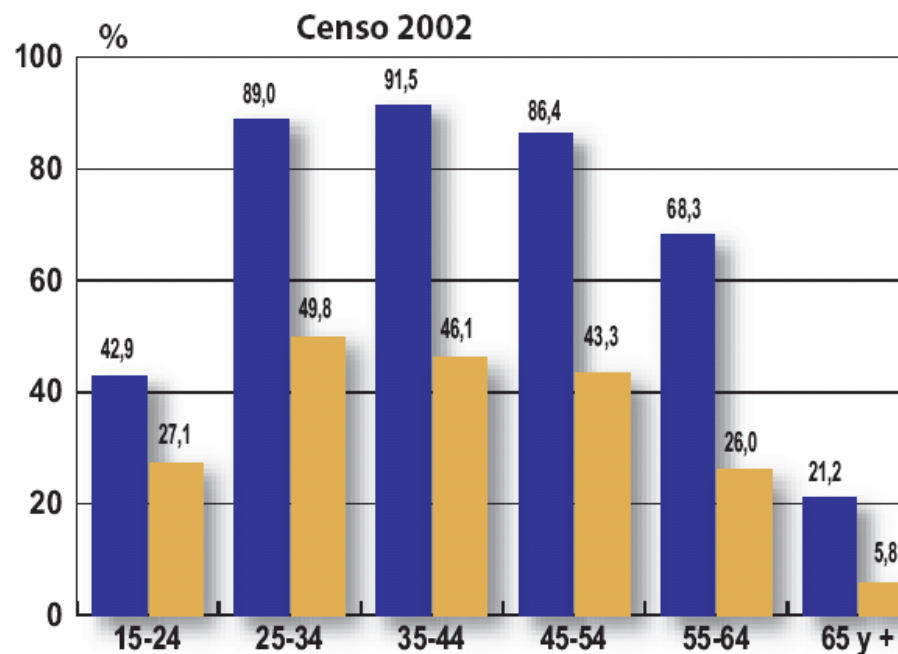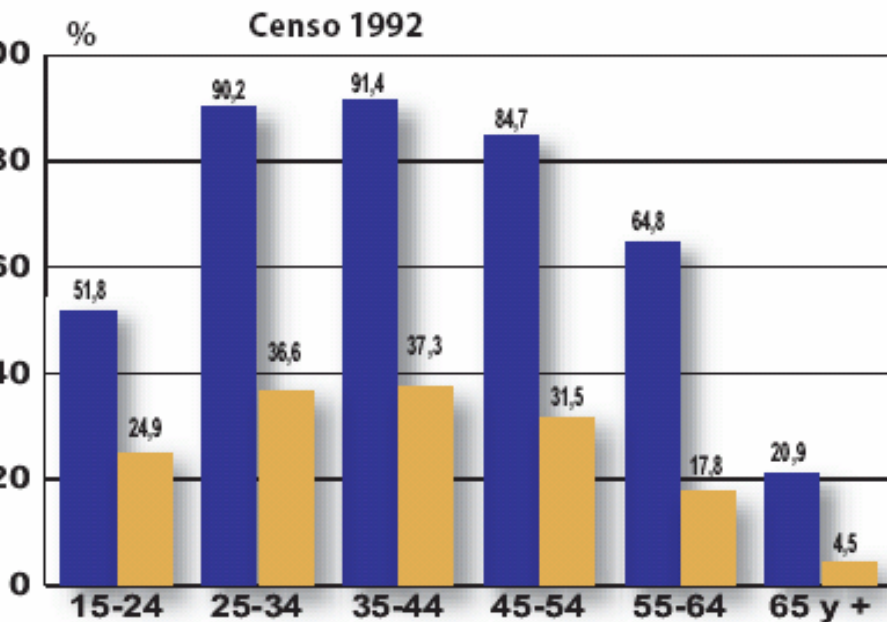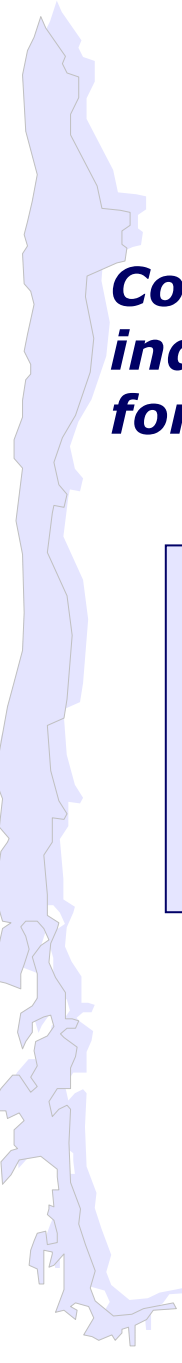
❑ **gender differentials**

