

**Life expectancies
when healthy**

Health expectancies provide a measure of dividing life expectancy into fractions lived in different situations: for example in good and bad health. These measures represent the growing interest in obtaining quality of life indicators (life when healthy) instead of exclusively quantity indicators (life expectancy). Health expectancies extend to the concept of life expectancy to morbidity and disability. The calculation of Health expectancies in particular life expectancy free of disability (LEFD) was developed to deal with the question of whether the increase in life expectancy was accompanied by an increase in time lived with poor health.

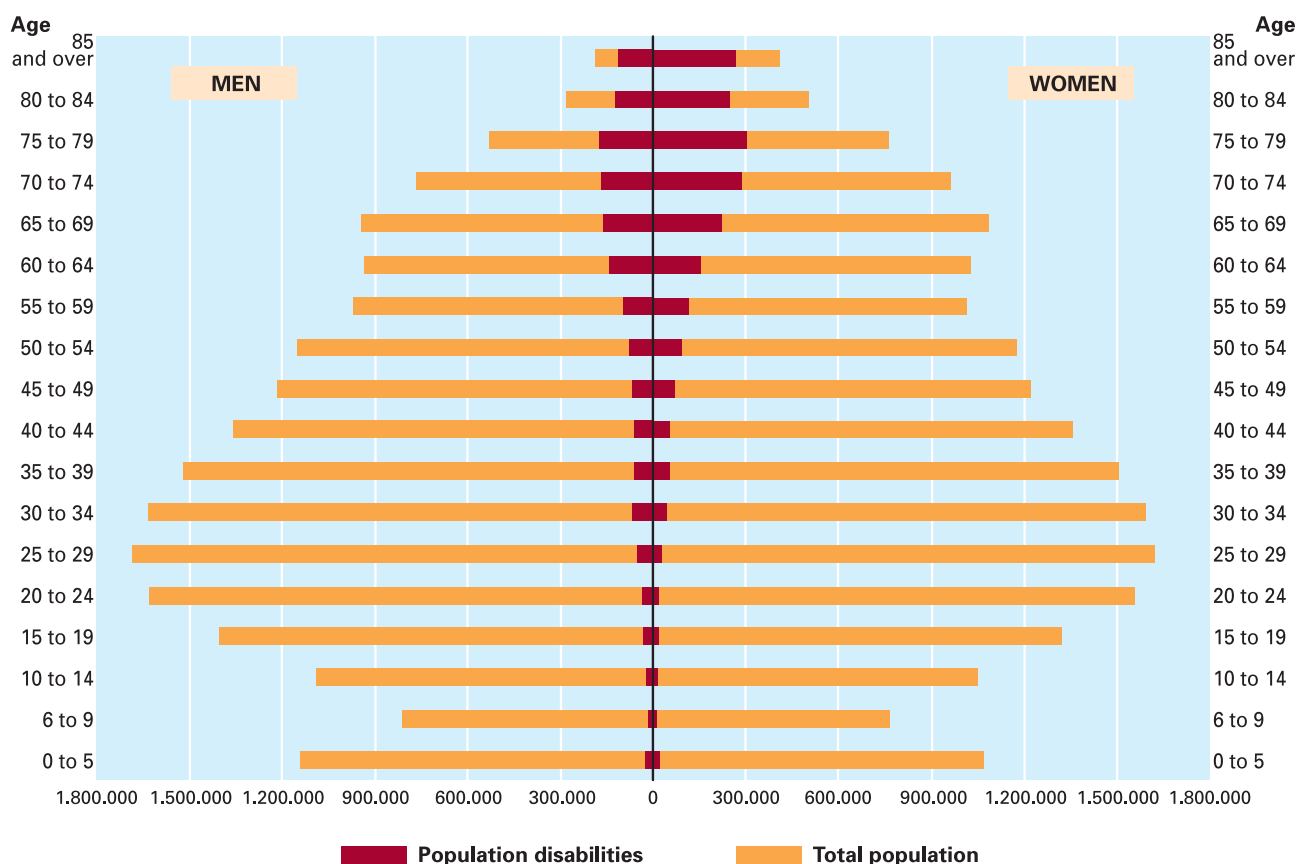
One of the main and more extended indicators to evaluate the quality of the health of a

population is the rate of disability. The survey on disabilities, impairments and state of health 1999 reaches 9% for disabled persons in Spain. Graph 1 shows the distribution by age and sex of the general population and disabled population.

The inversion of these pyramids highlights the main characteristic of disability: it is a phenomenon associated with age that increases with age. Differences can also be seen between men and women. The latter have higher rates than men from the age of 45 which increase with age.

Due to the fact that health expectancy is a combination of life expectancy and a health concept, there are so many expectancies as

GRAPH 1. Population pyramid with disabilities superimposed on the general population pyramid.



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health concepts. From the initial model for the calculation of LEFD several improvements have been presented which broaden the available information on the health of the population. In this way, we can calculate indicators such as health expectancy “in good health” in agreement with the WHO definition; life expectancy free of chronic diseases, etc. Moreover different levels of severity may be introduced to calculate for example life expectancy “free of severe disability” or to calculate expectancies for a specific type of disability, such as life expectancy “free of visual disabilities”.

Graph 2 shows the proportions of survivors at different events. Distinction is made between total survival, survival free of disability, survival in good perceived health and survival without chronic disease. Via these concepts life expectancy may be calculated (LE; the area under the mortality curve), life expectancy free of disability (LEFD; the area under the disability curve), life expectancy in good perceived health (LEGH; the area under the perceived health curve) and life expectancy free of chronic disease (LEFCD; the area under the chronic disease curve).

