

# Socioeconomic and gender differentials in survival and healthy life expectancy in Chilean older people

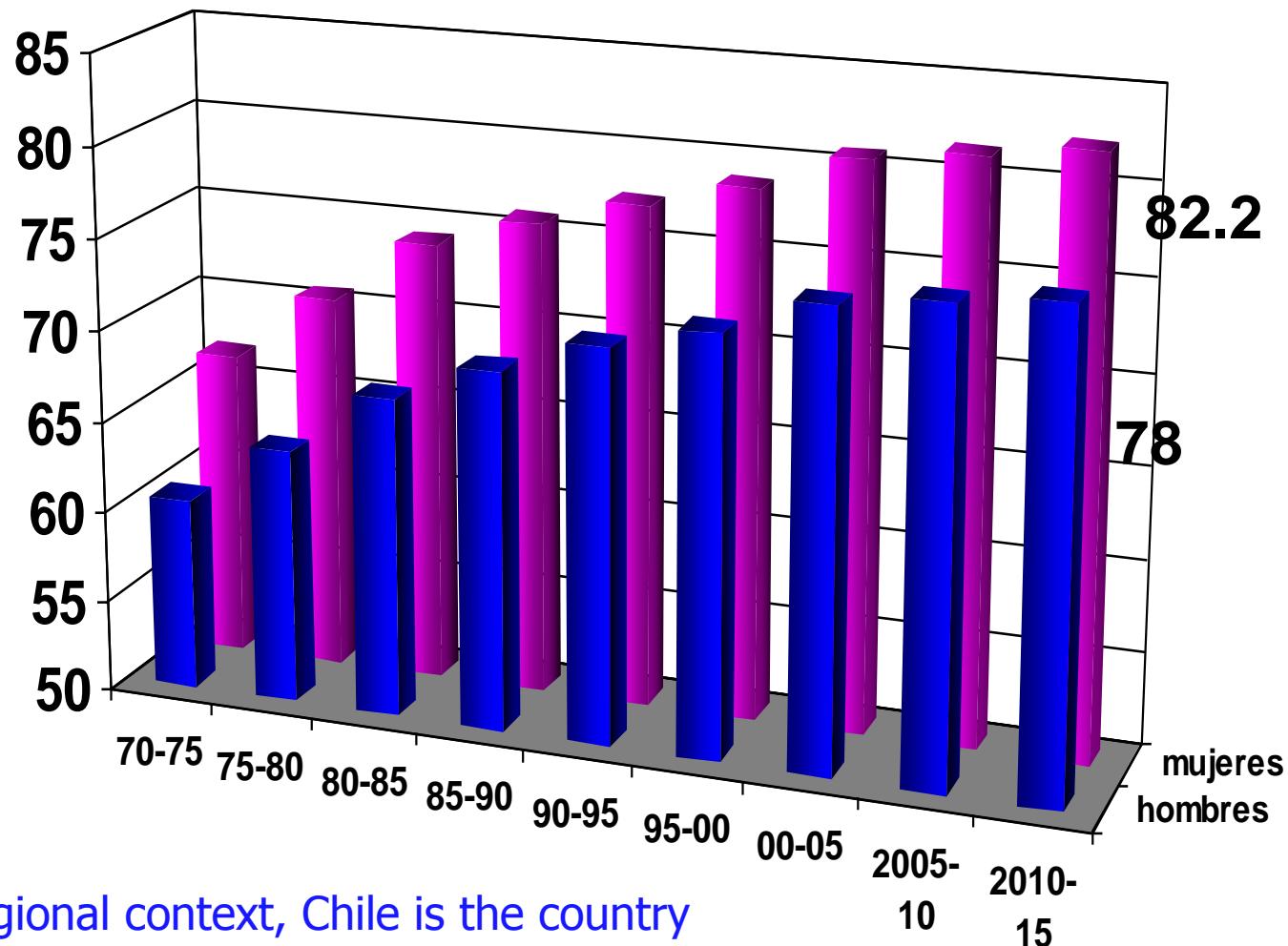
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## **Socioeconomic and Demographic Characteristics. Chile 1990 -2010**

	1990	2000	2012
<b>HDI</b>	0,698	0,748	0,819
<b>PIB (US\$ PPP)</b>	6583	10470	18419
<b>Q5/Q1</b>	16,9	17,5	14,1
<b>% Urban pop</b>	83	85,6	88
<b>Mean years of education</b>	8,1	8,8	9,7
<b>% Pop ≥60 y</b>	9	10,2	13,5
<b>IMR</b>	16	9	8
<b>Mortality under 5y</b>	21	11	9
<b>GFR</b>	2,6	2	1,9
<b>HE at birth</b>	73,7	77	79
<b>HE at 60y</b>	19	21	23