Males and females experience different mortality risks and are affected by significantly different health problems. Since women have had a history of lower levels of labor force participation, their access to sources if income and to health care and services when they age will be substantially different than for men.

Economic participation rate by sex and groups of age. Chile 1992-2002

Considering that Healthy life expectancy is an excellent indicator for monitoring the need of health services and for the surveillance health inequities

Objective

To estimate Healthy Life Expectancy and the gender differentials in a cohort of ≥60 y in Santiago, Chile.

METHODS I

Data for the study came from the Santiago SABE survey done in 2000 in 1301 subjects aged 60 and older residing in Santiago Chile.

Calculations were done by

□ *Sullivan Method*
2000-2001 life tables by sex for Santiago done by the Chile National Institute of Statistics and the age specific functional limitations rates from the SABE study

□ *Multistate life table Analysis using IMACH* (version 0.96)
the follow up of the 1202 subjects with complete measurements of the Santiago Sabe sample
Of this number, 59.4% were interviewed, 16.6 % were died and 24% were lost to follow-up
Mortality data were obtained from death certificates of the National Civil Registry

Definition of Health Status

To estimate healthy Life Expectancy (HALE), health status is defined in terms of functioning ability based on ADLs, IADLs & mobility items (Nagi's & Rosow-Breslau).

6 ADL: bathing, transfer, using toilet, eating, walking on level surface & dressing

6 IADL :
Manage own medication, cooking, manage money, to do light housework, to do heavy house work & shopping alone,

6 Items of Mobility
bending, lifting, grasping, climbing one flight, walking ½ mile & reaching overhead

Functional limitation is defined as limitation in 1 ADL and /or 1 IADL and/or any 2 items of mobility (*Albala et als 2004***)**

METHODS II

❑ **The development of the definition of functional limitation was done in th
SABE Chilean Sample and afterwards validated in 4 cities**

❑ **Internal validity for all the variables in ADL, IADL & Mobility items
was done through cross tabulation with performed activities.**

❑ **Phi correlation with cognitive impairment, depression, performe
physical activities, anthropometry, body composition, chronic diseases
handgrip strength and blood pressure was calculated.**

❑ **Logistic regression with significant variables, selected the bes
combination of self reported ADL, IADL and mobility to develop th
definition for functional limitation.**

❑ **5y all cause mortality was calculated for subjects with and withou
functional limitation for the chilean sample**

❑ **Validation of the definition was done in Chile in a subsample of 39
subjects examined during 2004-2005 with DEXA for body composition
complete anthropometry, blood pressure, biochemical exams and observe
variables of mobility.**

❑ **External validity of the definition was tested in 4 cities samples: Havana
Sao Paulo, Mexico and Montevideo**

