

A photograph of a baby sleeping peacefully, wrapped in a vibrant blue and yellow patterned cloth. The baby is being carried on the back of an adult, whose arm is visible on the right side of the frame. The background is a soft-focus outdoor setting with a dirt path and some foliage.

Differential mortality in a rural area of Senegal

**The effect of the family situation of the children at birth
on mortality under age 15.**

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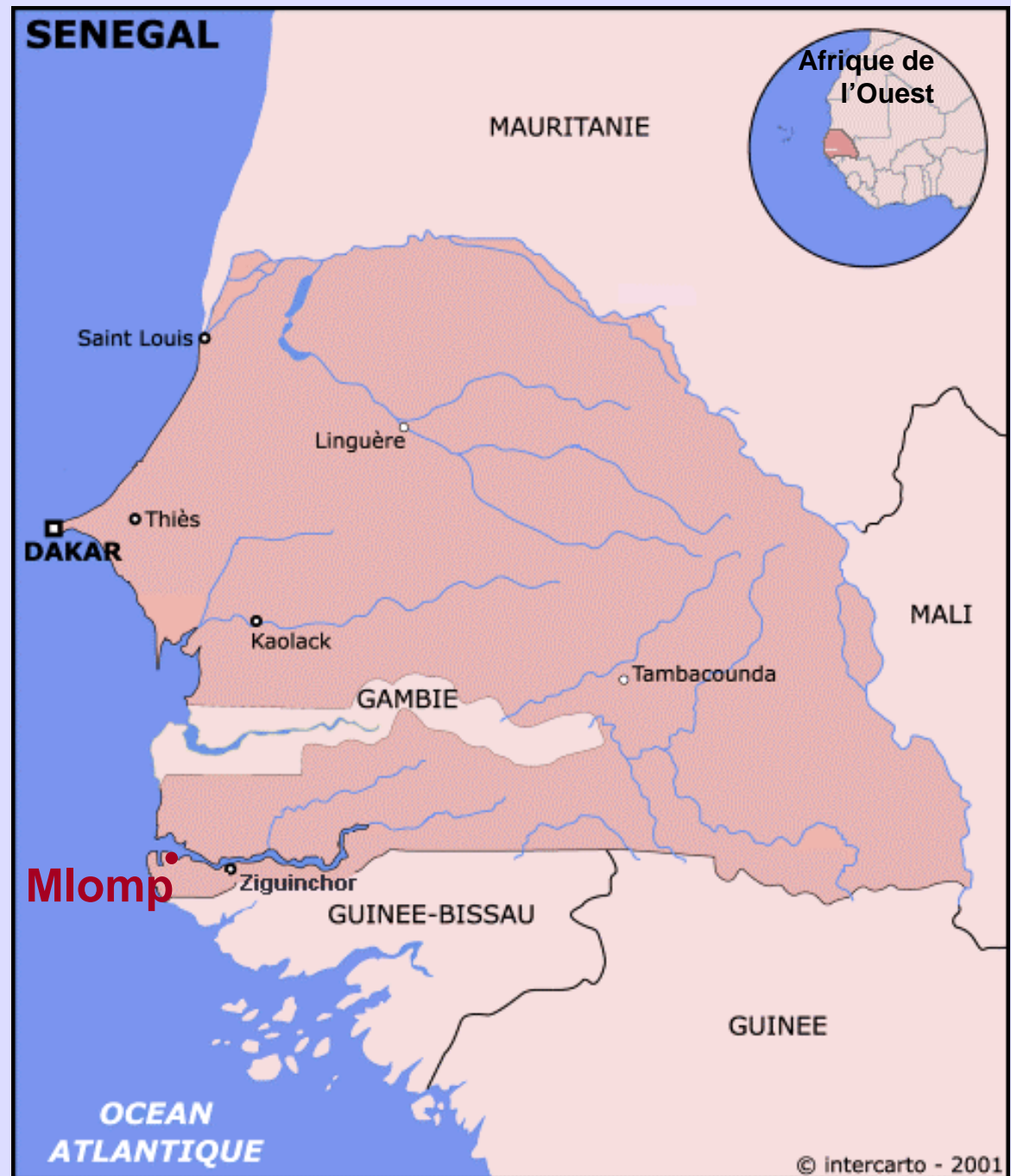
RTN Workshop, Porto Conte, may 30-31, 2005