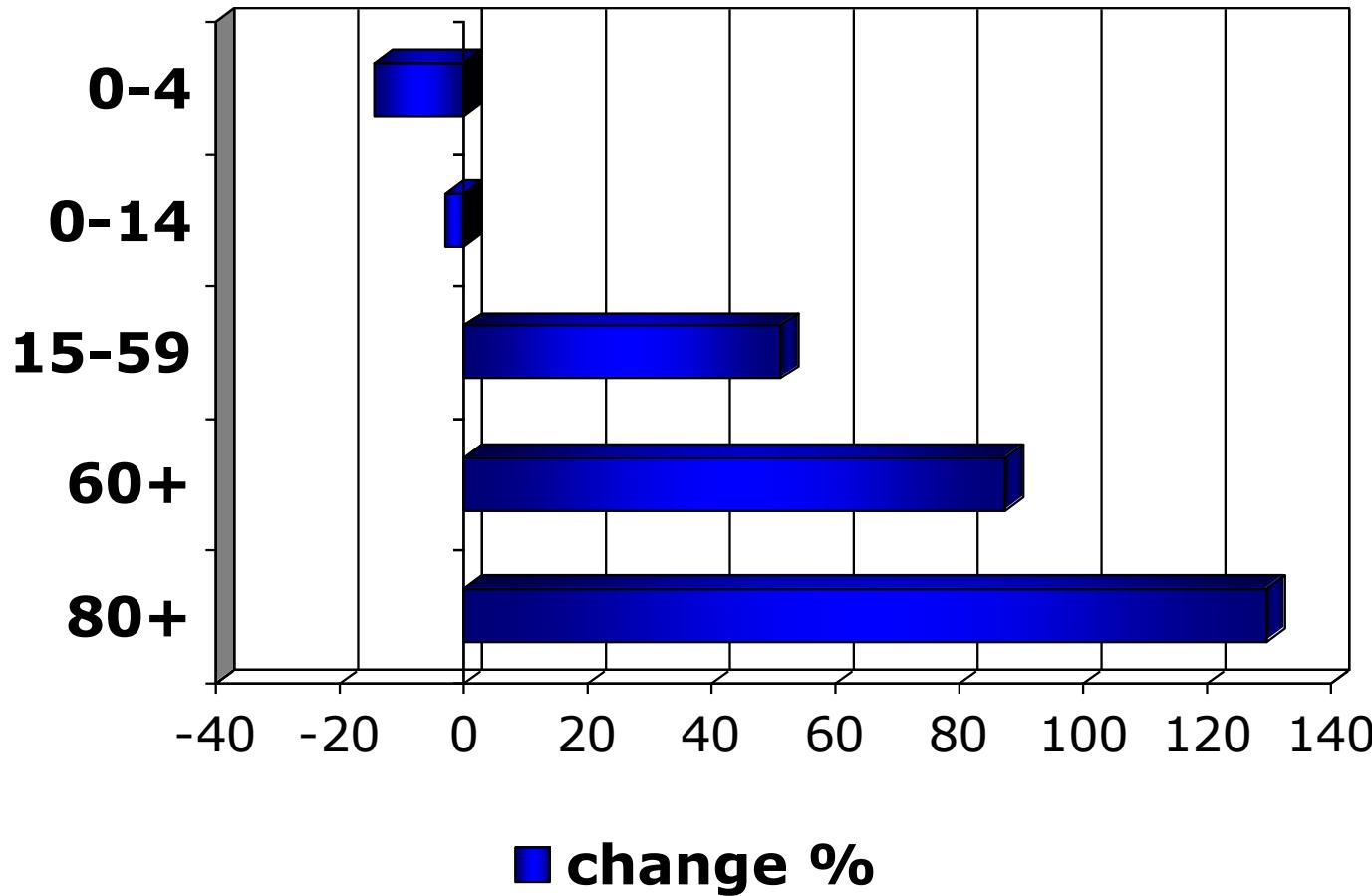
## *Life expectancy at birth. Chile 1970-2015*



In the regional context, Chile is the country that has grown faster life expectancy at birth. Between the periods 1970-1975 and 2005-2010 the EVN increased 15 years in both men and women

FUENTE: INE-CELADE. Chile, *Estimaciones y proyecciones de población por sexo y edad. Total país 1950-2050*.

# *Population change % by age groups. Chile 1990-2010.*



Fuente: INE. CHILE: Proyecciones y Estimaciones de Población . 1990-2020.  
Elaboración propia



***The great success in improving the survival of Chileans, does not necessarily mean that the extra years are healthy. As mortality decreases and life expectancy increases, arise the question about the quality of the years gained.***

## **Objective**

To explore the trajectories of functional limitations in Chilean older individuals from different Socioeconomic backgrounds

## ***Subjects and Methods***

Longitudinal study of two cohorts of older adults living in Santiago, Chile:

***SABE Cohort*** probabilistic sample of 1173 older people living in Santiago

***ISAPRES Cohort***, 266 people, randomly selected from private health insurance system (ISAPRES) registries of beneficiaries from Santiago

5y- interval

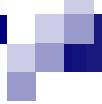
2000-2005-2010

No exclusion criteria were considered

## **The Health system in Chile**

System with two major types of health insurance – **public and private**.

- **The public sector (FONASA )**comprises all the organisms that constitute the National System of Health Services, which covers 80% of the population, including the rural and urban poor, the low and middle-class, the retired, and the self-employed professionals and technicians.
- **The private sector (ISAPRE)** covers 15% of the population, mostly the upper middle-class and the high-income population. Around 5% of the population is covered the Health Services for the Armed Forces.
- Every employed worker and the retired people with a pension >US\$600 are required to contribute 7% of their salary or pension towards health insurance
- Although in the private system the population has access to different health plans depending on extra payments based on risks: older people have the most expensive plans
- ***As a result only 7-8% of older adults are enrolled in the private health system***



## **Variables**

All subjects underwent a home structured interview including questions on socioeconomic and demographic factors, history of chronic diseases, smoking habits, psychosocial factors, ADL, IADL and mobility limitations.

Functional limitation was defined from a combination of 6 Basic Activities of Daily Living, 7 IADL, and 7 mobility activities

## **Functional Limitation**

Limitation in  $\geq 3$  mobility activities and/or  $\geq 2$  IADL and/or 1ADL and/or MMSE<13 & PFAQ>5

# *Results I*

*The comparison between SABE and ISAPRE cohorts was performed previous subtraction of 62 people from SABE in the ISAPRE system*