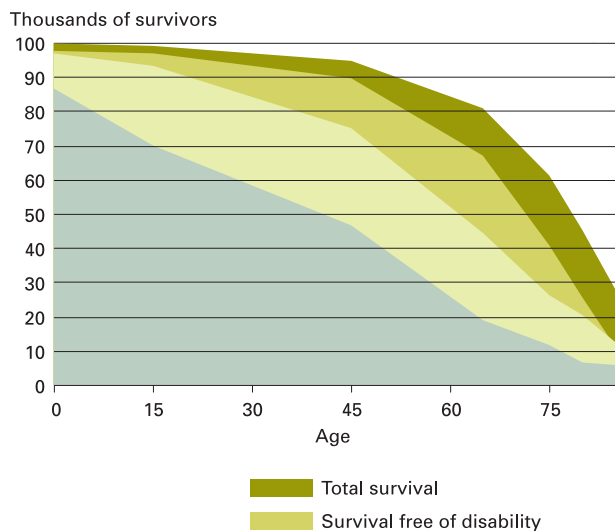
The difference between each pair of expectancies gives rise to new definitions. In this way, for example the difference between LE and LEFD measures life expectancy with disability (LEWD); the difference between LEFD and LELEC measures Life Expectancy with at least a chronic disease but without disability; the difference between LEFD and LEGH measures Life Expectancy in bad health but without disability.

The sum of complementary health expectancies is always equal to life expectancy (LE). For example, Life Expectancy Free of Disability (LEFD) plus Life Expectancy with Disability (LEWD) is equal to total life expectancy (LEFD + LEWD = LE); LE may also be obtained, using three indicators: $LE = LEBS + (LEFD - LEGH) + LEWD$.

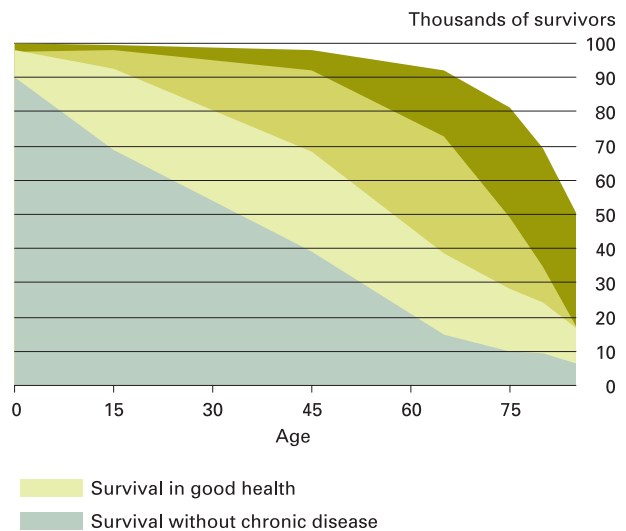
Health expectancies proportions may be calculated. For example, the proportion of life expectancy free of disability on life expectancy indicates the fraction of life expectancy lived without disability (generally expressed as a percentage).

GRAPH 2. Observed mortality and theoretical disability survival curves, bad health and chronic diseases. Survival lines.

