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Late social rehabilitation after kidney transplantation in childhood

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Late social rehabilitation after kidney transplantation in childhood

- Patient and graft survival has steadily improved in pediatric kidney recipients over the last 30 years; however the data on **quality of life and social outcome of patients having reached adulthood** are still scanty.
- Therefore we studied the **social outcome** of a **cohort of 266 children transplanted before 1986**, younger than 16 years at the time of transplantation and **older than 20 yrs** at the time of the study



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Patients I

From 1/1973 to 12/1985, 388 kidney transplantations were performed in 366 children younger than 16 yrs

Among them, 54 (15%) had died before age 20 and

46 (12%) had left the country or were lost to follow-up

The long-term social outcome of the 266 remaining patients older than 20 yrs is the focus of this study.



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Patients II

Population characteristics (n=266)

156 males and **110** females

mean age at ESRD : **9.9** \pm **6** yrs

mean duration of dialysis : **2.3** \pm **1.6** yrs

mean age at transplantation : **11.9** \pm **4** yrs

mean age at the study : **31.7** \pm **5.4** yrs

mean final height : males : **156.6** \pm **9.4** cms (- 3 SD)

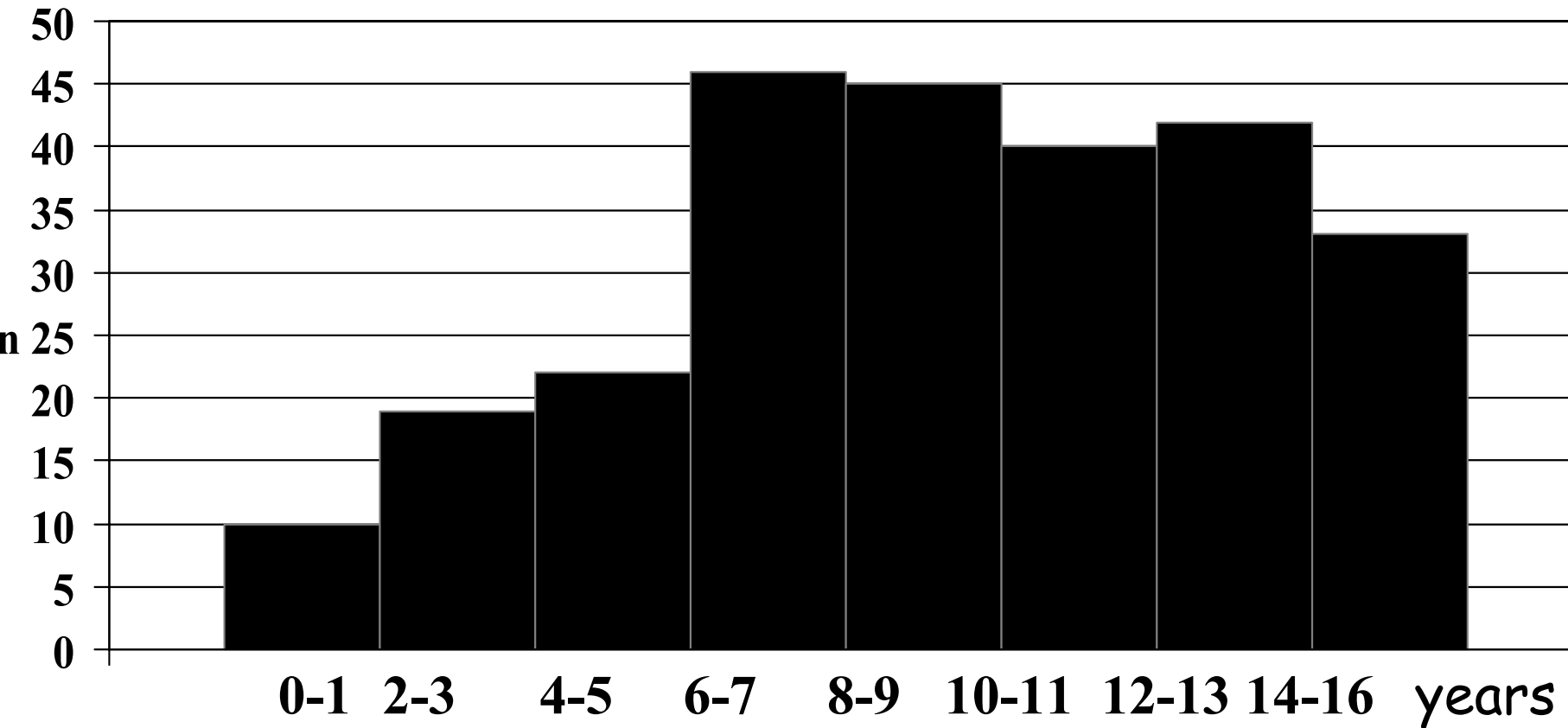
females : **147.7** \pm **8.7** cms (-2.5 SD)