Casamance

(South West Senegal)

Population

- rural
- ethnic group: **Diola**
- religious beliefs: **animist** and **catholic**
- **subtropical climate:**
with the fatal malaria form



Demographic Surveillance System of Mlomp

Initial census of the population in 1985:

- **Nominative list of the inhabitants**
- **Union and reproductive histories of women**

Yearly demographic monitoring:

- **Births, deaths, migrations and unions**

Verbal autopsy of each death registered :

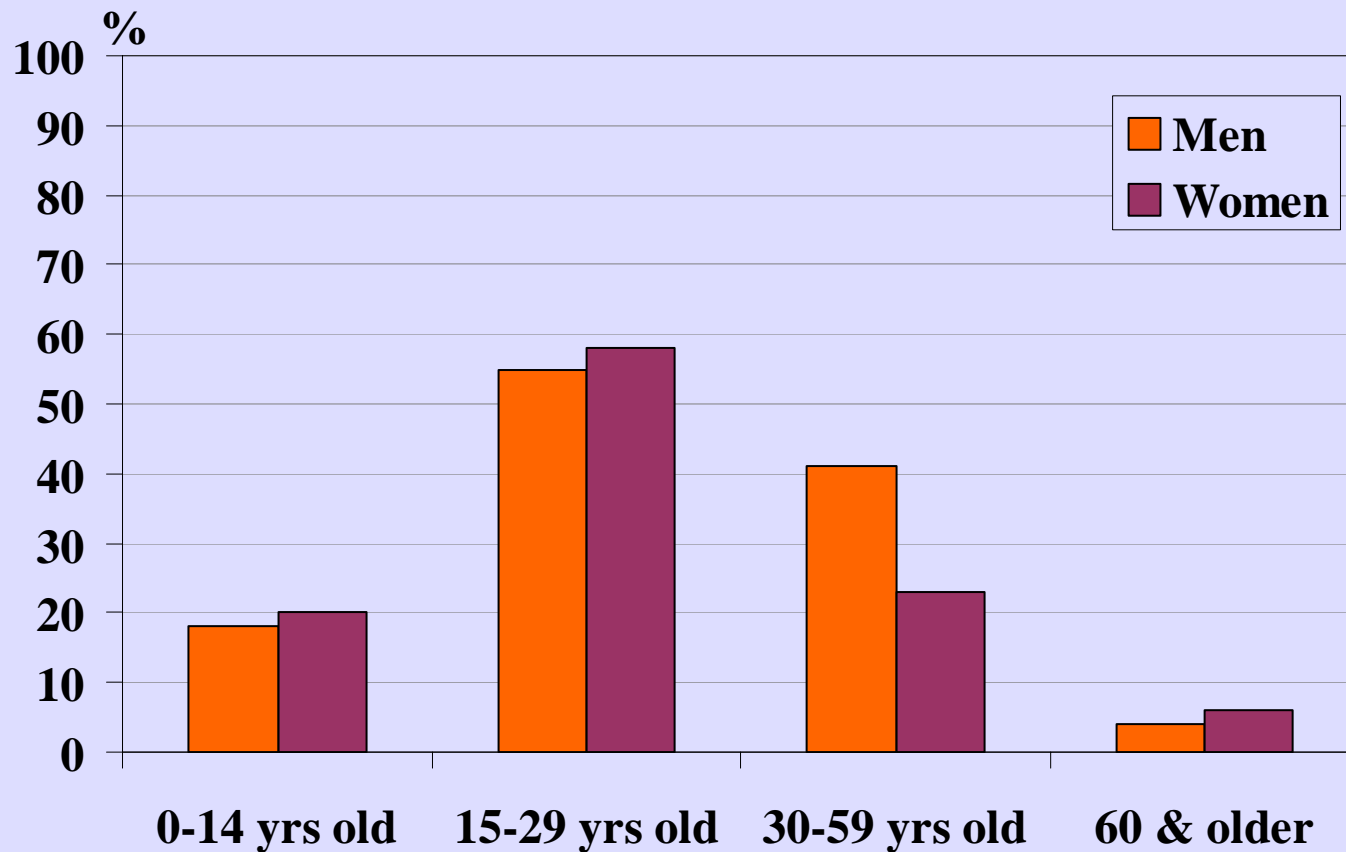
- **to define the cause of the death**

Household comfort and economic resources

- dense population
(8.877 inhabitants in January 2004)
- basic household comfort
- economic resources:
Rice-growing and seasonal migrations



Proportion of persons who are not in Mlomp during the dry season, by age groups



Nuptiality and fertility

- Mean age at first marriage for women is old:

26.5 years (1985-1999)

- Mean age at first birth is also old but younger:

21.7 years (1985-1999)

Mortality (1985-2003)