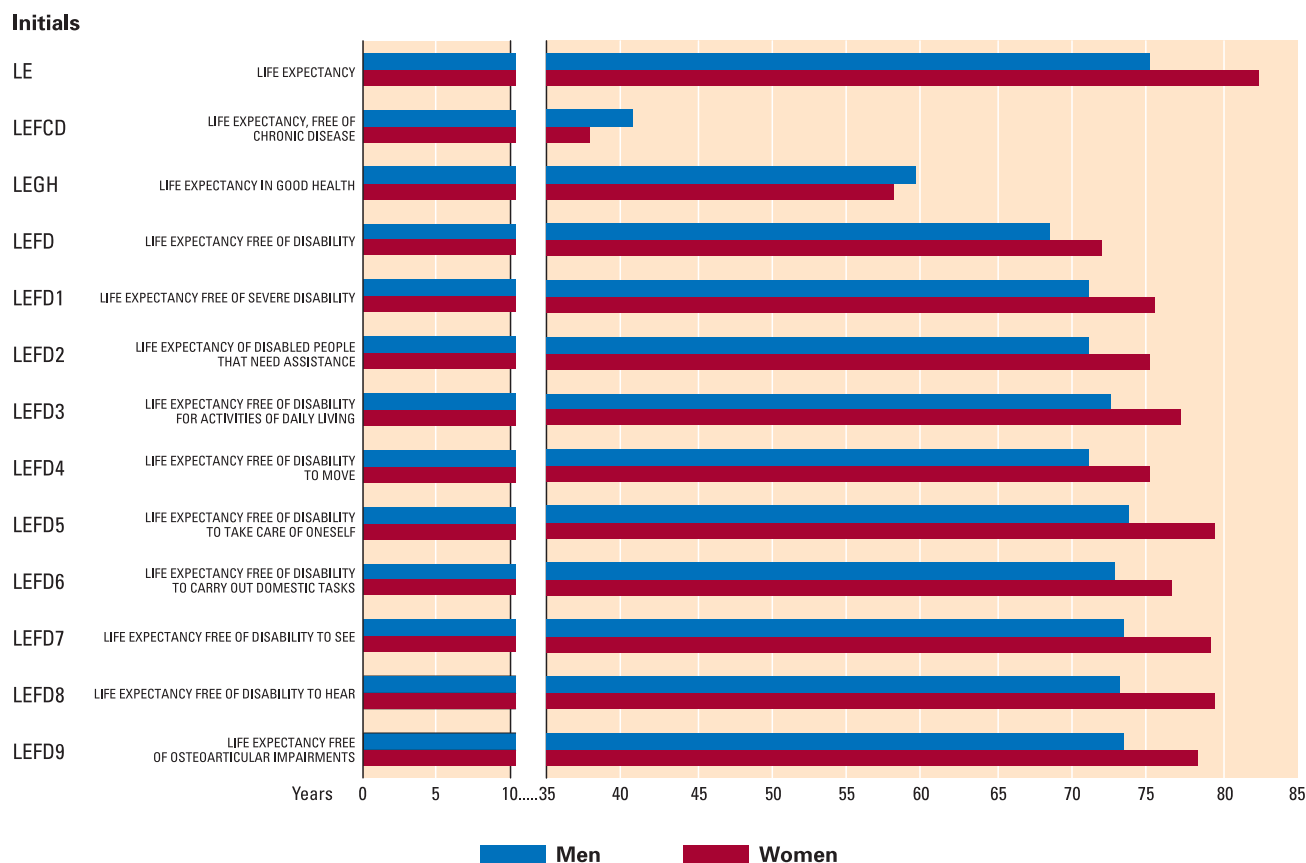
Men



Women



GRAPH 3.1. Life expectancy at birth and health expectancies



From a general point of view graph 3.1 shows that the process of health problems appearing is gradual. In the first place chronic diseases appear which brings with it a subsequent self perception of a bad state of general health. Later limitations in activities appear, in other words disability presents; finally, the severest disabilities appear which need help and make reference to domestic activities and self care. Self care activities (washing and taking care of one’s appearance, controlling needs and using the lavatory alone, dressing-undressing, eating and drinking) are the most basic in the daily life of a person, therefore they are the last to appear.

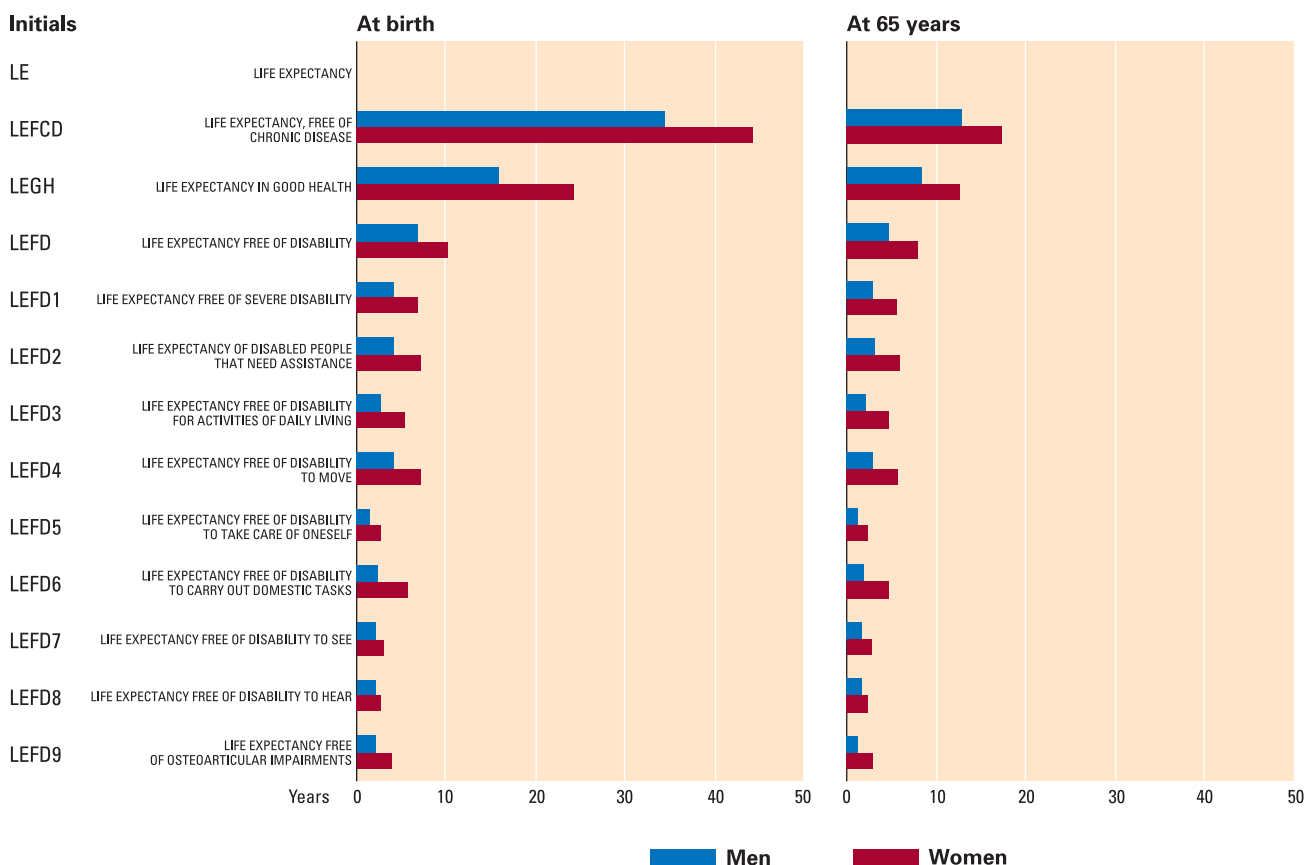
For practically all the health expectancies from graph 3.1, the number of years that women live without disabilities is greater than that for men. From graphs 3.2 and 3.3 it can be seen that despite the fact that women expect

to live without disabilities more years than men they suffer for longer due to their greater life expectancy.