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Age at ESRD

$m = 9.9 \pm 6$ yrs

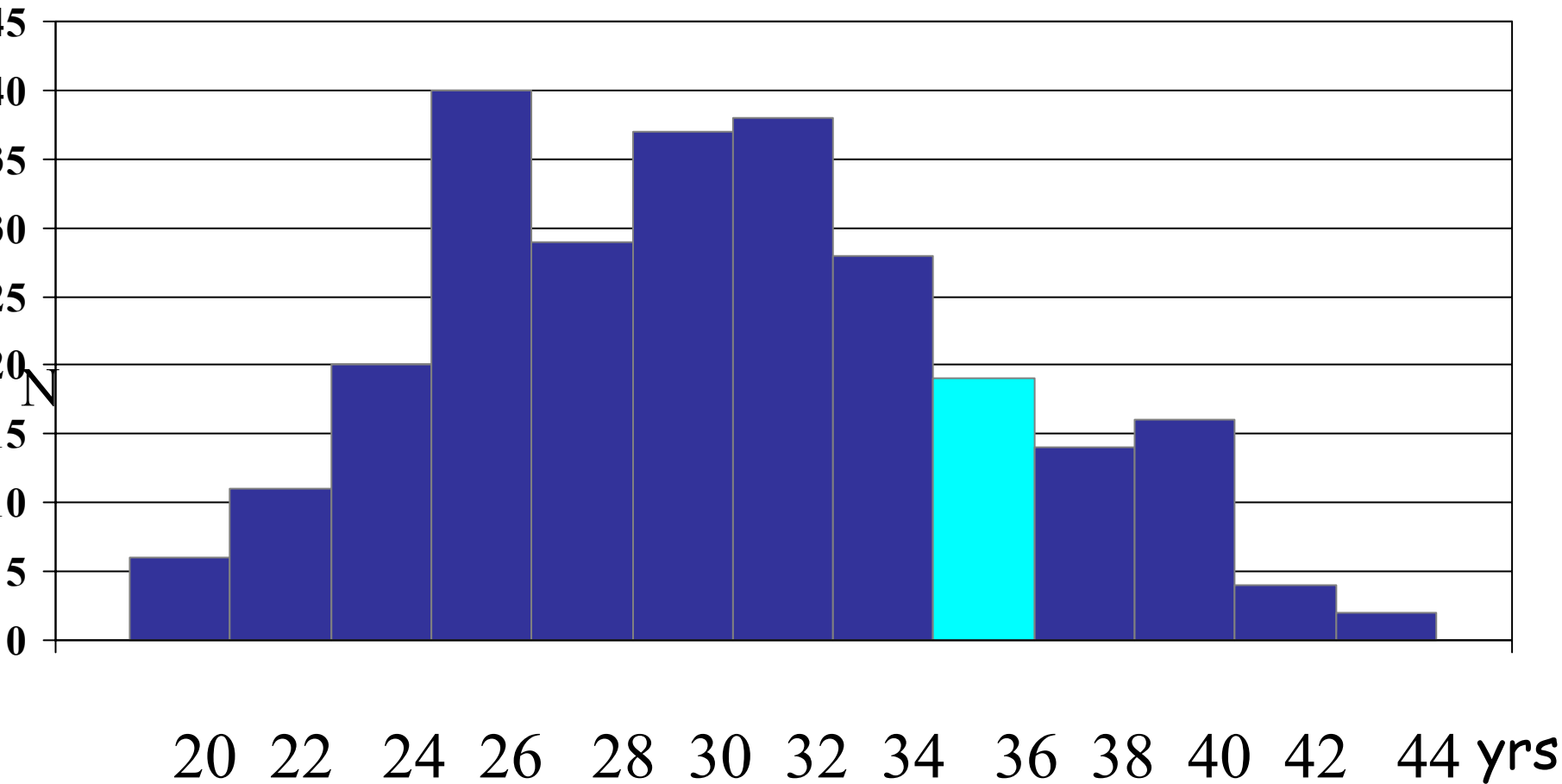




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Age at the study

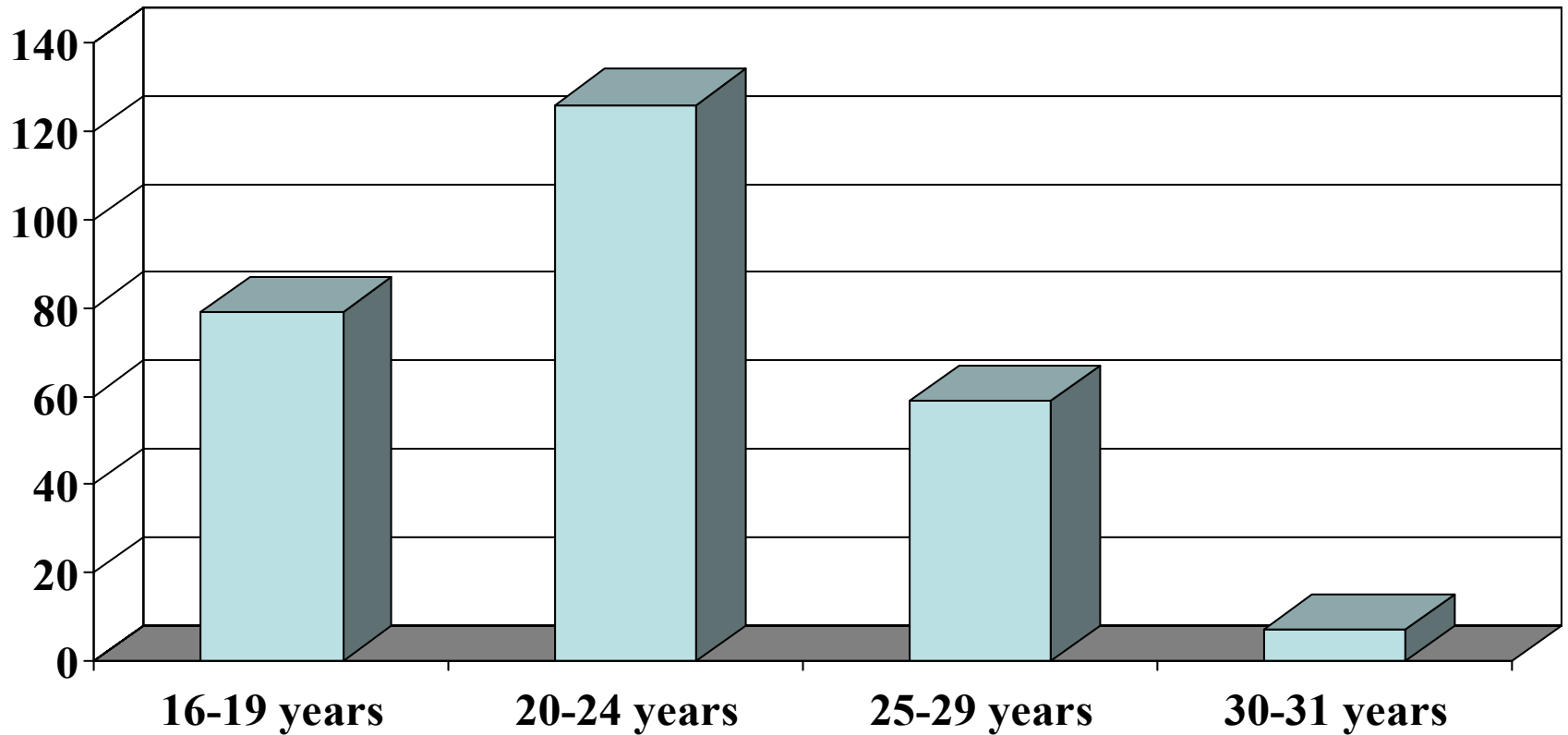
$m=31.7 \pm 5.4$ yrs





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Duration of follow-up





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Methods

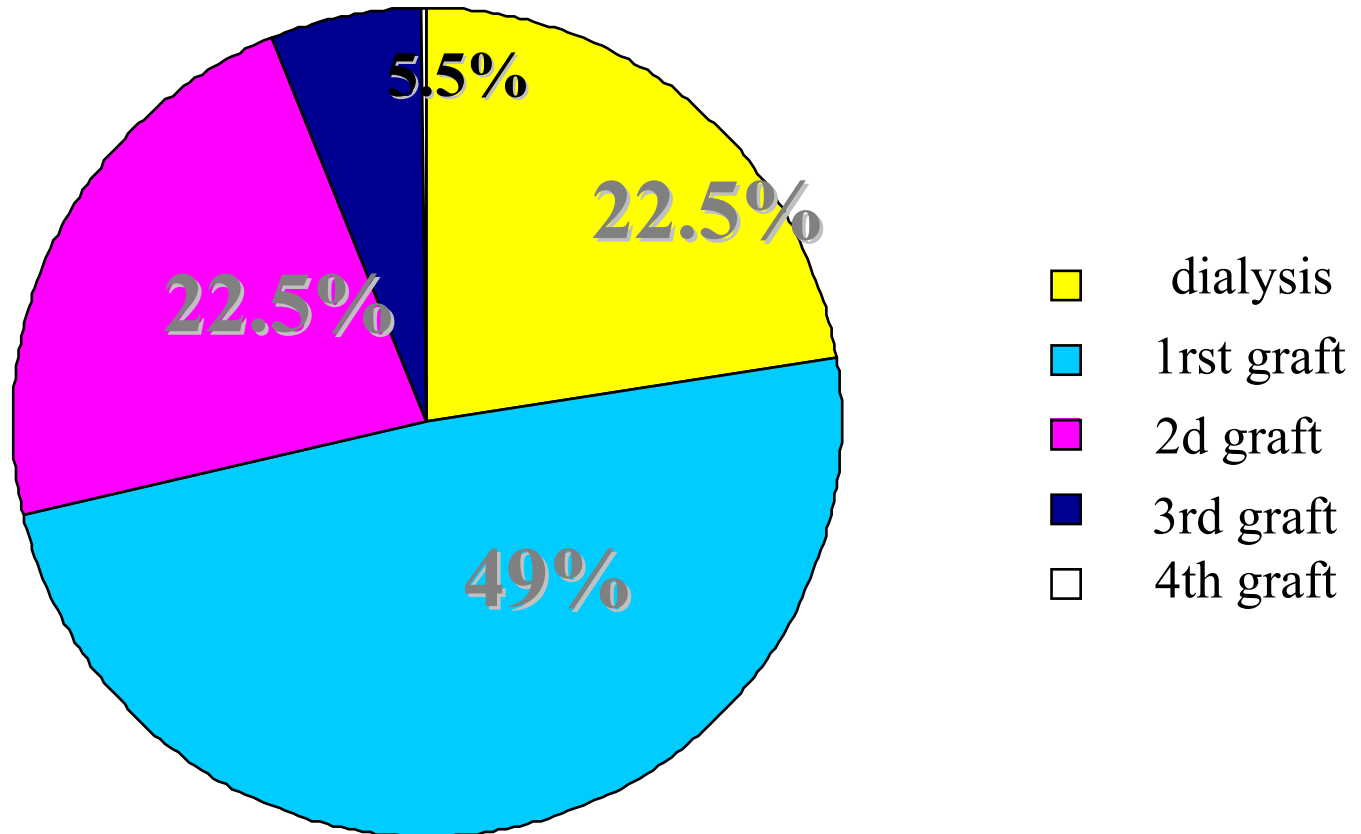
- Among the 266 patients, **22 (9%)** have some **mental impairment** and were studied separately.
- The other **244** were asked (directly or by letter or phone call) to complete, on a voluntary basis, a simple questionnaire about :
 - the most recent **mode of treatment**
 - their **cursus of education**
 - their **profession and present or past activity**
 - their **family situation** : «marital status» and offspring, lodging
- **Information was available for 94% of patients**