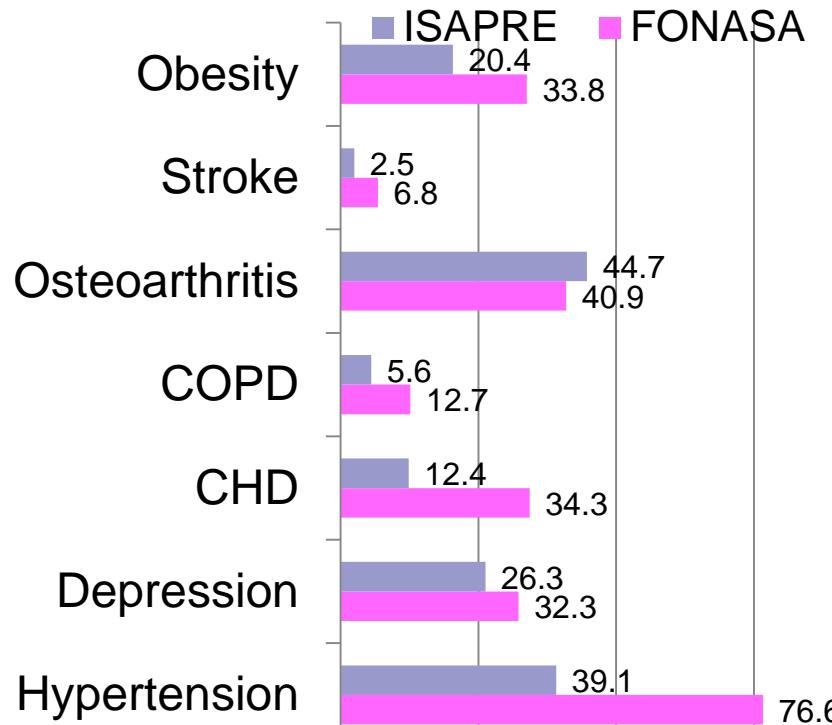


## Baseline Socioeconomic characteristics of the two cohorts

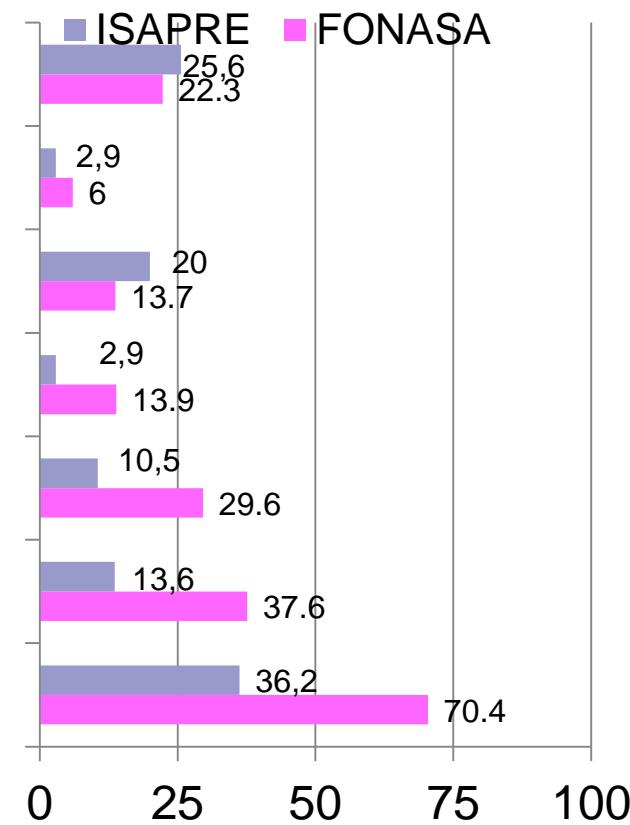
	SABE			ISAPRES		
	Men n:397	Women n=776	Total n=1173	Men n=105	Women n=161	Total n=266
Mean age ± DS (95%IC)	71,2±7,6 <sup>c</sup> (70,4-71,9)	72,5±8,2 <sup>b</sup> (71,9-73,1)	72,1±7,9 <sup>d</sup> (71,6-72,5)	71,0±7,7 (69,5-72,4)	71,0±8,0 (69,1-72,2)	70,9±7,8 (70,1-71,9)
Unable to read&write % (95%IC)	10,0 <sup>ac</sup> (7,2-13,5)	18,0 <sup>ab</sup> (15,3-20,8)	15,3 <sup>d</sup> (13,3-17,5)	0,95 <sup>c</sup> (0,2-5,2)	1,24 <sup>b</sup> (0,01-4,4)	1,1 <sup>d</sup> (0,2-3,3)
Mean years education±DS	6,2±4,6 (5,8-6,7)	5,1±4,2 (4,8-5,4)	5,5±4,4 (5,2-5,7)	13,4±4,4 (12,5-14,2)	12,6±4,8 (11,9-13,4)	12,9±4,6 (12,4-13,5)
< 6 años % (95%IC)	43,4 (38,4-48,5)	52,6 (49,1-56,2)	49,6 (46,7-52,5)	3,8 (1,0-9,3)	6,2 (3,0-11,1)	5,2 (2,9-8,6)
6-12 años % (95%IC)	45,0 (39,9-50,1)	41,8 (38,3-45,4)	42,9 (40,0-45,8)	41,5 (32,0-51,5)	50,6 (42,7-58,6)	47,1 (40,9-53,2)
13 y más % (95%IC)	11,6 (8,6-15,2)	5,5 (4,0-7,4)	7,6 (6,1-9,2)	54,7 (44,8-64,4)	43,2 (35,5-51,2)	47,8 (41,6-53,9)
living alone% (95%IC)	9,51 (6,8-12,8)	13,8 (11,5-16,3)	12,3 (10,5-14,3)	6,7 (2,7-13,3)	14,3 (9,3-20,7)	11,3 (7,7-15,7)