- **Life expectancy at birth :**

Men → 56.4 years

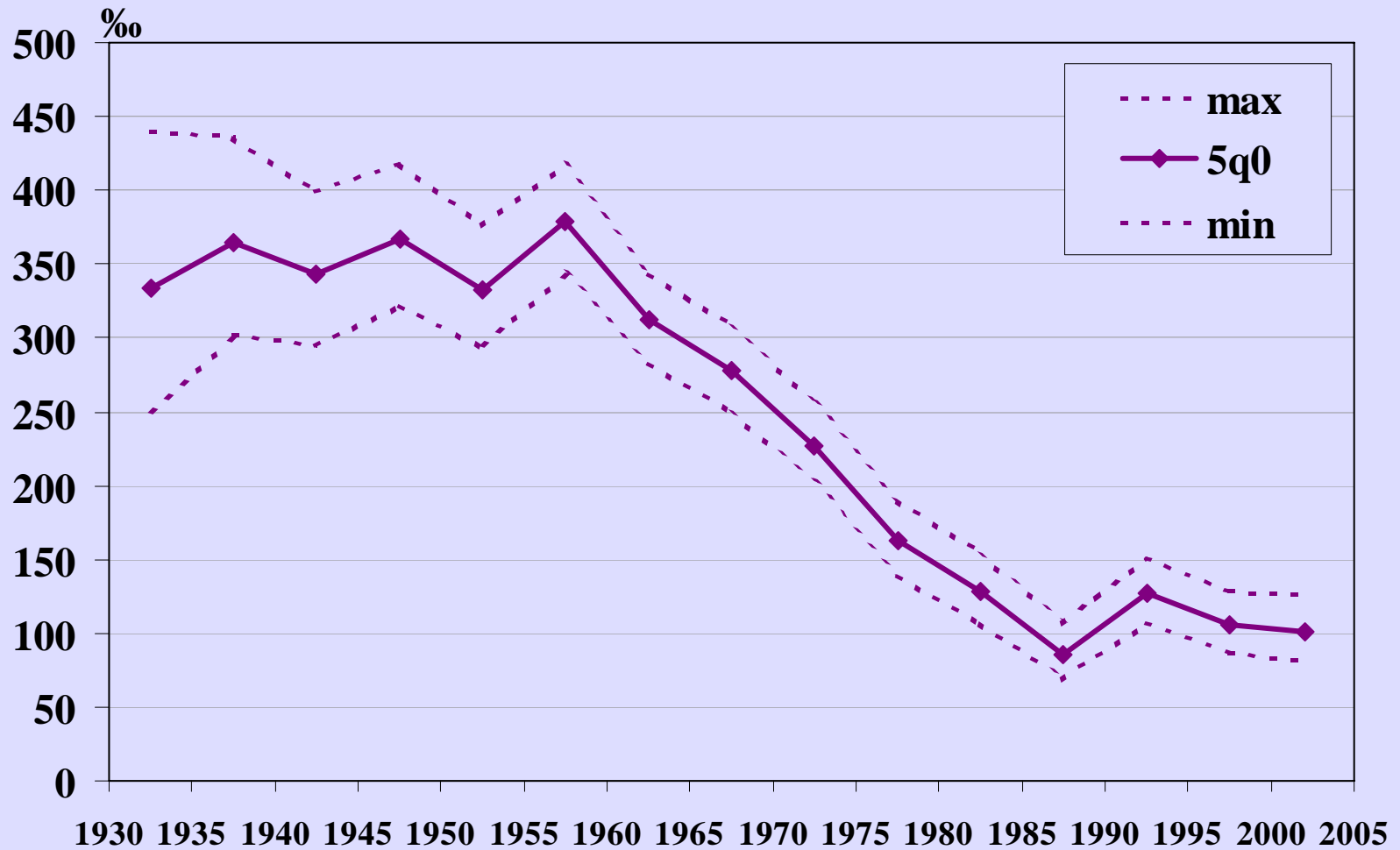
Women → 64.6 years

- **Mortality under 5:**

$5q0 = 105 \text{ ‰} [95,3 - 116,2]$

171 ‰ in rural Senegal in 1989-1998 (ESIS)

Evolution of under 5 mortality since 1930



since 1990s
Increase and stagnant mortality
hypothesis

Sanitary and ecological conditions

- **the malaria parasite developing resistance to treatment since the end of the 1980s**

Social and economic conditions

- **Family situation of children**

Characteristics of family situation

- the **marital status** of the mother at birth of the child:
separation due to seasonal migrations,
marriage with another man.
- the **origin of the father**, if he is native or not of the village:
the mother can be separated from her child,
care inequalities between those children and others.
- the **sex of the child**:
different economic issue (legacy, old parents support...).
- the **age of the mother** and the **birth order**:
family support role, care of the mother...

Marital status of the mother by period of the birth (%)

	1970-1985	1985-2003
married	79	64
single	16	35
widowed/divorced	0	1
unknown	5	1
total	100	100

Children native of Mlomp observed since 1985

Origin of the father by period of the birth (%)

	1970-1985	1985-2003
father from Mlomp	99	76
father not from Mlomp	<i>1</i>	<i>24</i>
Total	100	100