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Results I

Mode of treatment at the time of the study



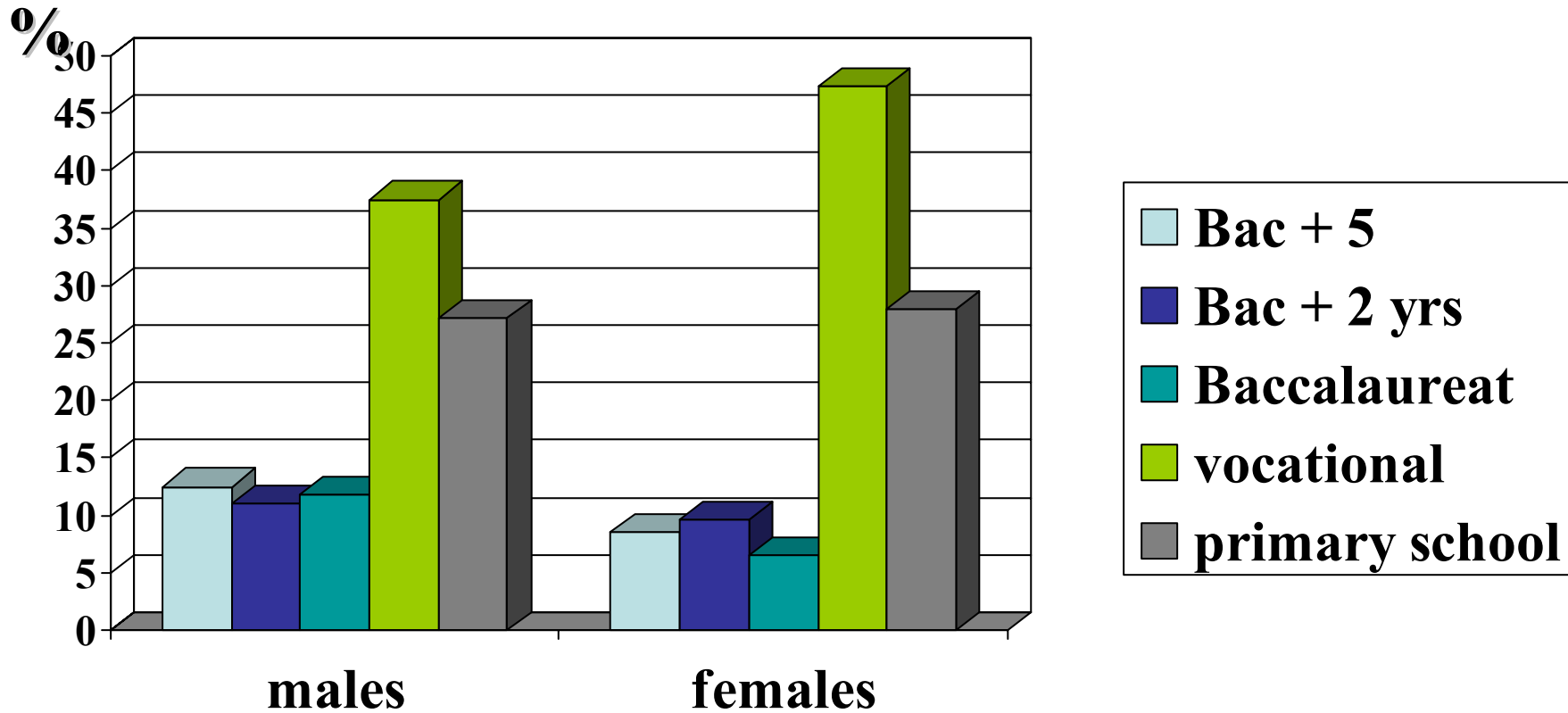
→ 77.5 % with functioning graft



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Results II

Education and diploma

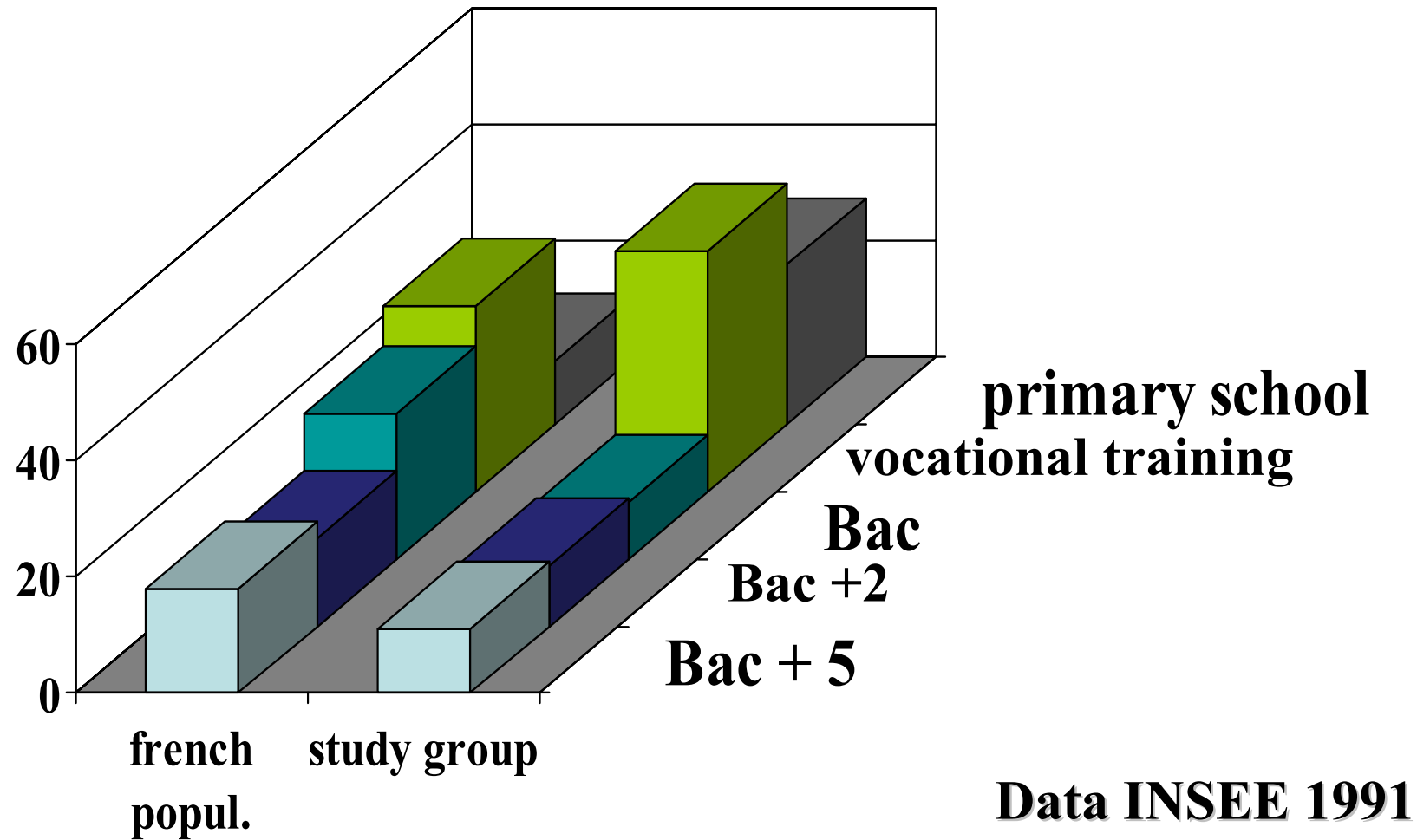




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Education-II