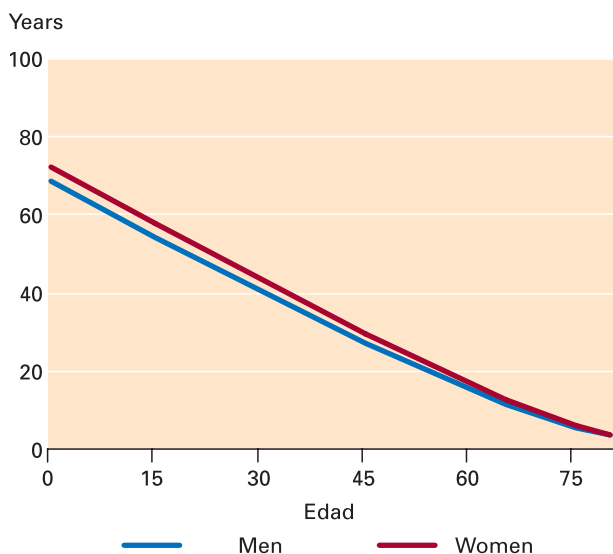
There are two exceptions to this difference between men and women. This deals with Life Expectancy Free of Chronic Disease (LEFCD) and Life Expectancy in Good Perceived Health (LEGH). Women suffer from chronic diseases before men and also have poorer general health. The number of years expected without chronic disease is 38 for women and 41 for men. With good health, women live a little over 58 compared with 60 for men. The difference between these two indicators is due, among other factors, to the existence of relatively light chronic diseases such as some types of allergy, migraines, bad circulation. If these diseases are not borne in mind the LEFCD indicator increases up to 47 years in men and 45 in women.

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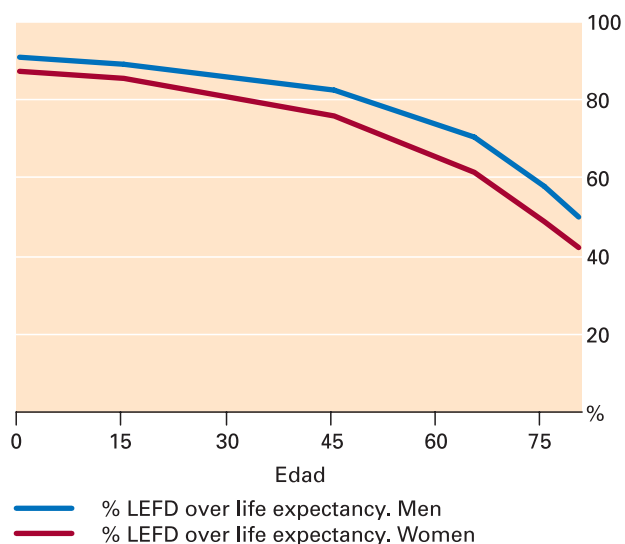
GRAPH 3.2. and 3.3. Average number of years that you are expected to live with disabilities or bad health at birth and at 65 years.



GRAPH 4.1. Life Expectancy Free of Disability (LEFD) according to age and sex



GRAPH 4.2. Percentage of Life Expectancy Free of Disability on Life Expectancy according to age and sex



Women are not expected to have disabilities up to 72 compared with 68 in men. Up to 45 the difference in LEFD between men and women is maintained but from 45 the difference in gender for LEFD is from attenuated to almost negligible. The difference of 3,6 years observed in the LEFD at birth reduced to 1 year at age 65 and reduces to 0,12 years at 80 (table 1).

The prolonging of life that has occurred in the last few decades should be accompanied by some good health conditions, in such a way that the number of years gained are lived with individual, family and social autonomy. To ascertain the real effect of ageing on the health of the population and given that there are big differences in gender as to life expectancy, analysis of the LEFD must be done with respect to LE.

Indeed, although graph 4.1 indicates that women live more years free of disabilities, graph 4.2 shows that of the total of 99 life years women will live a greater proportion with disabilities than men at all ages. This, together with the fact that life expectancy of women is 7 years greater puts the woman in a situation of clear disadvantage as to the

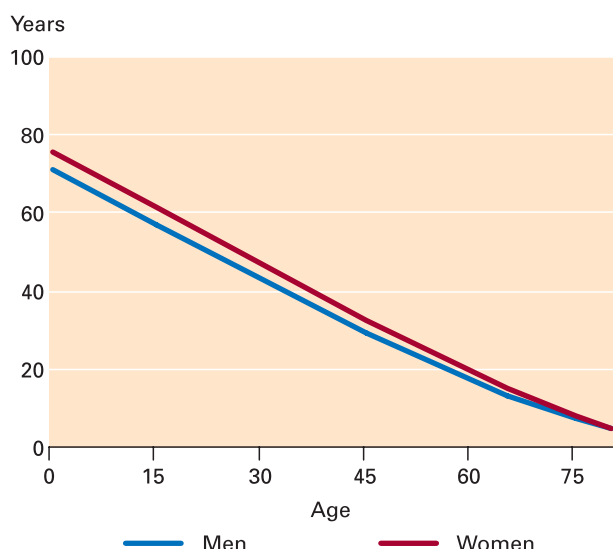
Table 1. Gender differences (women - males) in the LEFD and the LE

Age	Life expectancy free of disability	Life expectancy
0	3,60	7,02
15	3,52	6,96
45	2,35	5,92
65	1,00	4,08
75	0,35	2,46
80	0,12	1,62

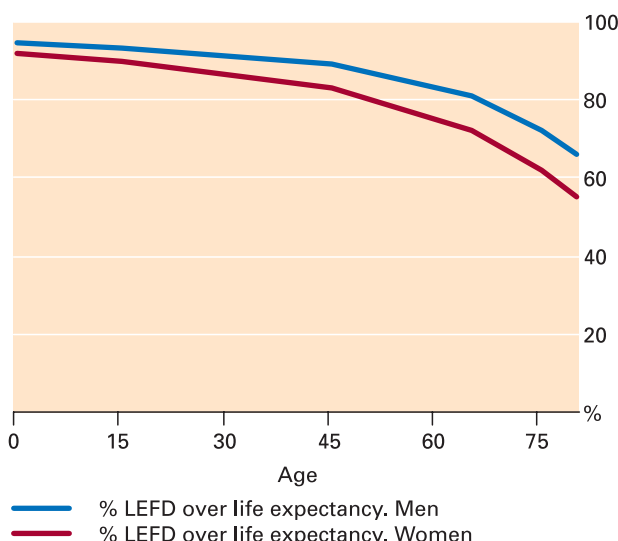
quality of health. For example, at 65 men expect to live with some disability around 5 years as opposed to nearly 8 years that women live (graph 3.3).