# ***Self reported Chronic Diseases according health system FONASA or ISAPRES.***

**WOMEN**



**MEN**



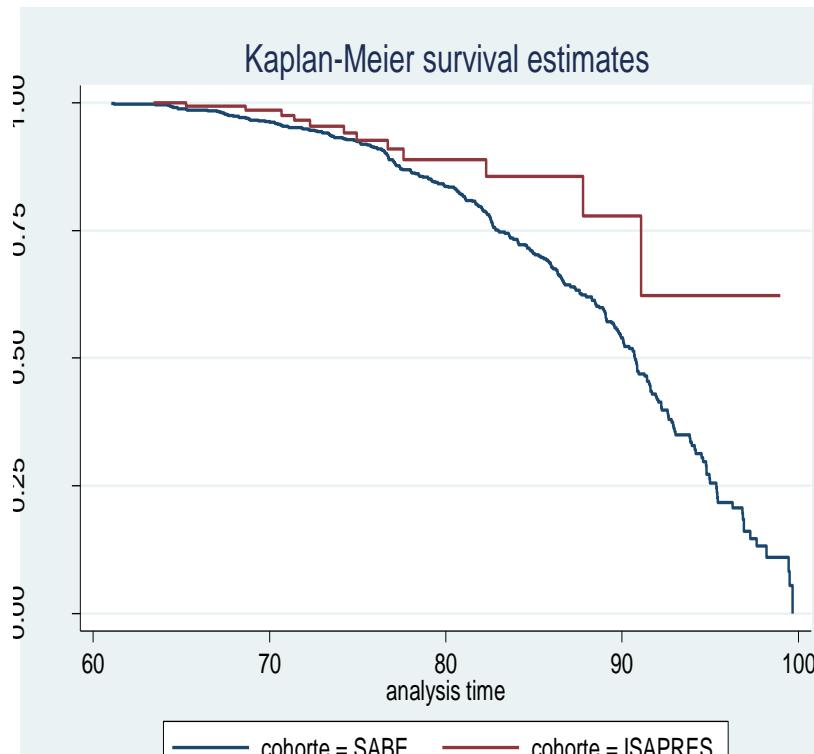
## *Functional Limitations by cohort and gender*

	SABE		ISAPRE	
	Hombres n=397	Mujeres n=776	Hombres n=105	Mujeres n=161
<b>Cognitive impairment %</b>	<b>8,5 <sup>a</sup></b>	<b>14,7 <sup>a</sup></b>	<b>1,0</b>	<b>0,6</b>
<b>Limitation in ≥1 ADL%</b>	<b>15,2 <sup>a</sup></b>	<b>27,8 <sup>a</sup></b>	<b>3,8<sup>c</sup></b>	<b>2,5 <sup>b</sup></b>
<b>Limitation in ≥1 IADL%</b>	<b>18,1</b>	<b>35,6</b>	<b>5,7</b>	<b>7,6</b>
<b>Limitation in ≥1 mobility items %</b>	<b>54,7</b>	<b>77,1</b>	<b>10,6</b>	<b>19,7</b>