Education and diploma: comparison with the French population



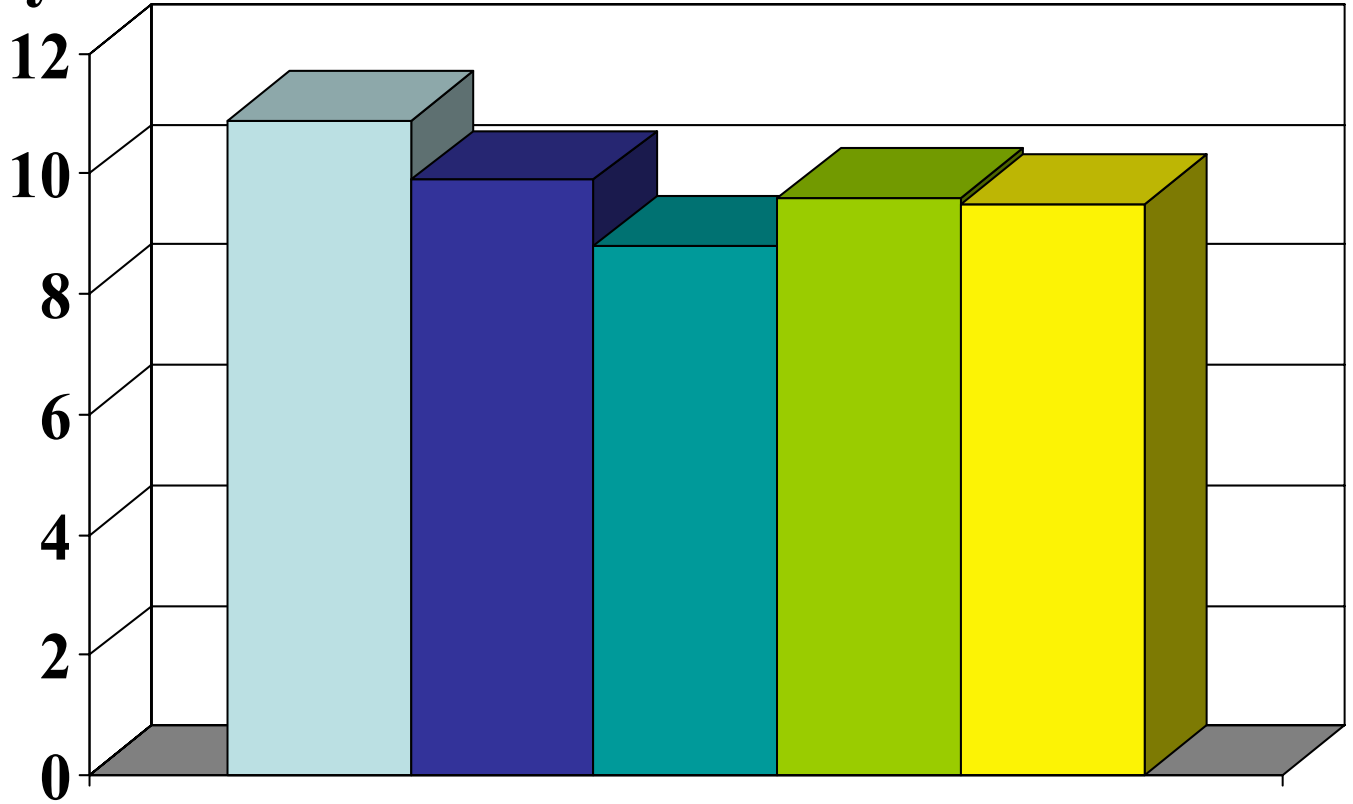


childhood

Education-III

Mean age at ESRD in different levels of education

yrs



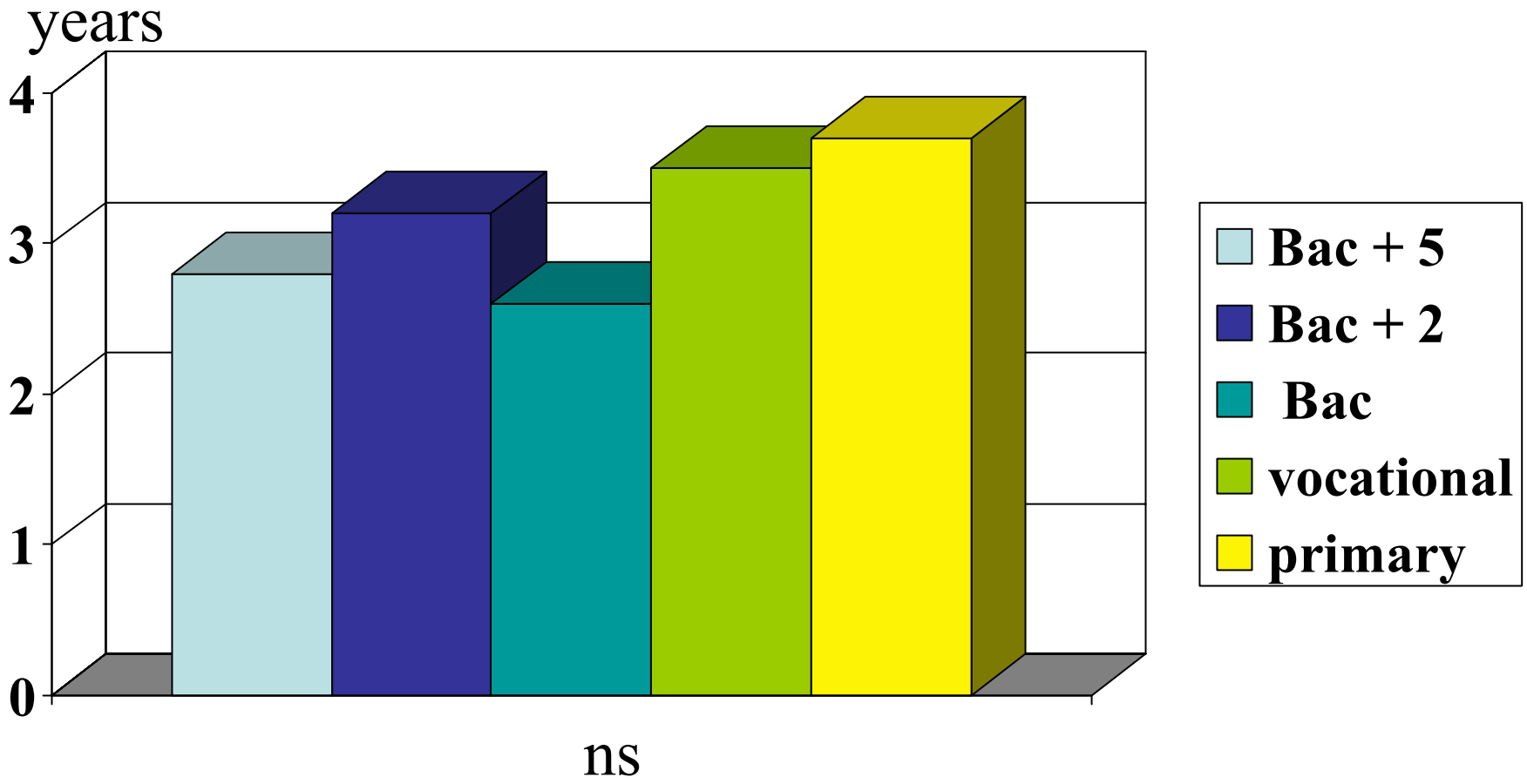
- Bac + 5**
- Bac + 2**
- Bac**
- vocational**
- primary**

ns



childhood **Education-IV**

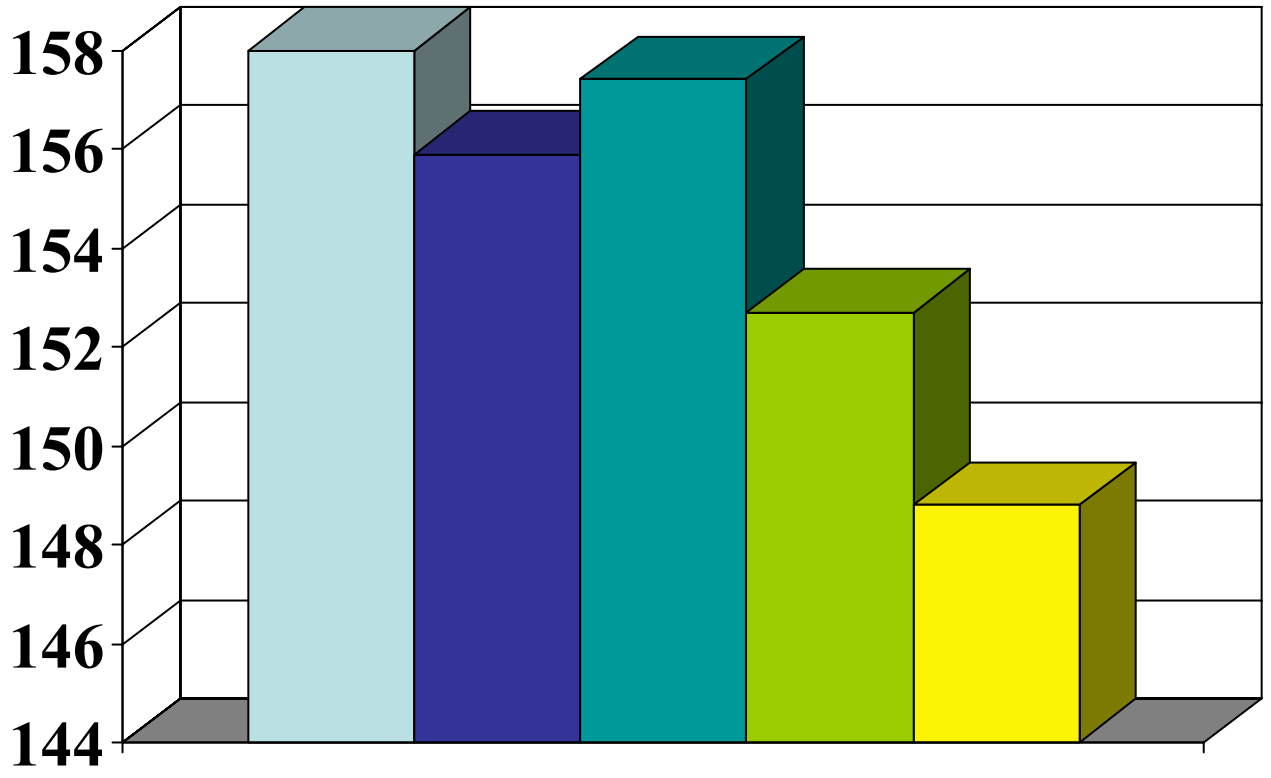
Mean duration of dialysis in different levels of education