In comparing graphs 4.1 and 4.2 opposing trends in the lines can be seen. The LEFD of men and women tends to converge with age whilst the proportion of remaining years to be lived without disability for men and women tends to diverge with age. At birth, men will live 91% of their life without

GRAPH 5.1. Life Expectancy Free of Disability (LEFD1)



GRAPH 5.2. Percentage of Life Expectancy Free of Severe Disability on Life Expectancy according to age and sex



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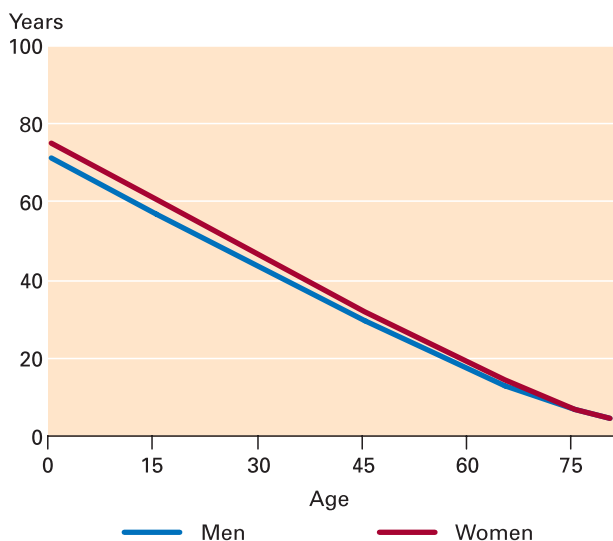
disability and women 88%, at 45 years the difference between men and women is greater (82% compared with 76%), at 65 it keeps increasing (70% compared with 61%) and at 80 men will live 50% of their remaining years without disability compared with 42% of women.

Very similar guidelines appear when severe disabilities and those that need help are analysed. The severity of disabilities as well as the need for help are directly related to the phenomenon of dependence. The Council of Europe defines it as *a state in which people find themselves for reasons linked to the lack or loss of physical, psychic or intellectual autonomy, have the need for care and/or significant help in order to carry out normal life activities*. There is notable worry for the phenomenon of dependence since it has significant family and social implications. Foreseeing the time that people will have severe disabilities and will need help is fundamental for planning care and future support.

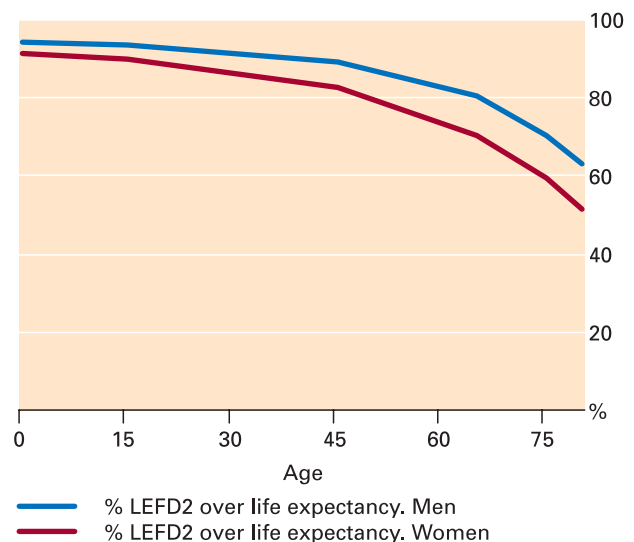
In this sense, up to 65 women live on average more years than men without severe disability and without needing help (graphs 5.1 and 6.1); from this age, the number of years lived free of these problems tends to be equal. At birth, women theoretically are free of severe disabilities and do not need help for 75 years. Conversely, men can expect not to have severe disabilities or need help up to 71 years.

The disabilities most linked to dependence are those related with *Activities of Daily Living (ADL)* which include mobility, self care and domestic tasks. Instrumental activities related with domestic tasks are more complex than activities based on self care, therefore the first difficulties that come up are usually, after mobility, domestic tasks and subsequently, self care.

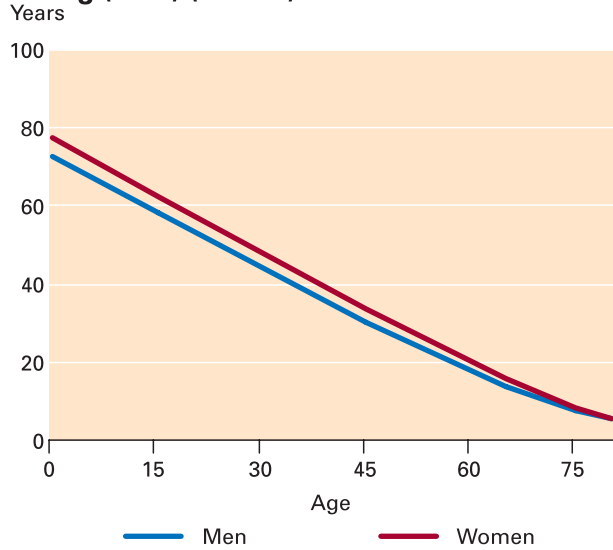
GRAPH 6.1. Life Expectancy Free of Disabilities that require help (LEFD2)