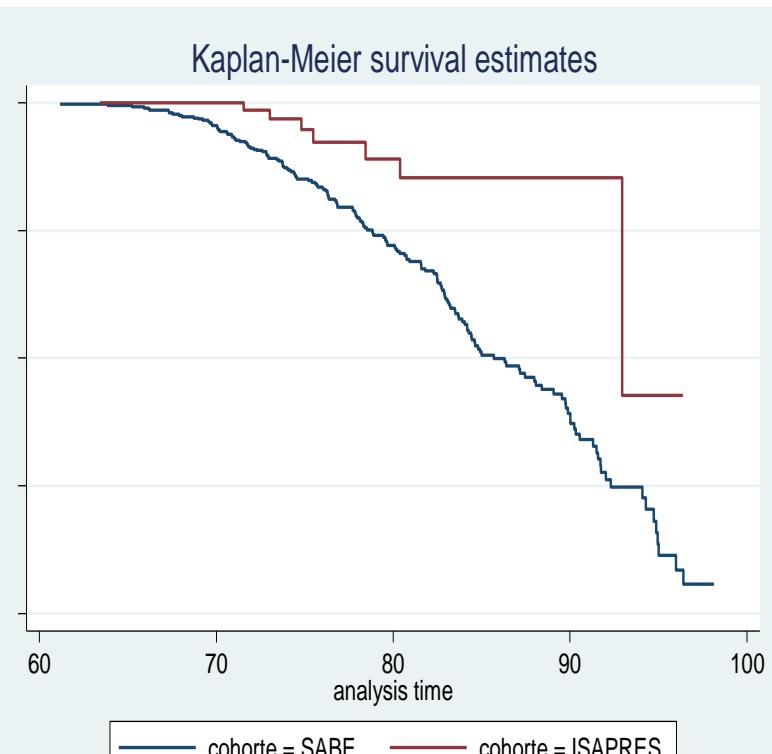
Ref. Albala et als. Rev Med Chile 2011

# Kaplan-Meier Survival estimates. ISAPRE and SABE cohorts by sex

MEN



WOMEN

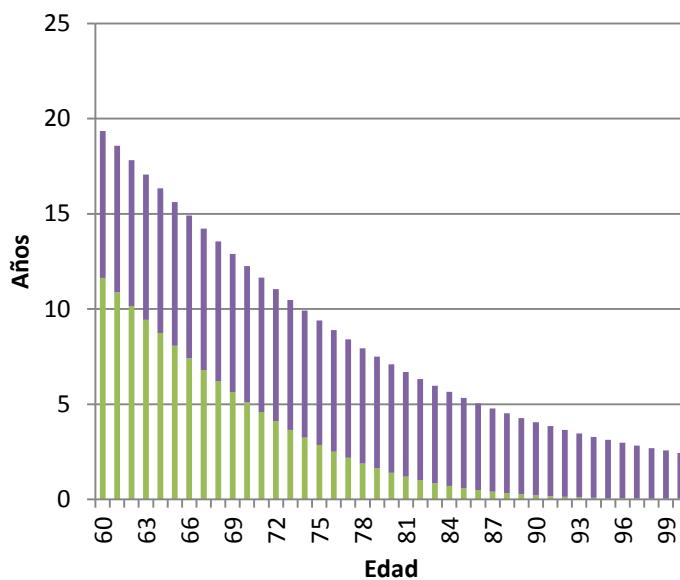


Pr>chi2 = 0,0004

Pr>chi2 = 0,0131

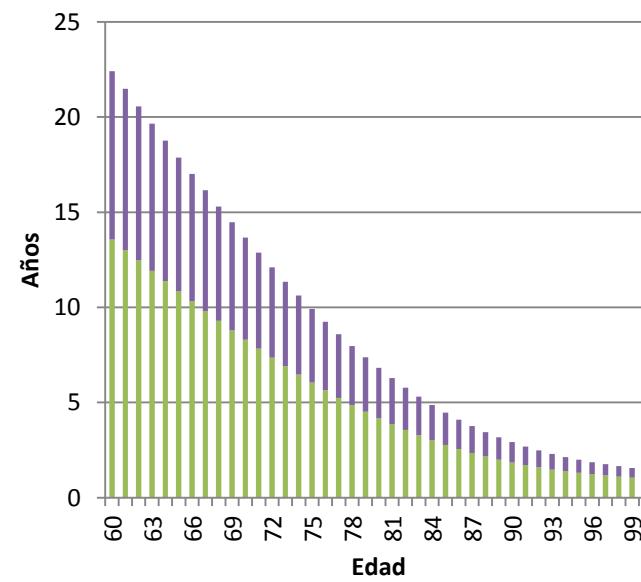
# Life Expectancy with and without functional limitations in older adults from public Health system (cohorte SABE) and ISAPRES

Cohorte SABE



- Expectativa de Vida no Saludable
- Expectativa de Vida Saludable

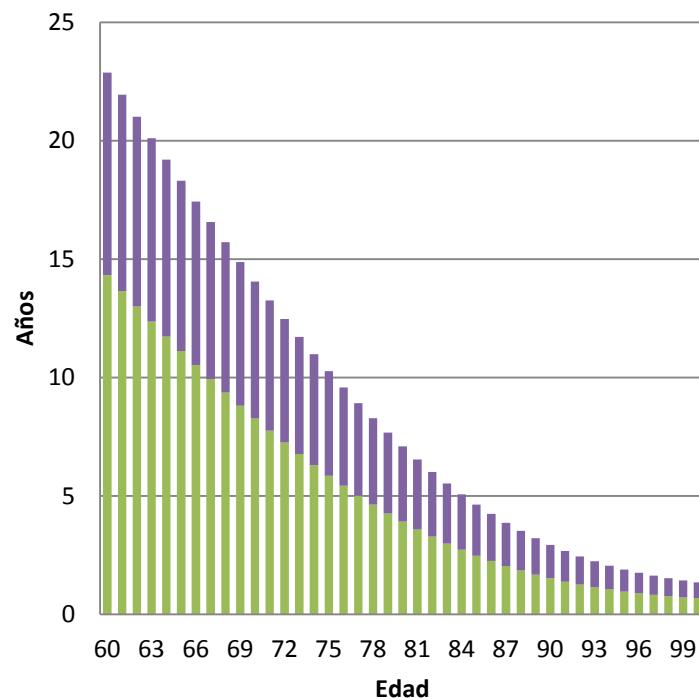
Cohorte ISAPRES



- Expectativa de Vida no Saludable
- Expectativa de Vida Saludable

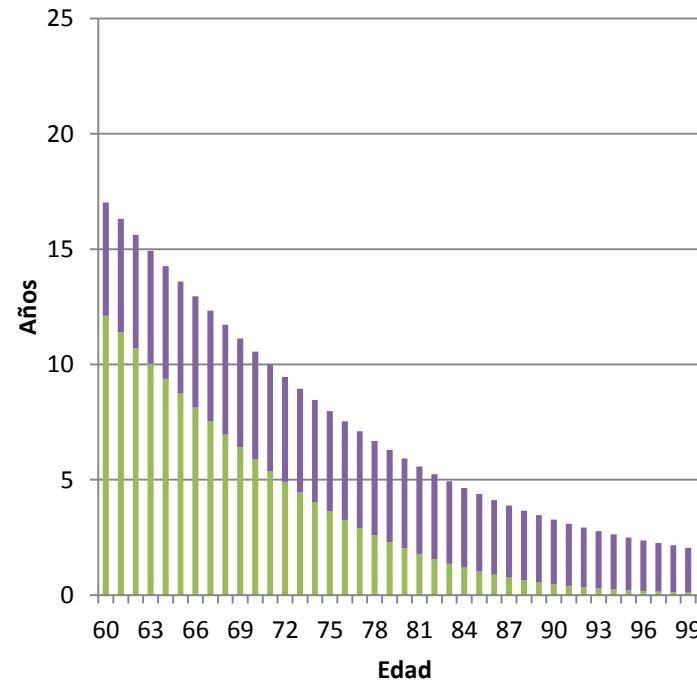
# Life Expectancy with and without functional limitations in older women from public Health system (cohorte SABE) and ISAPRES