childhood **Education-V**

Mean final height in different levels of education



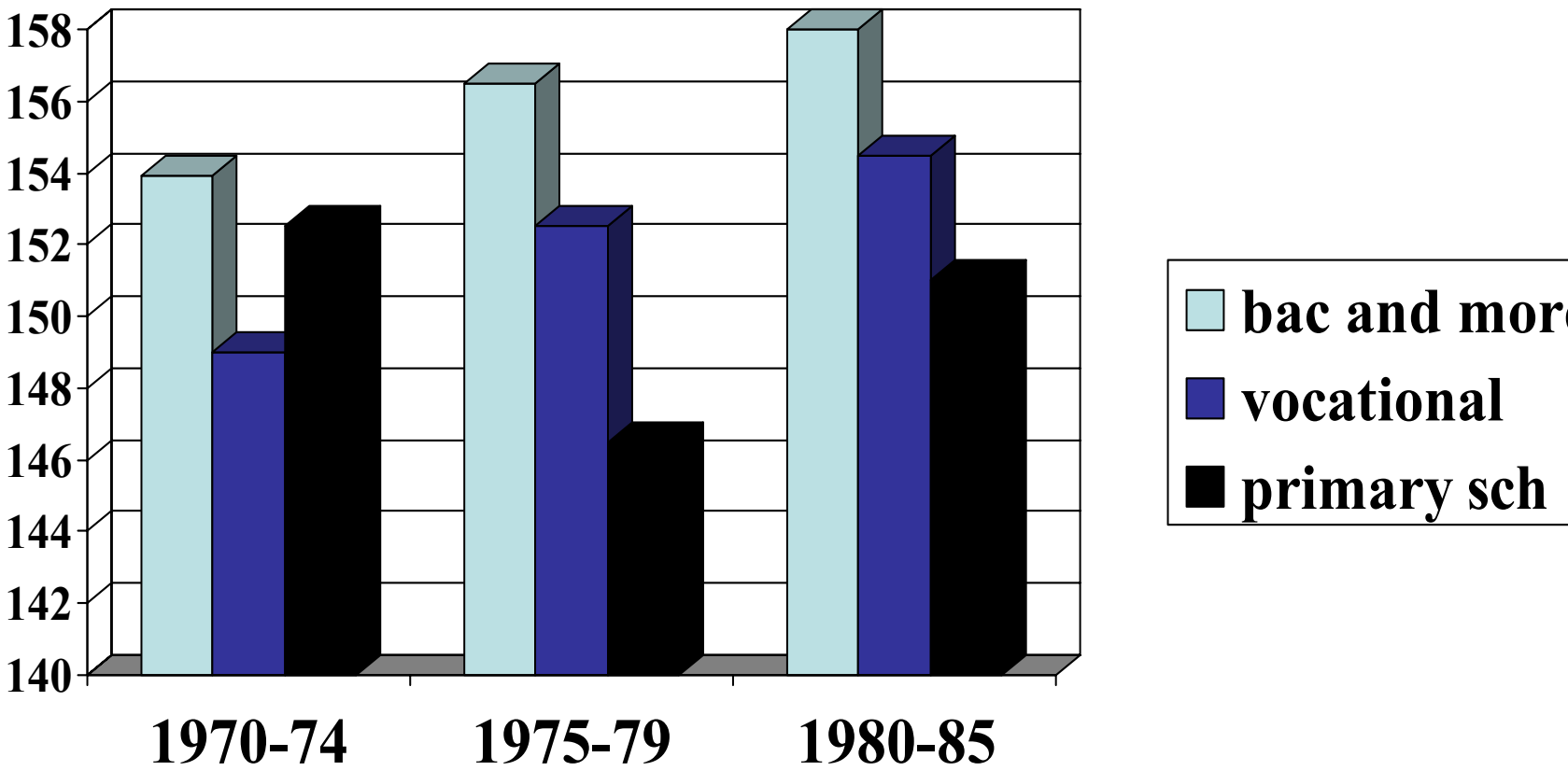
- Bac + 5**
- Bac + 2**
- Bac**
- vocational**
- primary school**

P<0.001



childhood **Education-VI**

Height and education level
over the years





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Education- Summary

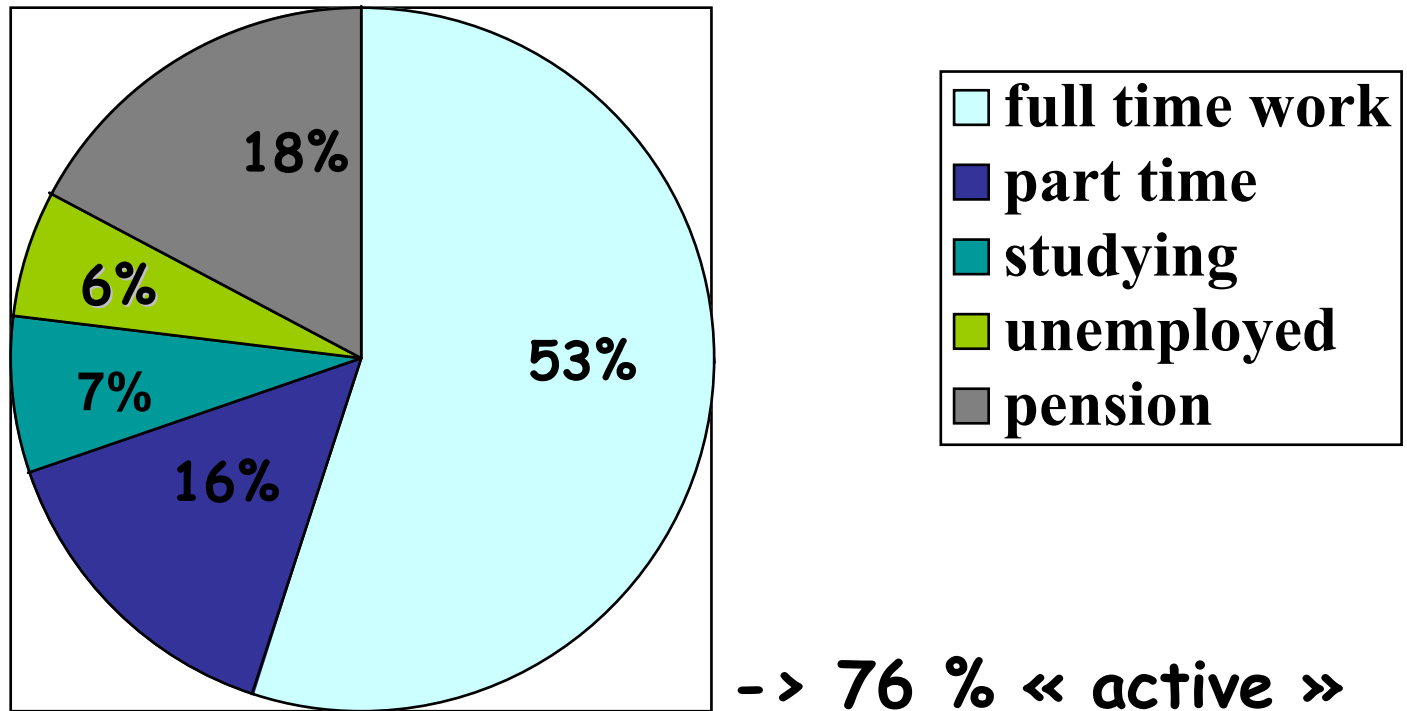
- The **educational level** was **clearly lower** than in the french population of same age : **27 % (vs 4%)** were at the **lowest level** and **31% (vs 43%)** had **passed the «baccalaureat»** (french high school diploma).
- **Educational level** was not related to age at ESRD or duration of dialysis but was **significantly correlated to final height**, whatever the years when RRT was started.
- However, **height and educational level improved slightly** over the years.



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Results - III : Present activity

Type of activity (238 patients)