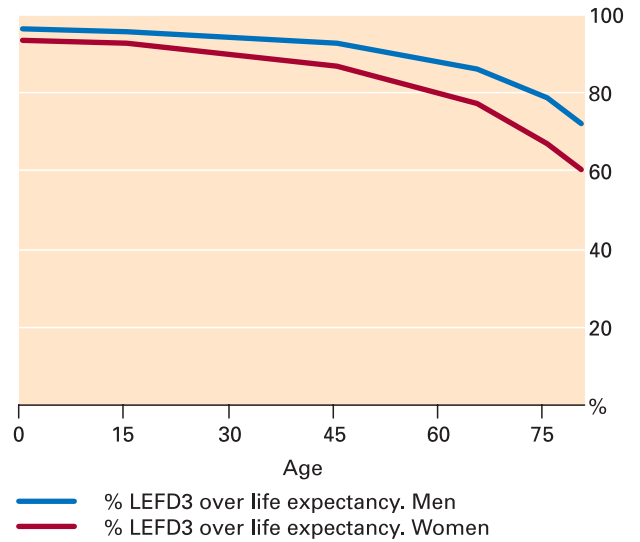
GRAPH 6.2. Percentage of Life Expectancy Free of Disability that need assistance on Life Expectancy according to age and sex



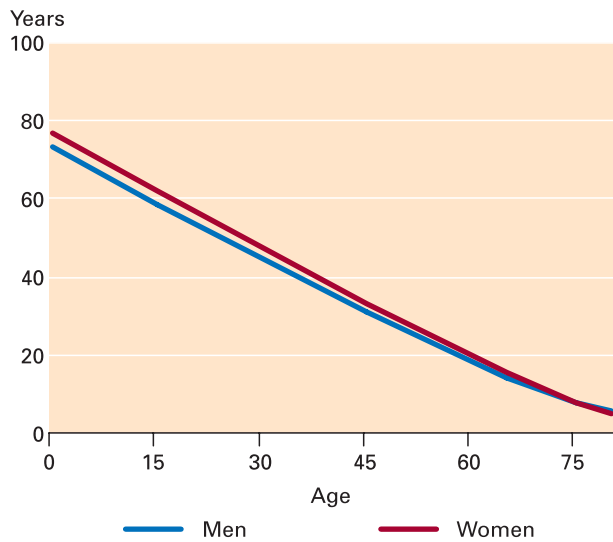
GRAPH 7.1. Life Expectancy Free of Disability for carrying out Activities of Daily Living (ADL) (LEFD3)



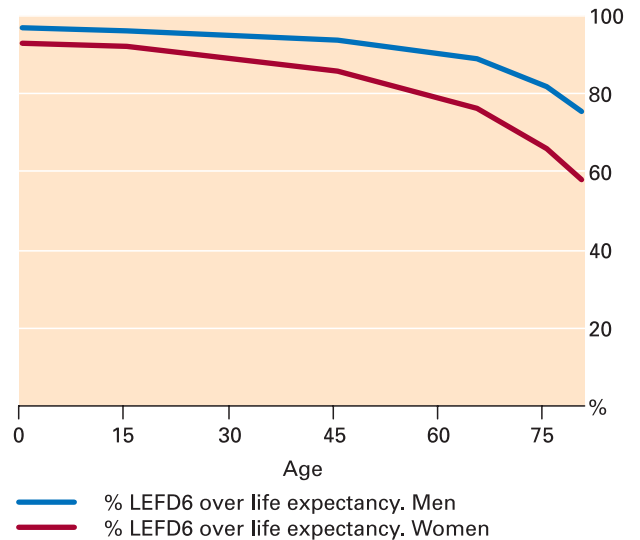
GRAPH 7. Percentage of Life Expectancy Free of Disability on Life Expectancy for ADLs, according to age and sex



GRAPH 8.1. Life Expectancy Free of Disability for carrying out Domestic Tasks (LEFD6)

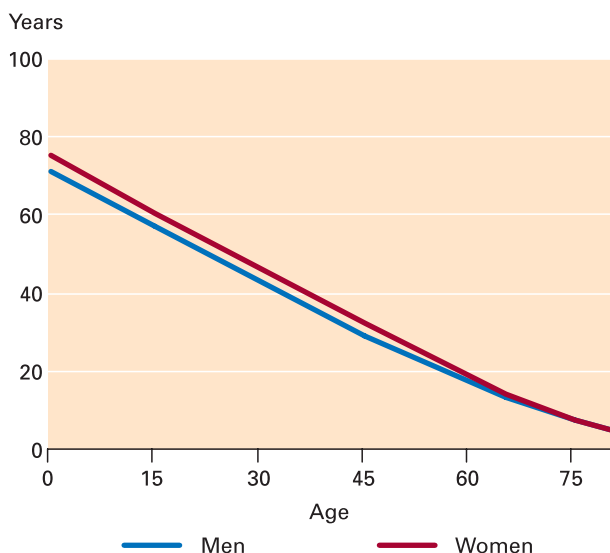


GRAPH 8.2. Percentage of Life Expectancy Free of Disability to carry out Domestic Tasks on Life Expectancy, according to age and sex