Children native of Mlomp observed since 1985

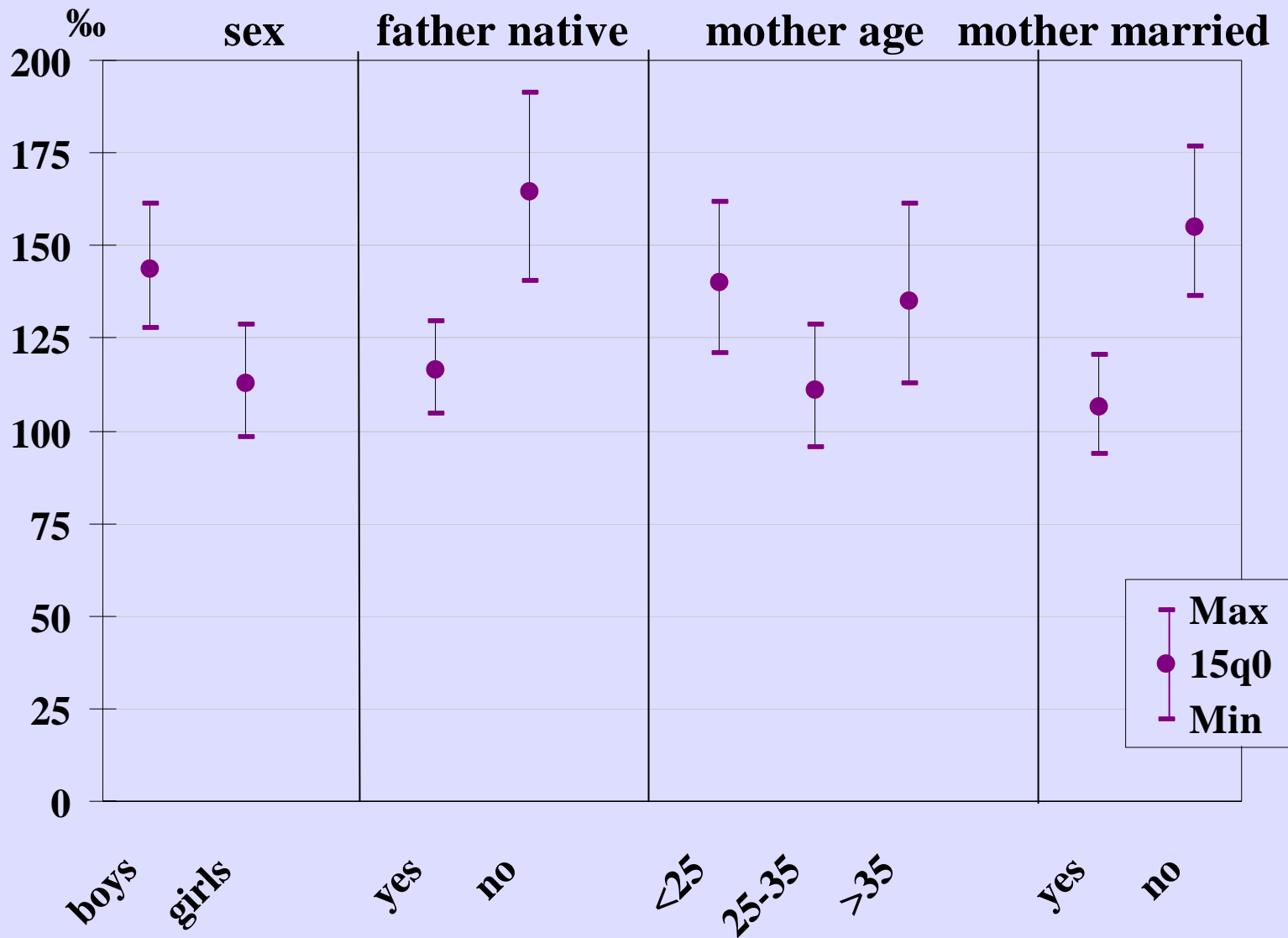
Analysis of the effect of the family situation

Measuring the effect of the family situation of the child at birth on his probability of dying before 15.