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Occupation

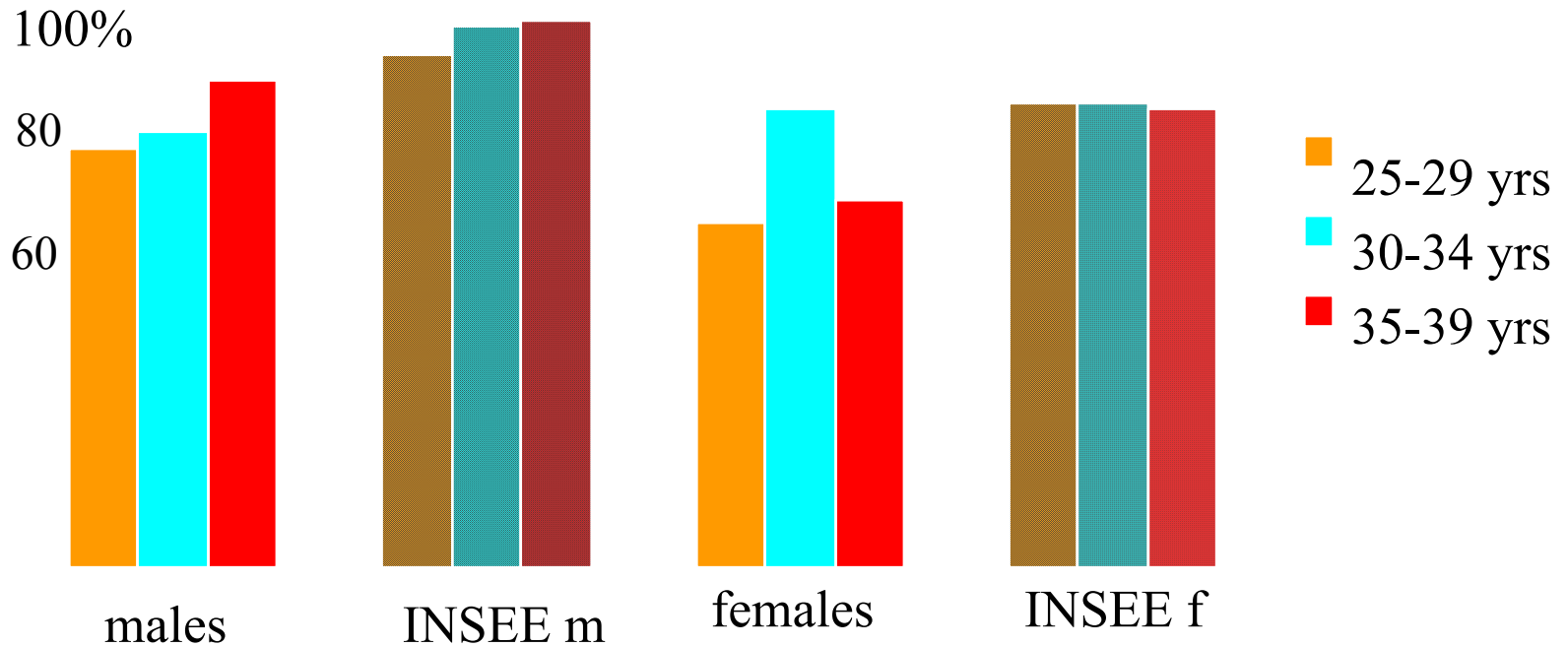
- Professionals, managers : 21 (11%)
- technical qualified job: 65 (36%)
- poorly qualified work : 60 (33%)
- intermittent jobs : 4 (2%)
- protected workshop : 5 (3%)
- Mothers at home : 6 (3%)
- Still in education or training : 18 (10%)



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Activity-III

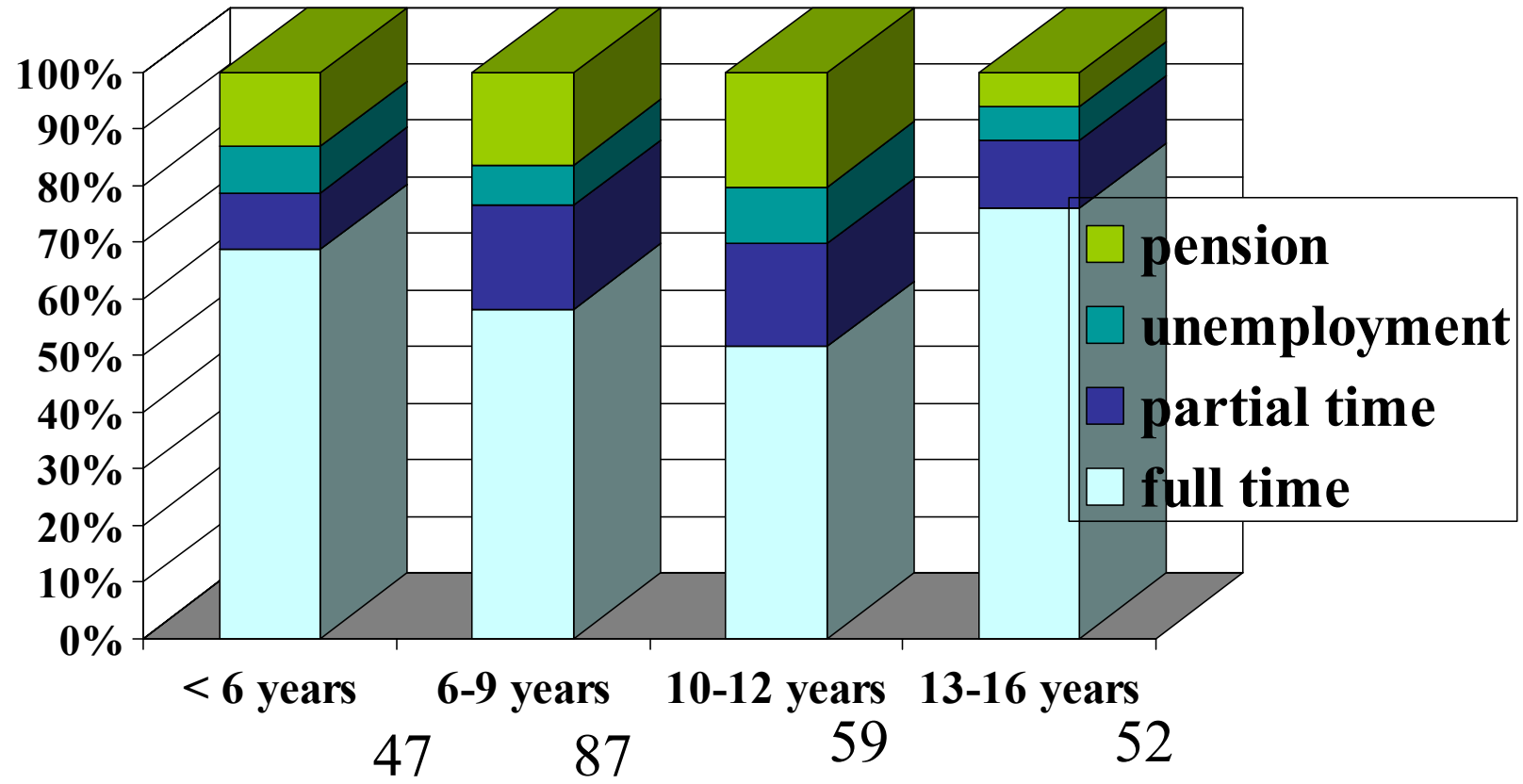
**Proportion of active patients
according to age and sex
Comparison with national data**





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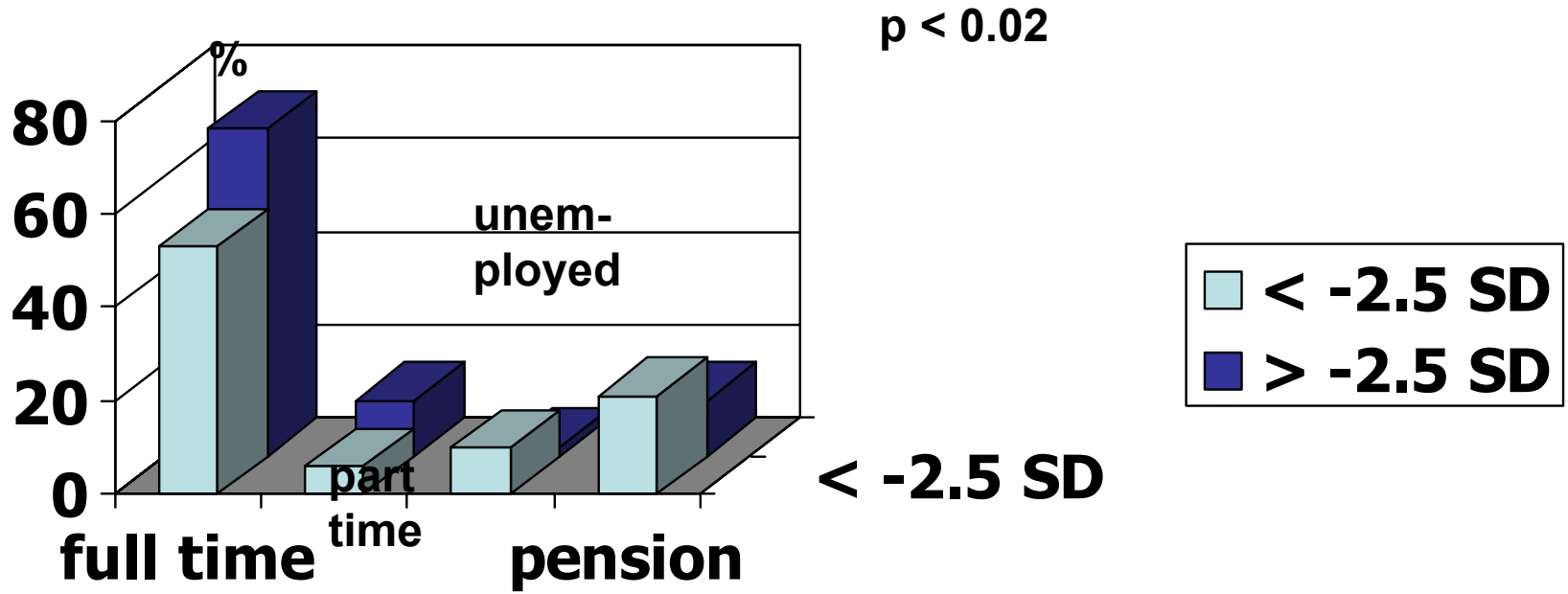
Activity according to the age at ESRD