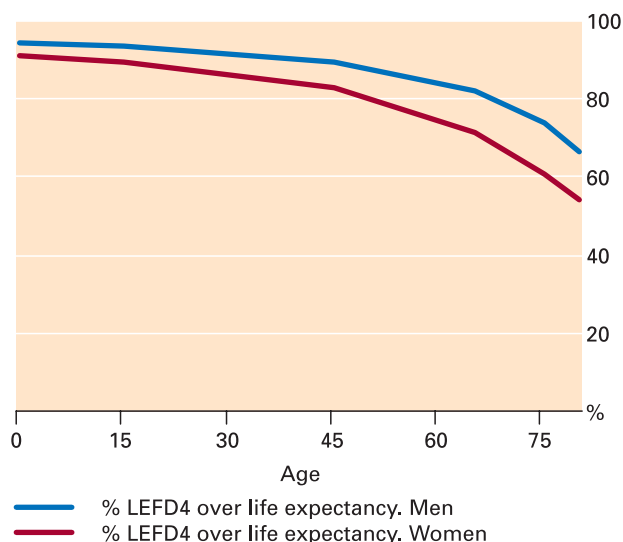


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GRAPH 9.1. Life Expectancy Free of Disability for Mobility (LEFD4)



GRAPH 9.2. Percentage of Life Expectancy Free of Mobility Disability on Life Expectancy, according to age and sex



Specifically, it is in two of the ADL disabled groups where age causes greater gender differences: these are those related to domestic tasks and mobility. Men, at birth expect to have 97% of their life free of disabilities to carry out domestic tasks; in women 93%. However, men of 65 can expect 89% of their life without disabilities of this type, compared with 76% of women. And at 80, 75% of the remaining life of a man is free of these disabilities and only 58% in women.

This large difference may be due, in part, to the lesser coincidence that older men have in the possibility of having disabilities related to household tasks.

Other groups of disabilities are hearing and sight. For these expectancies as well there are significant differences between men and women at birth, around 6 years. However, there is a different guideline to that observed up to now in these indicators: the lines from graphs 10,1 and 11,1 only converge clearly at the end. On the other hand, with respect to the life percentage of a person without disabilities in hearing or seeing (graphs 10.2 and 11.2) significant gender differences cannot be discerned. In other words, men

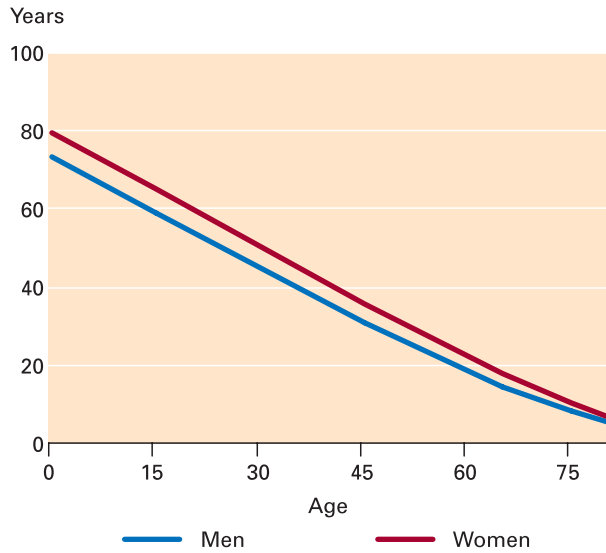
Table 2. Gender differences (men - women) in the LEFD percentages and LEFD6 with respect to the LE

Age	LEFD4	LEFD6
0	3,29	3,83
15	3,90	4,59
45	6,60	7,94
65	10,67	12,45
75	12,90	15,78
80	12,98	17,17

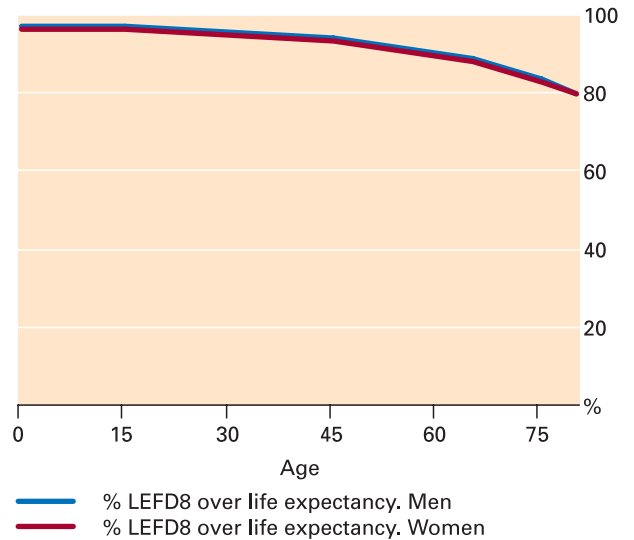
and women are equal with respect to hearing and seeing problems. At the age of 80, men and women with respect to hearing and sight problems. At the age of 80 it is expected that they will live 80% of the time remaining without significant difficulties for hearing and around 79% (with a mild difference between sexes) without problems for seeing.