Mujeres cohorte ISAPRE



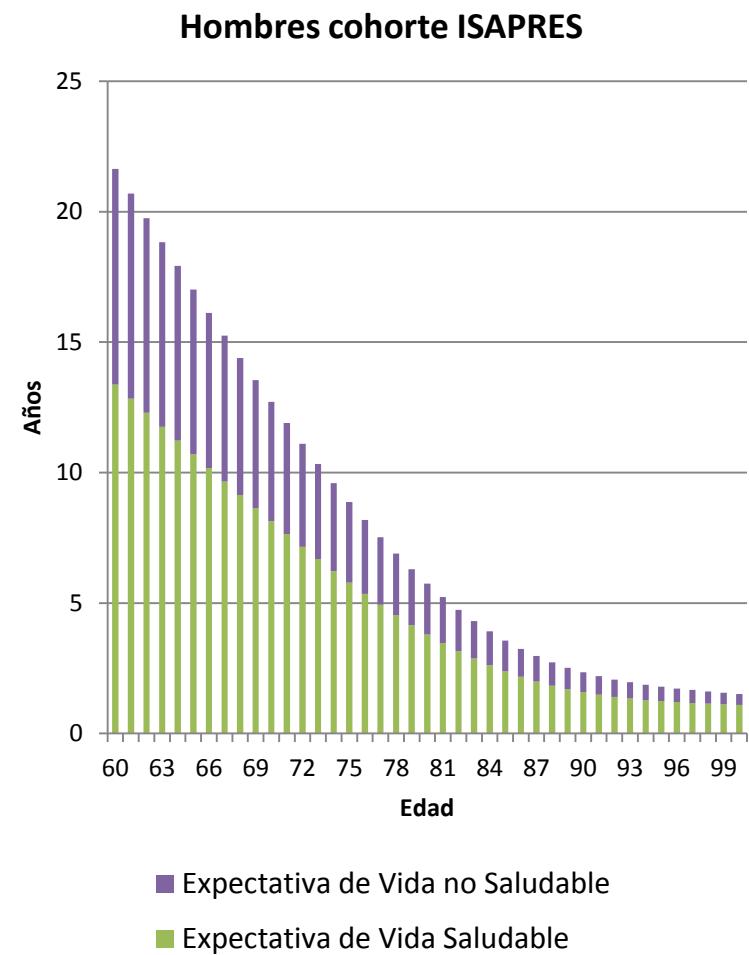
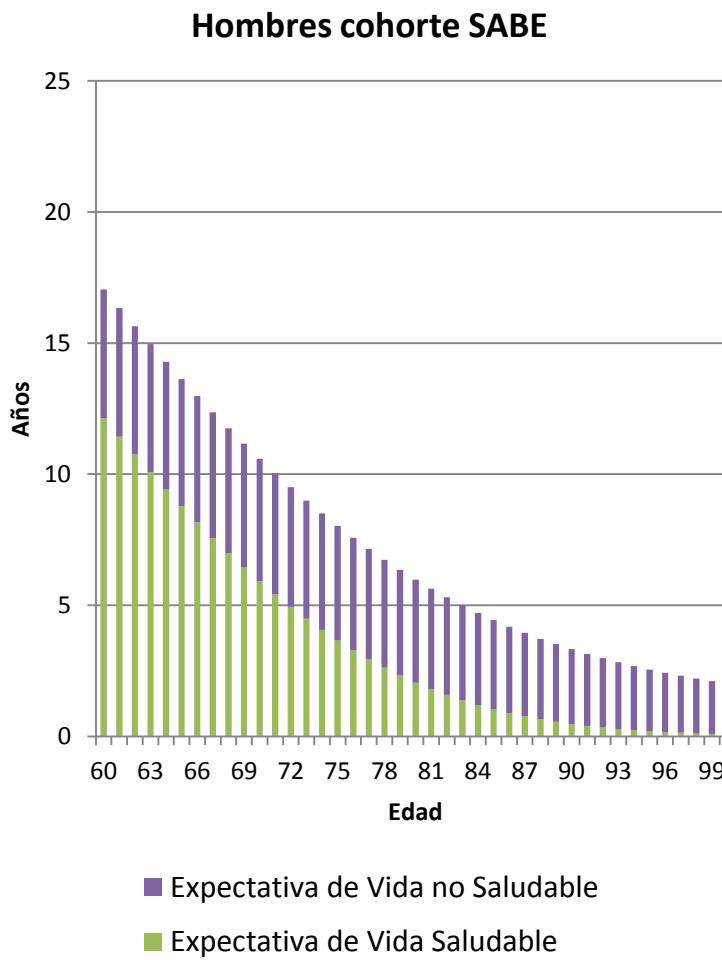
■ Expectativa de Vida no Saludable  
■ Expectativa de Vida Saludable

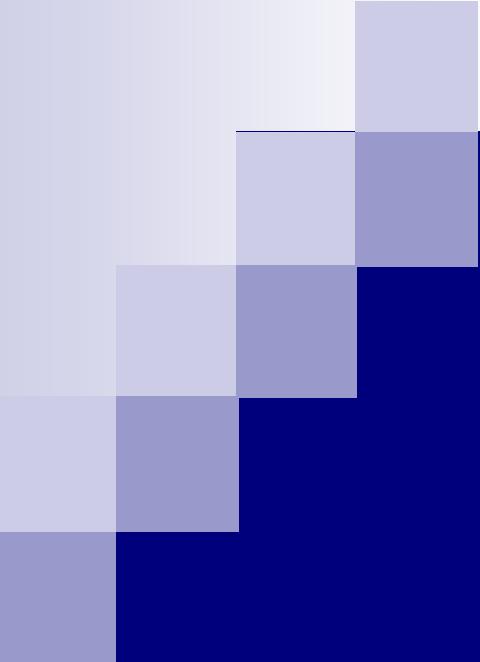
Mujeres cohorte SABE



■ Expectativa de Vida no Saludable  
■ Expectativa de Vida Saludable

# Life Expectancy with and without functional limitations in older men from public Health system (cohorte SABE) and ISAPRES





## *Results II*

*10y follow up of the whole SABE sample  
where the Socioeconomic level was assessed  
combining household equipment, wealth, and  
education in high, middle and low SEL*