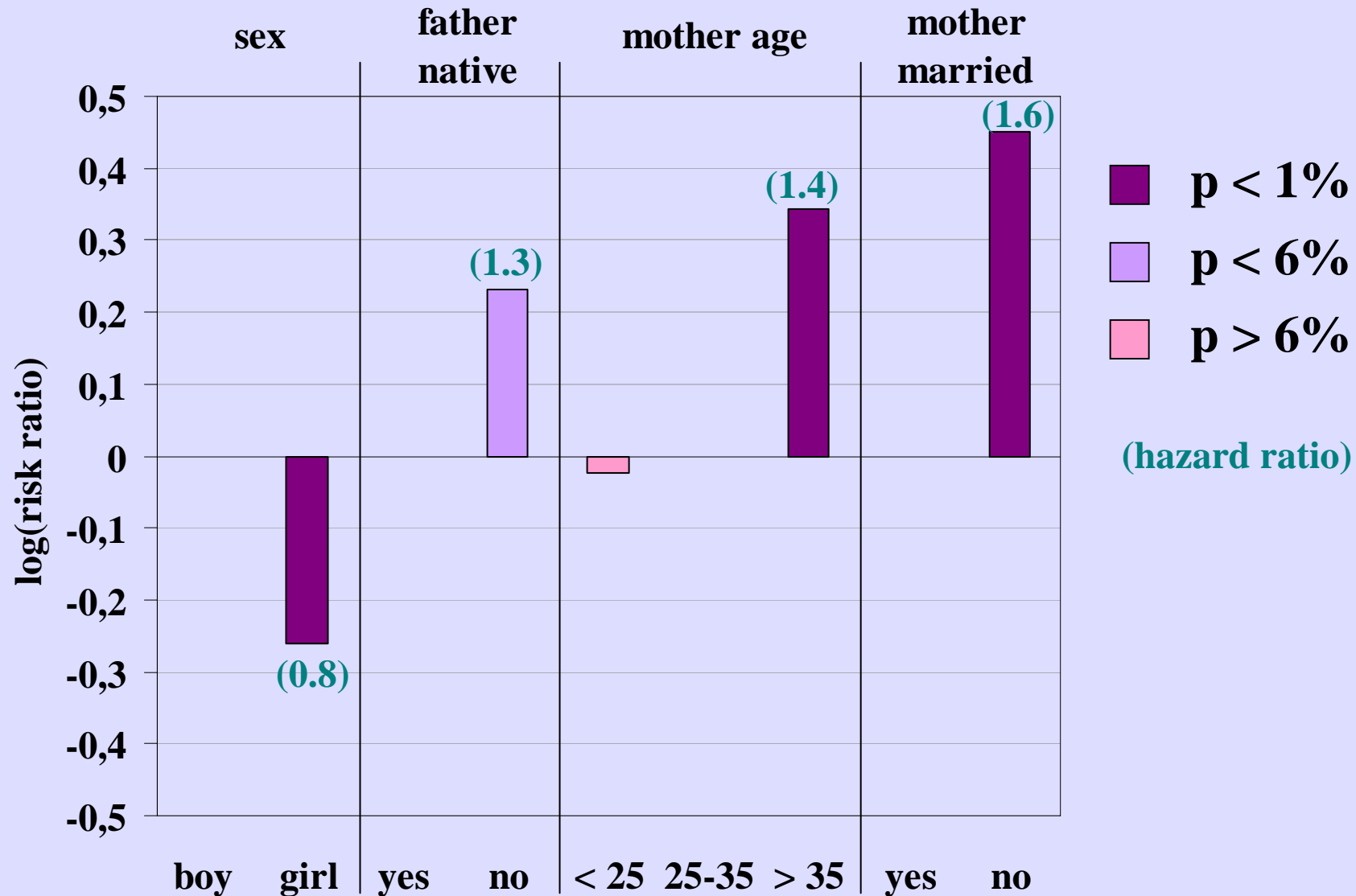
Methodology:

- **Use of the Cox proportional hazards model**
- **7957 children who were less than 15 years old during the period 1985-2003 (15q0 = 128 ‰)**
- **variables used: sex, father native of Mlomp or not, age of the mother at birth and her marital status.**

Probability of dying before 15 for each characteristic (1985-2003)