RESULTS

Sullivan Method

Were used the oficial 2000-2001 life tables by sex for Santiago done by the Chile National Institute of Statistics and the age specific functional limitations rates from the SABE study obtained in 2000
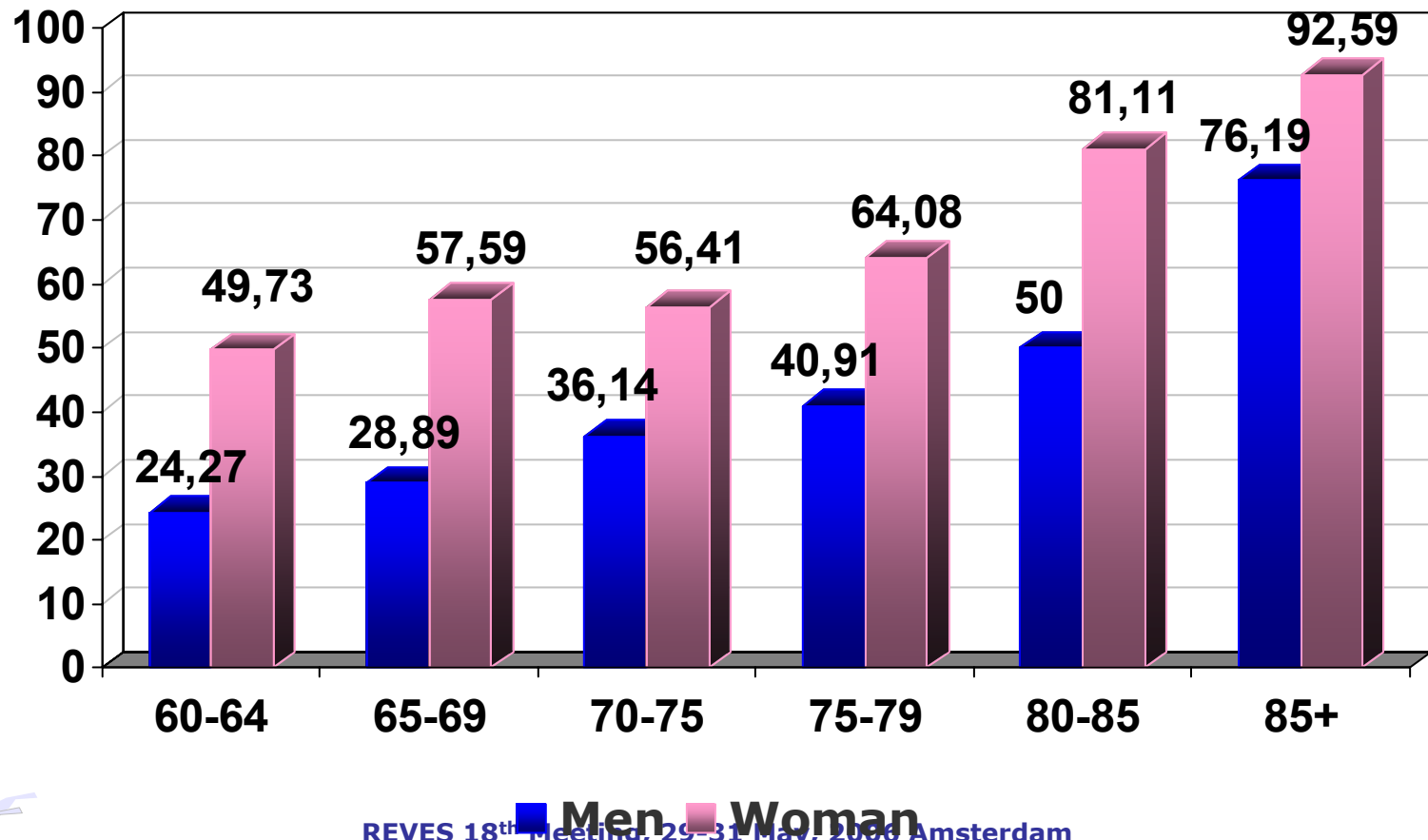
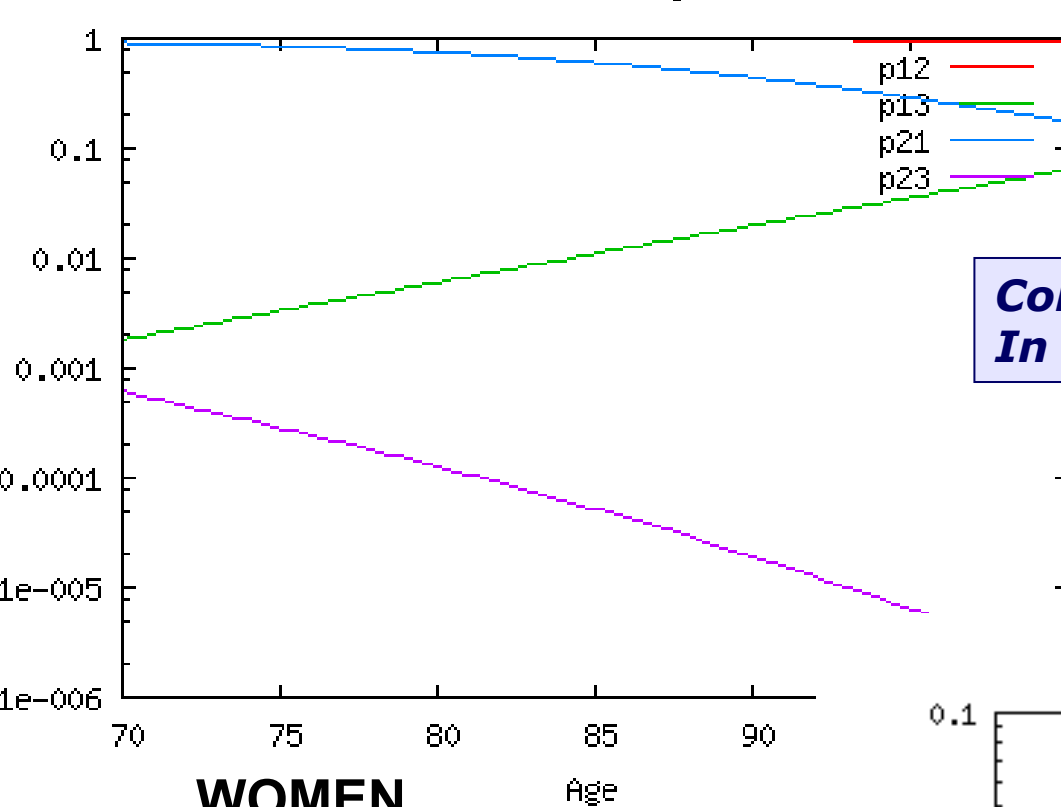# HALE* & % LE in healthy state in Men and Women ≥ 60y. Santiago, Chile