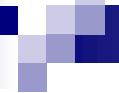


## Incidence of Functional limitation per 100 person-years according SEL (2000-2010)

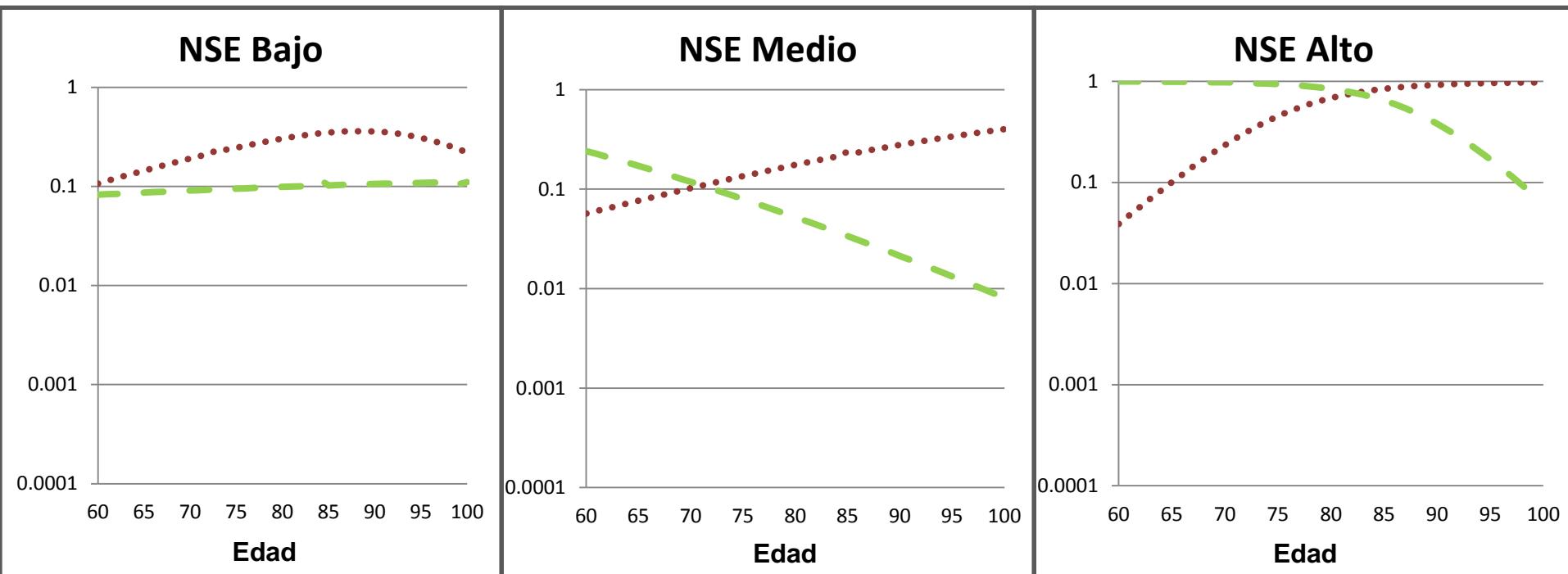
No limitado en muestra basal N.	Incident cases	Person-years observation	Incidence density per 100 person-years (CI95%)
Total (n = 405)	198	3057,41	6,48 (5,63-7,44)
Low SEL (n = 40)	24	310,47	7,73 (5,18-1,15)
Medium SEL (n=89)	144	2184,25	6,59 (5,59-7,76)
High SEL (n = 76)	30	562,69	5,33 (3,73-7,62)

The initial prevalence of functional limitation was 47.3% (95%CI:44.2;50.4) with a clear socioeconomic gradient (58.5% low; 46.2% medium, and 27.2% high; p>0.001).

Ref. Fuentes-García A, Albala C et al. Desigualdades socioeconómicas en el proceso de discapacidad en una cohorte de adultos mayores de Santiago de Chile. Gac Sanit. 2012. <http://dx.doi.org/10.1016/j.gaceta.2012.11.005>