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Activity according to final height (SD)





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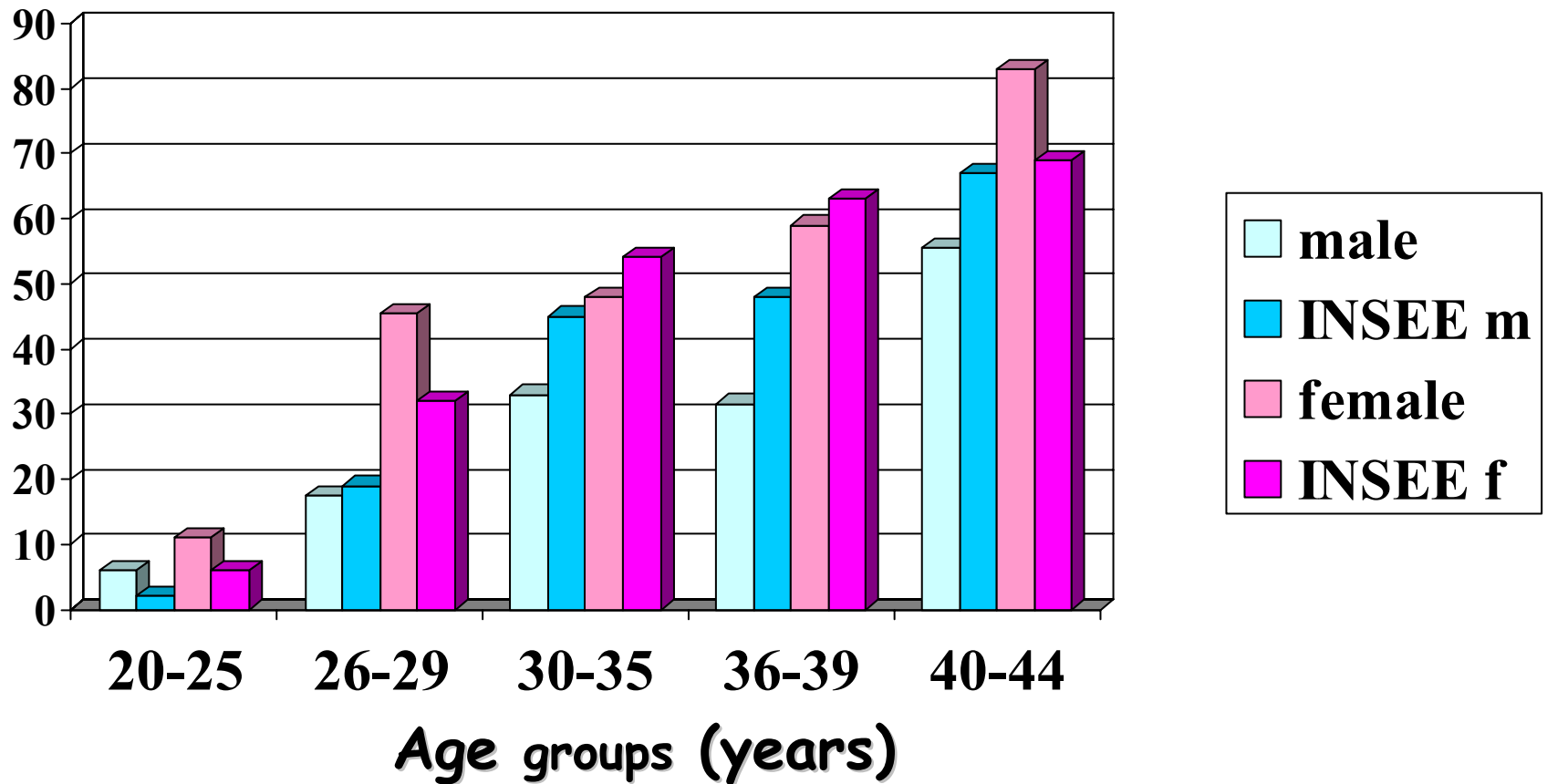
Activity- Summary

- The activity rate (76%) was slightly lower than in the general population : 65% (vs 72%) had paid employment; of them, 82% worked full-time and 18% (24% of females and 15% of males) worked part-time
- Only 6.5 % (vs 10.5%) were unemployed; however as much as 18 % received a disability pension.
- The level of activity was not related to the age at ESRD or at grafting, but was related to the final height, with less full-time activity in patients with height inferior to - 2.5 SD.



*Late social rehabilitation after kidney transplantation
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Rate of marital life according to age groups
Comparison with national data