Age group	MEN			WOMEN		
	HALE years	% LE Healthy	LE years	HALE years	% LE Healthy	LE years
60	12.48	65.5	19.85	8.45	35.3	23.96
65	9.48	58.8	16.12	6.23	31.4	19.85
70	6.78	53.3	12.73	4.46	27.9	16.01
75	4.74	48.0	9.88	2.67	21.2	12.58
80	2.88	39.2	7.35	1.19	12.7	9.40
85	1.23	23.8	5.18	0.52	7.4	7.03

*calculation by sullivan method)

Total Life Expectancy, Active life expectancy & unhealthy years By gender in the Santiago SABE Sample*

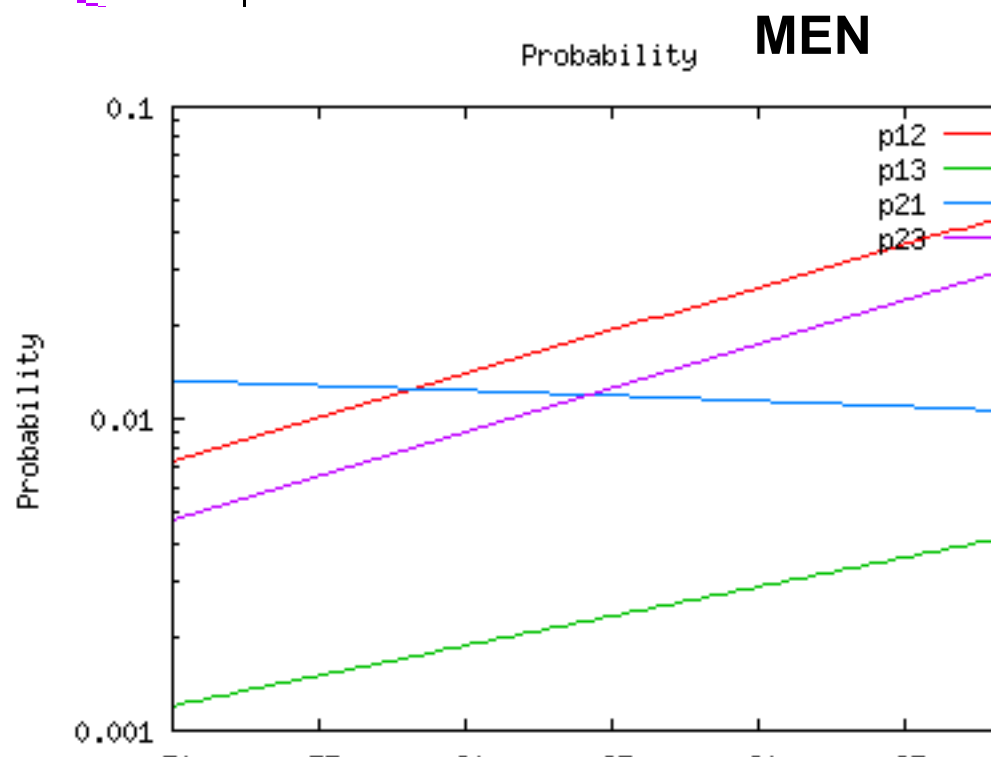| Age	HALE (ES)	Unhealthy years (ES)	TLE Years	% LE in Healthy state
	MEN			
60	15.28(1.275)	6.42(1.732)	21.70	70.5
65	12,33 (1,06)	5,94(1,23)	18,27	67.5
70	9,74 (1,01)	5,39 (0,99)	15,13	64.4
75	7,54 (1,04)	4,77 (0,89)	12,31	61.3
80	5,72 (1,07)	4,12 (0,81)	9,84	58.1
85	4,27 (1,09)	3,48(0,70)	7,75	55.1
	WOMEN			
60	12.39(0.72)	12.04(0.719)	24.43	50.7
65	10,33 (0,54)	10,76 (0,54)	21,09	49.0
70	8,21 (0,50)	9,54(0,50)	17,75	46.3
75	6,14(0,48)	8,38 (0,48)	14,52	42.3
80	4,27 (0,47)	7,33 (0,47)	11,6	36.8
85	2,77 (0,46)	6,43 (0,46)	9,2	30.1

Conditional probabilities of change
In health status in men and wome[n]

WOMEN

MEN

Summary

❑ **The aging process in developed countries takes place long after they achieve high standards of living, reduce social and economic inequalities, and implement institutional strategies to offset the effects of inequalities**

❑ **The results shows serious health problems and enequities by gender and SES. In all SABE countries the male profile appears to be better than that for females**

❑ **Considering that women live more but in worse conditions than men, the gender disparities increase the high vulnerability of this group.**

❑ **The aging process in the region is characterized not just by an unprecedented speed and massiveness, but also by large potential demand for health services**

❑**The inability to confront these problems leads to rapid deterioration of the health status of the elderly and to the shocking loss of years of life expectancy**

CONCLUSIONS

❏ **The prevalence of functional limitations in the elderl in Santiago, Chile is very high, affecting mostly th oldest and the women.**

❏ **Functional limitations were more frequent in the olde and in the less educated. After adjustment by age an education, it persist differences by gender**

❏ **Concordantly HALE is decreasing with age from 53.8% to 37.6%.**

❏ **The results are invaluable for monitoring the need o health services for the elderly, allocate resources an health services and for and for the surveillance healt inequities**