Autonomous Communities that have Life Expectancy Free of Disability at birth more elevated in men are La Rioja and Madrid with 71,59 and 71,06 respectively. Ten Autonomous Communities are below the 68,52 years, the

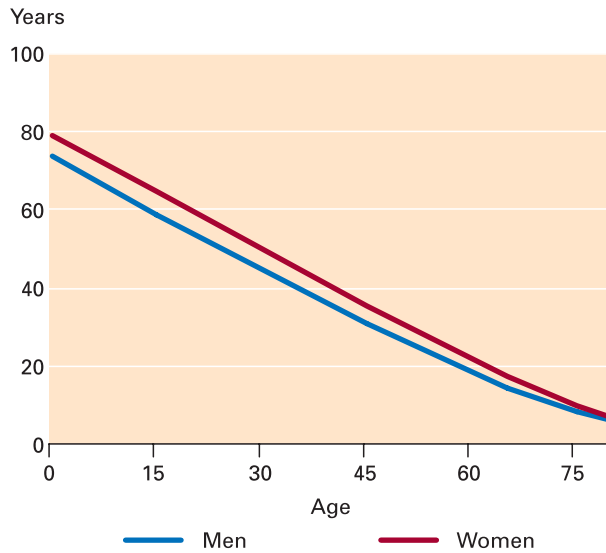
GRAPH 10.1. Life Expectancy Free of Disability for Hearing (LEFD8)



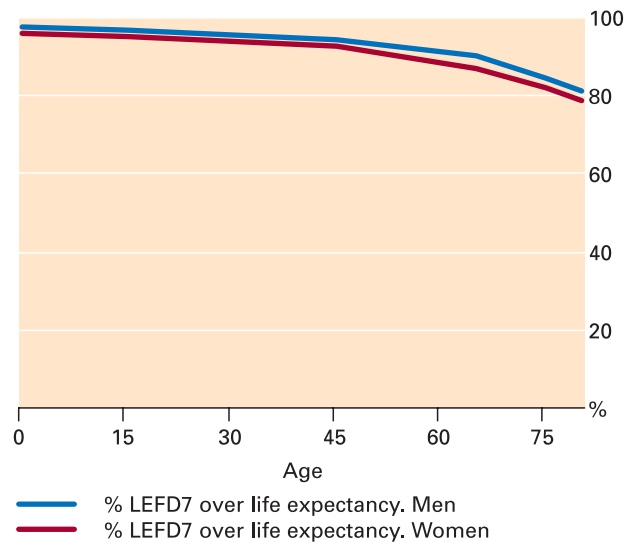
GRAPH 10.2. Percentage of Life Expectancy Free of Disability to hear on Life Expectancy according to age and sex



GRAPH 11.1. Life Expectancy Free of Disability Seeing (LEFD7)



GRAPH 11.2. Percentage of Life Expectancy Free of Disability for Seeing on Life Expectancy according to age and sex



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national average. Of them, only four have life expectancies more than one year less than the national: Andalucía, Murcia, Asturias and Ceuta, that vary from 66,03 years in Andalucía and Murcia to 67,30 years in Ceuta.

Although geographical differences can be appreciated in the data corresponding to men, there is quite a lot less variability than that observed in women.

Women live more years without disability in La Rioja (7665 years), Navarra (74,76 years), Madrid (74,70 years) and Aragón (74,58 years). There are 8 Autonomous Communities with a LEFD less than the national average, 72,12 years. Of these those that have the lowest values are Melilla (64,15 years), Murcia (68,75 years), Andalucía (68,98 years) and Ceuta (69,99 years).

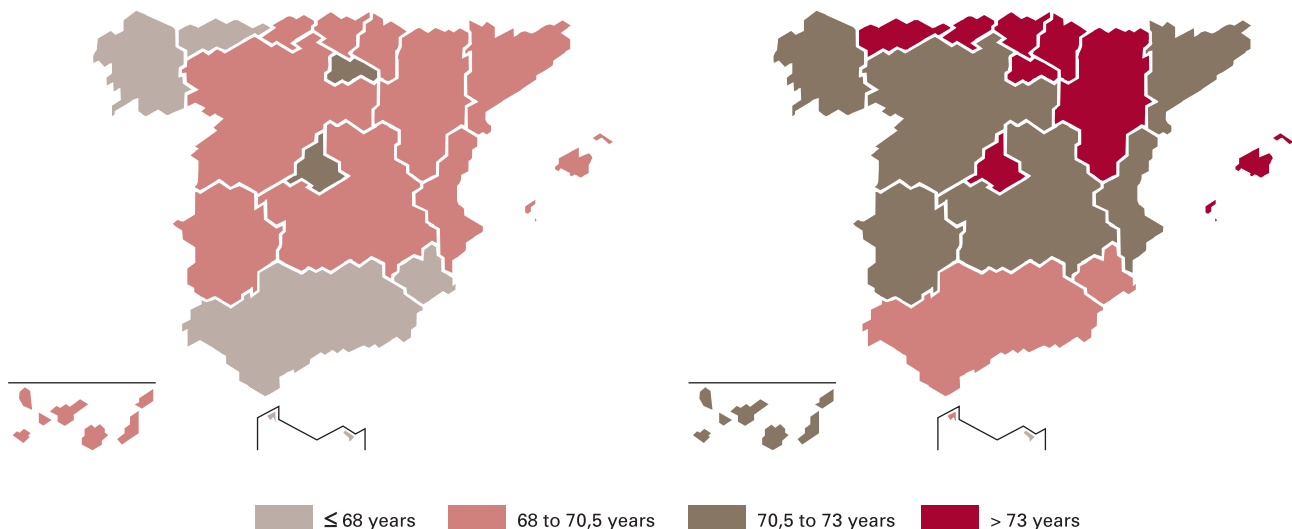
From age 65, men from the La Rioja and Madrid communities will live nearly two years more without disability than the national average which is at 11,39 years. Conversely, men resident in Murcia and Andalucía are expected to live 9,51 and 9,70 years respectively without disability.

Women who are expected to live more years without disability from age 65 are residents in La Rioja (16,44 years), País Vasco (14,46 years), Madrid (14,31 years) and the Balearic Islands (14,15 years). Communities in which women have a lower LEFD are Melilla (8,12 years), Murcia (9,95 years) and Andalucía (10,15 years), the national average being 12,39 years.

GRAPH 12.1. Life expectancy free of disability at birth

Men

Women



GRAPH 12.2. Life expectancy free of disability at 65

Men

Women