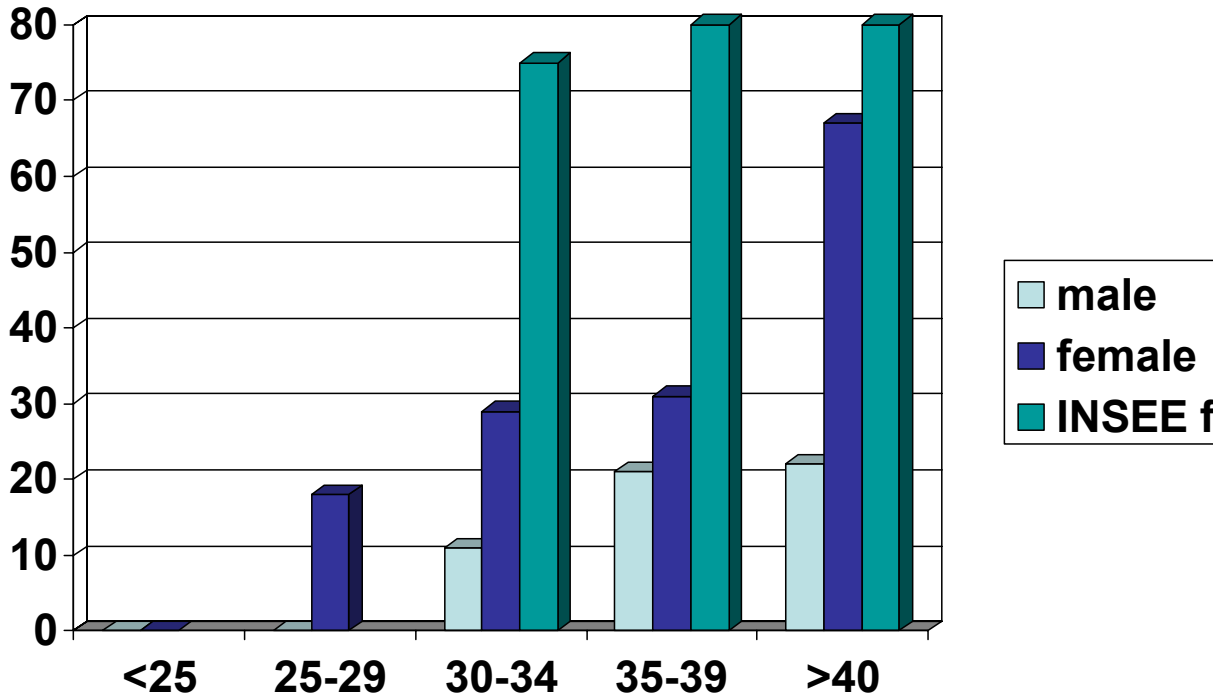




in childhood **Social life II**

Offspring

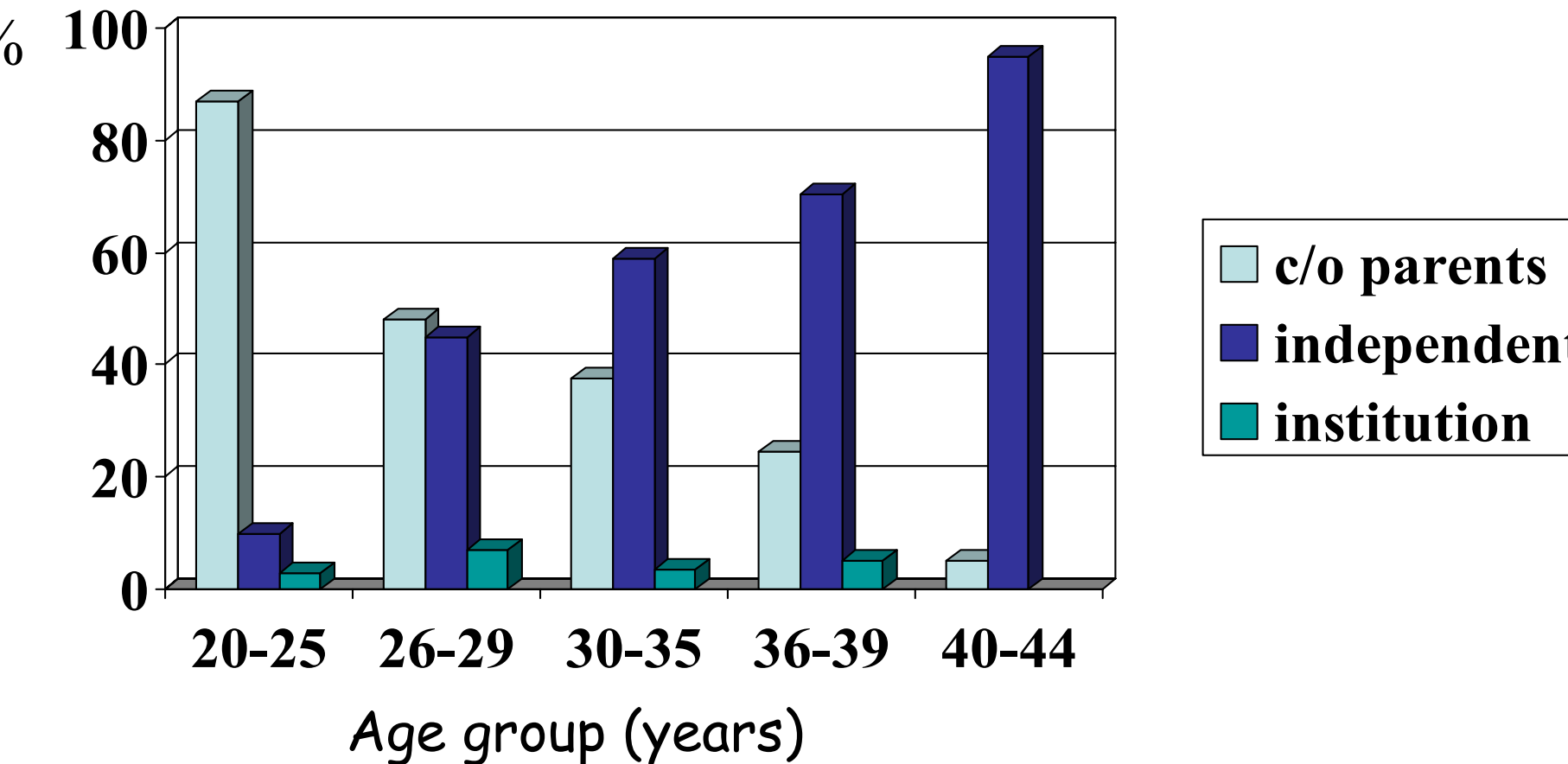
Proportion of males and females with children according to age





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Residence according to age at the time
of the study





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Social life-Summary

The rate of marital life increased from 8% in the age group 20-25 yrs to 71% at ≥ 40 yrs

39/149 males (26%) had a marital life and 12 (8%) had children

48/95 females (50%) had a marital life and 26 (27%) had at least 1 child

Their residence was at the parents' home in 46% and in an independent lodging in 54%; the rate of independent housing increased from 7% at 25 yrs to 95% at 40yrs.



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Social life-Summary II

- These data reveal a **significant delay in setting up adult social life** in these patients, particularly in males
- As a whole, our results are in agreement with those of other recent reports (*Kärrfeld & Berg 2008, Rees 2007, Groothoff 2005, Rosenkranz 2005*)
- Finally, we studied the **most determining factors** of the social life in our patients



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Influence of gender

	males	females	<i>p</i>
• Age ESRD	9.5	9.9	ns
• Dialysis duration >3y	23%	22%	ns
• Education			ns
• Marital life	26%	51%	<i>0.001</i>
• Offspring	8%	27%	<i>0.001</i>
• Independant residency	49%	61%	<i>0.07</i>



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Associated factors :logistic analysis **Marital life**

	yes	no	p
• Age	34.2	30.3	<i>0,0001</i>
• Age ESRD	11.3	8.8	<i>0,0001*</i>
• Dialysis duration	3.2	3.5	ns
• Education level			ns
• Height	156.3	151.2	<i>0,0001</i>

(* :age and age at ESRD correlated)



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Associated factors :logistic analysis

Residence

	independent	parent house	<i>p</i>
• Age	34.3	28.7	0.0001
• Age ESRD	11.3	7.9	0.0001*
• Dialysis duration	3.5	3.2	ns
• Education level			ns
• Height	155.2	150.8	0.003

(* :age and age at ESRD correlated)

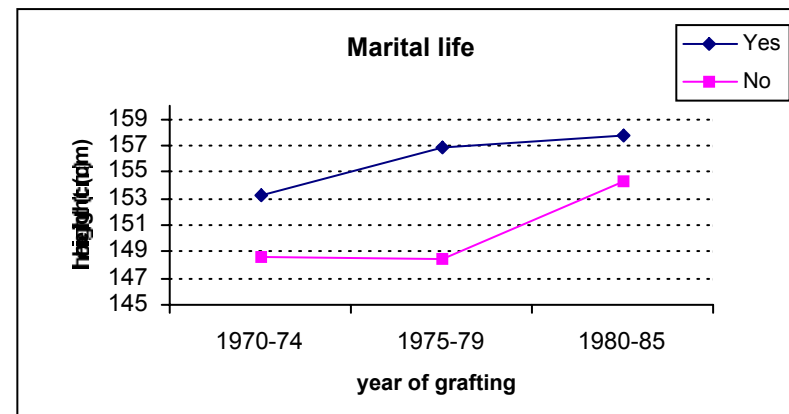
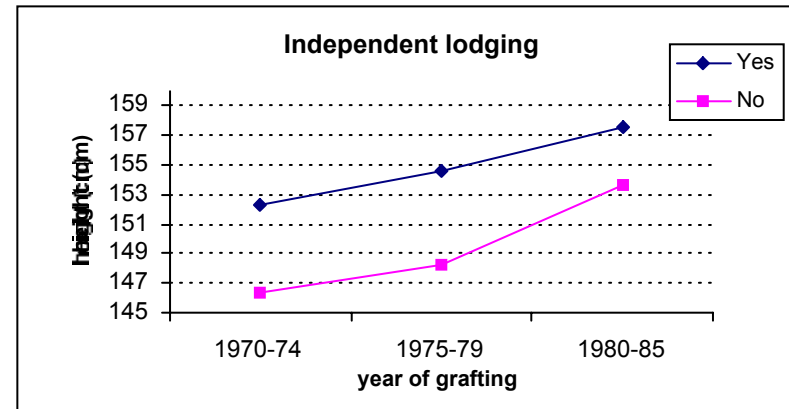
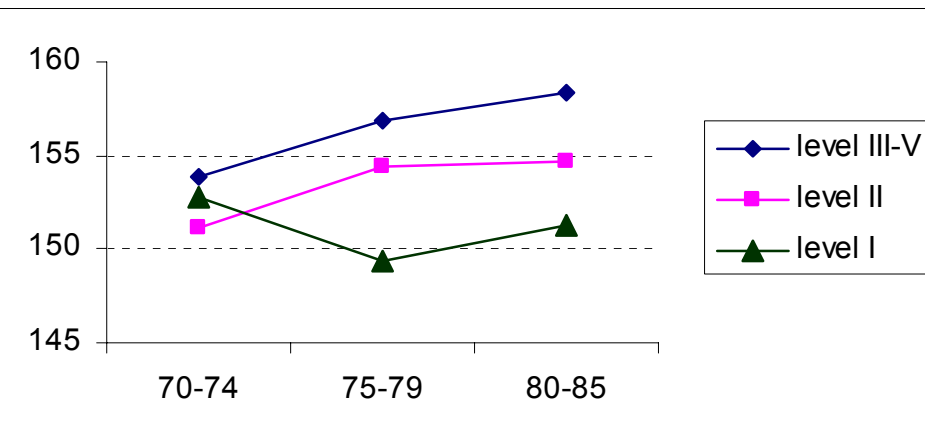


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Role of final height

on educational level, marital life and residence,
according to the years of RRT

Educational level





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Conclusions I

- **83%** of children who received a kidney graft before 1986 reached adult age and **77%** had a functioning graft in 2001.
- Their educational level was lower than national average, but their rate of activity (**76%**) was quite satisfying.
- However their social life was largely delayed, reaching the national average for the proportion of marital life and independent residence at **# 40yrs of age**



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Conclusions II

- Final height was the most prominent factor associated with good educational level, professional achievement and normal social life
- This emphasizes the **key role of statural growth** in the outcome of children with ESRD.
- It may be expected that the children treated early with **growth hormone** will have a **better social outcome.**





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Outcome of the mentally disabled patients

- n = 22 (15 females, 7 males)
- **Activity** :
 - 5 full-time employments
 - 1 part-time work (protected workshop)
 - all receive disability pension
- **Residence**:
 - 17 in parents' home
 - 5 in specialised institutions
- **Marital life** : 0