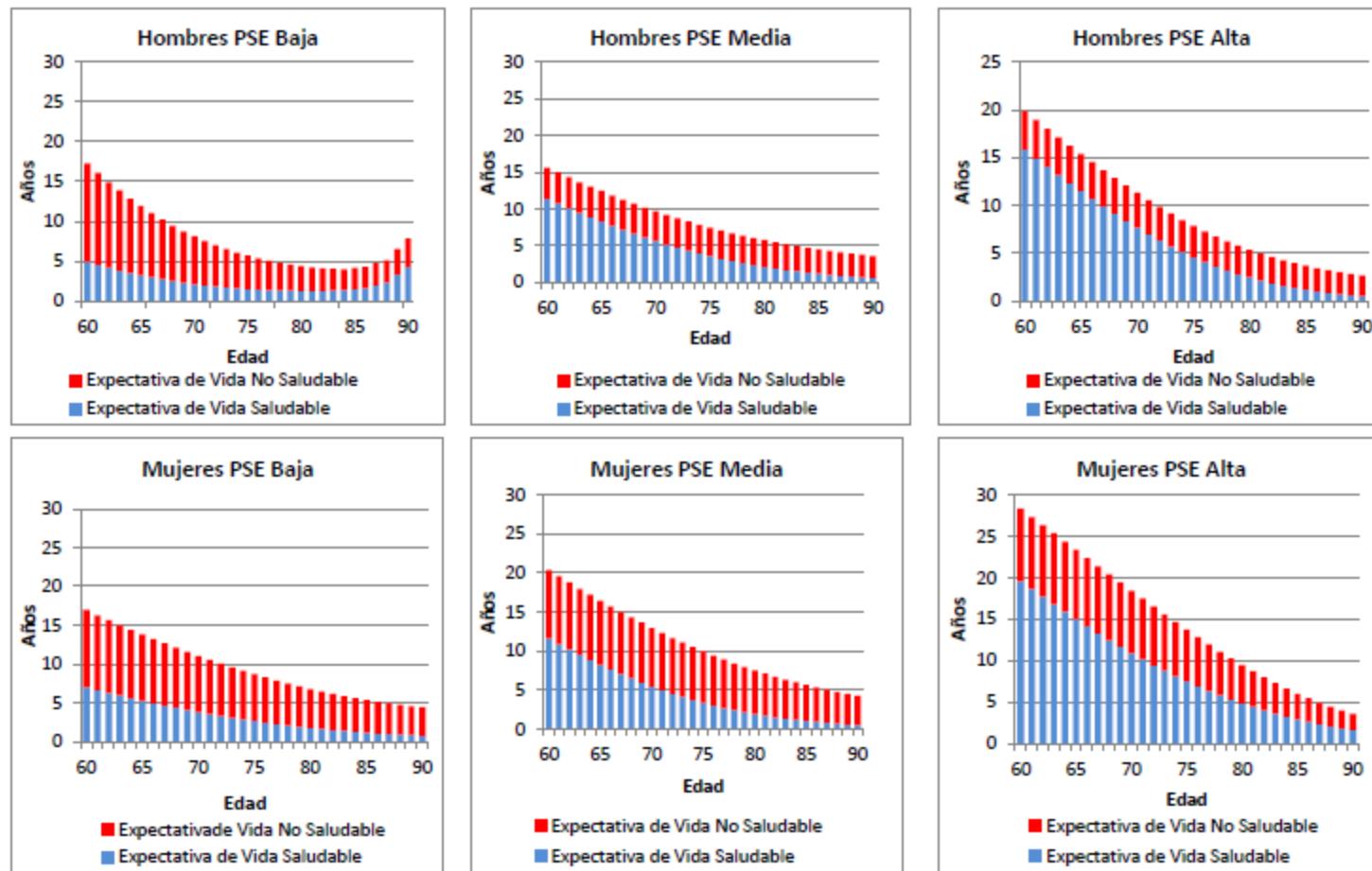


# Transitions of functionality according SEL



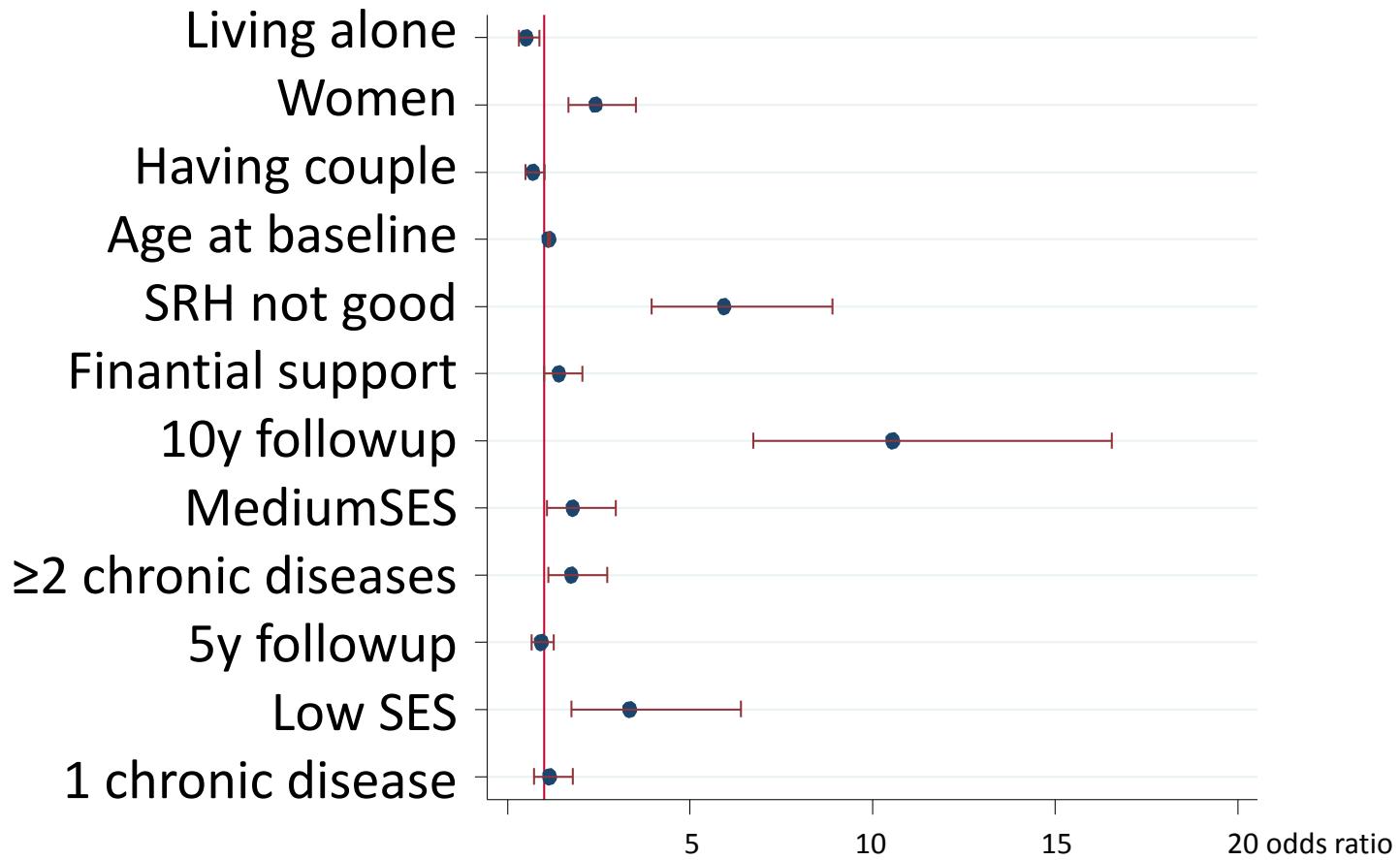
..... Sano-Limitado  
- - - Limitado-Sano

# Life expectancy with and without functional limitations according SEL. The SABE cohort



Ref: Cohorte SABE Tesis doctoral Alejandra Fuentes G.

## Multilevel Mixed Effects logistic regression OR for the disability process



# **Conclusions**

This study demonstrates profound socio-economic and gender inequalities in older people, thus showing that the years of healthy life gained are not the same for the whole society.

We corroborate the social stratification of a key element of elderly health as is functionality thus showing that age is not a leveling of socioeconomic inequalities

In other words, it appears that, biological processes typical of aging, acquire a social character as they are modified by the circumstances in which they live and accumulate throughout life

In Latin-American countries, policies aimed at active aging should be focused on prevention of exposure to several risks, and to try to compensate any deficiencies, particularly among poor older people, in order to prevent the transformation of impairment in functional limitation and this into disability and dependence



**Many Thanks!**