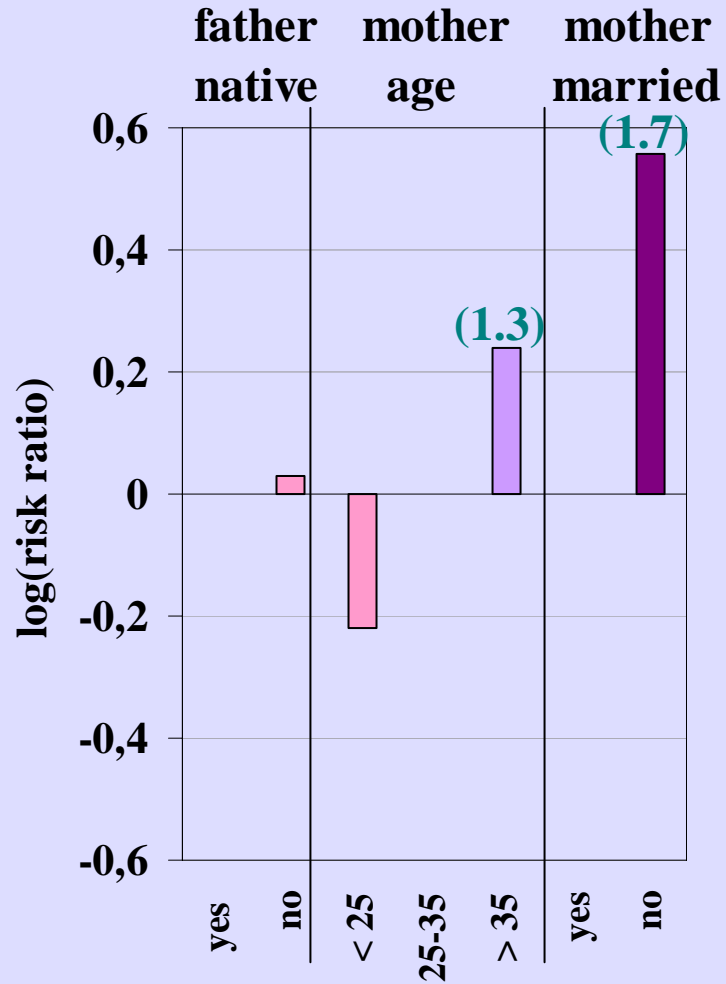


Effect of the family situation at birth on the probability of dying before 15

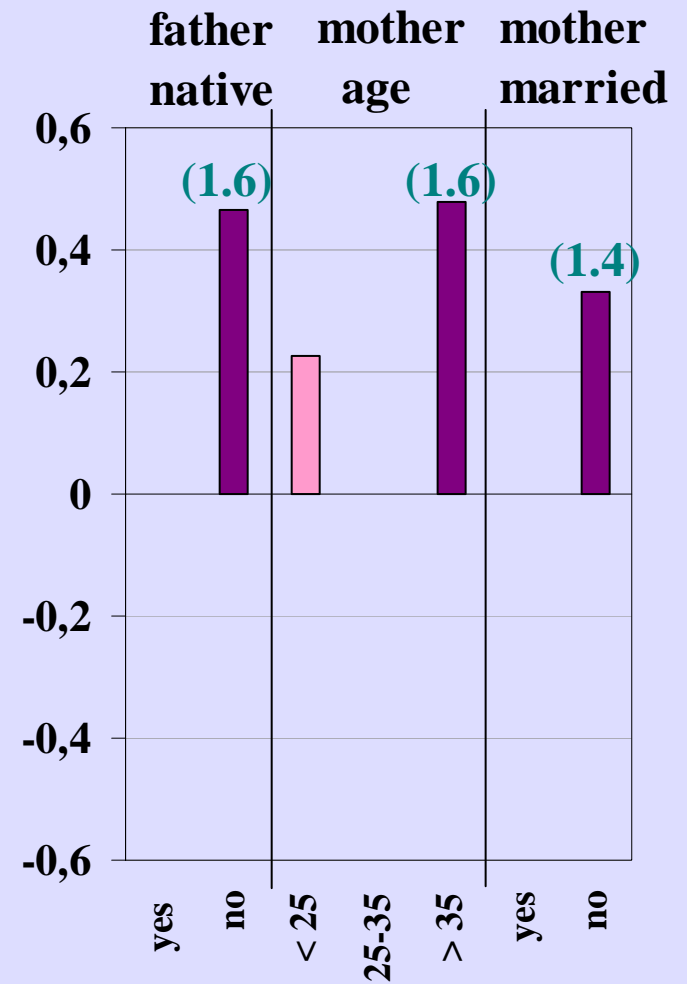


Cox model for each sex

Boys



Girls



Conclusion

Three factors of family situation at birth increase the risk of mortality before 15:

to have a mother unmarried at the birth,

to have a father not native of the area for girls only,

to have a mother older than 35 (biological or social factor?).

Family situation of children is involved in the mortality increase.

Possibility of using a dynamic characteristic with Cox model

Next step of the research: study the separation of the child and his mother during the childhood