

**PHYSICAL FUNCTION AND ITS
ASSOCIATED FACTORS IN BEIJING
ELDERLY PEOPLE**

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Activities of daily living are important indexes for evaluating the quality of life, physical health and active life expectancy of elderly.

The active life expectancy will be prolonged as the capability in physical function increases.

Objective

To evaluate the physical function of elderly people living in Beijing and to explore the risk factors associated with the decline of these functions.



- Beijing, capital metropolitan
- Eighteen administrative areas, divided into 3 categories according to the degree of urbanization and economic status:
 - 8 urban districts,
 - 5 suburban counties,
 - 5 mountain counties.
- One medium developed district/county was chosen at each category:
 - HuaiRuo** (mountain).
 - XuanWu** (urban),
 - DaXing** (suburban)

Cohort Establishment

- Data from the 4th national census as reference
- People aged 55 or over
- **Features of cohort**
 - Sample selected based on the representative to the population in Beijing in terms of
 - ❖ Area of residence
 - ❖ Education
 - ❖ Gender
 - ❖ Socioeconomic status
 - Older people over-sampled for the sake of longitudinal observation

Sampling

- ❖ **Multi-step stratified random sampling method**
- ❖ **9 neighborhoods from urban, 28 villages from rural area were randomly sampled, to represent the socio-economic, educational levels of Beijing urban and rural regions**
- ❖ **Predetermined number of subjects randomly sampled from these neighborhoods/villages**
- ❖ **Subjects stratified by gender and 5 year age strata**

Subjects and Characteristics

	1992	1997
No. of Subjects	3527	2788
Followed in 1997	2229	
Male(%)	48.9	48.6
Urban:sub:mount(%)	65.7:21.1:13.3	50.9:25.3:23.8
Age(years)	70.1±8.9	70.7
≥80 yrs old	18.1(589)	17.6(489)

Instruments

Questionnaire including physical health and functions, life style, demographic background

Functional capability WHO

ADL eating, grooming, dressing, getting on or off bed, bathing, walking in the room, using toilet

IADL cooking, managing money, taking bus, shopping, walking for 300m, cutting toe-nail, going up or down stairs

Assessment Category

➤ SLIGHT

more than 1 in IADL dependent

➤ MODERATE

More than 1 IADL dependent and 1-2 ADL dependent

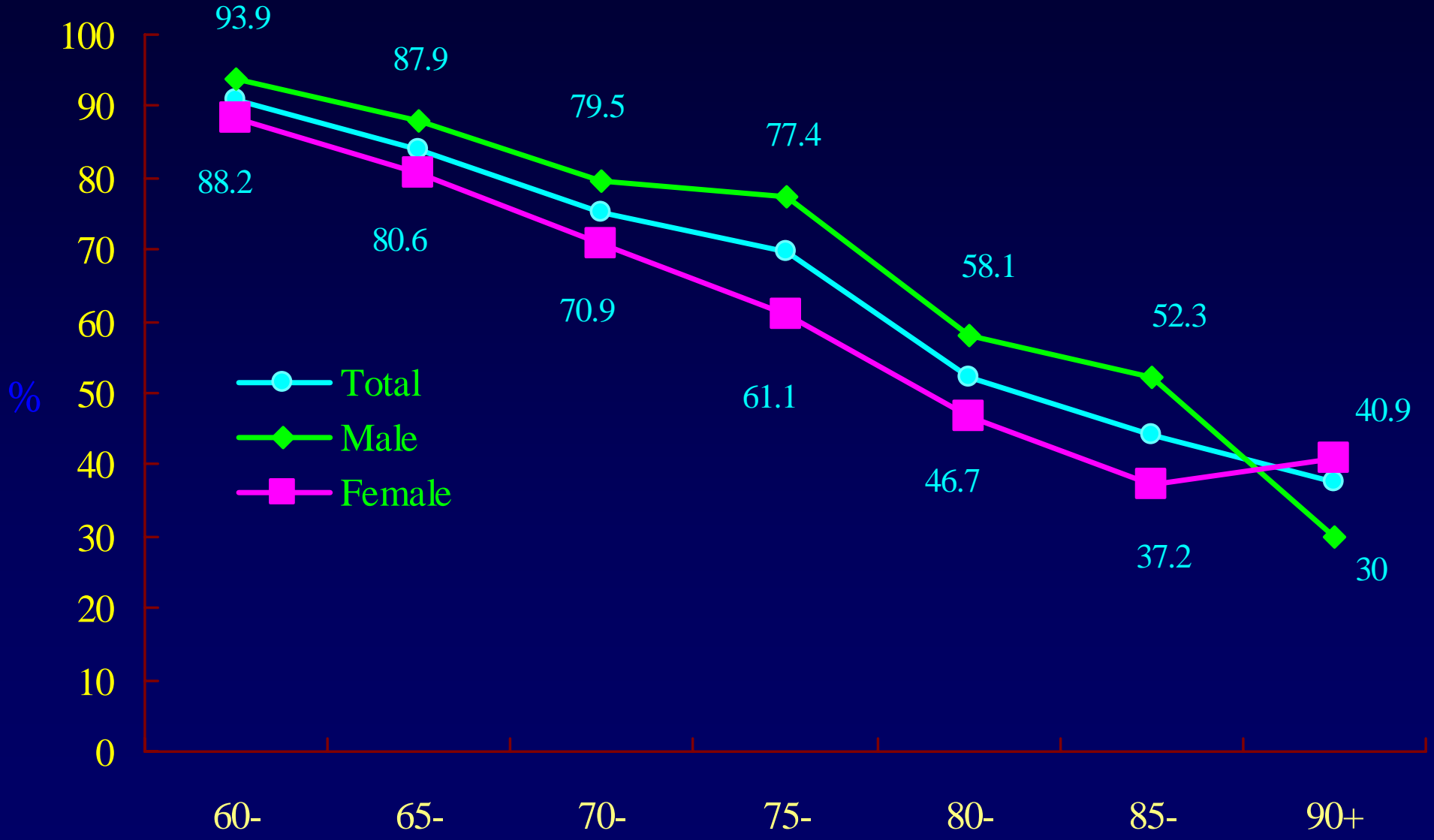
➤ SEVERE

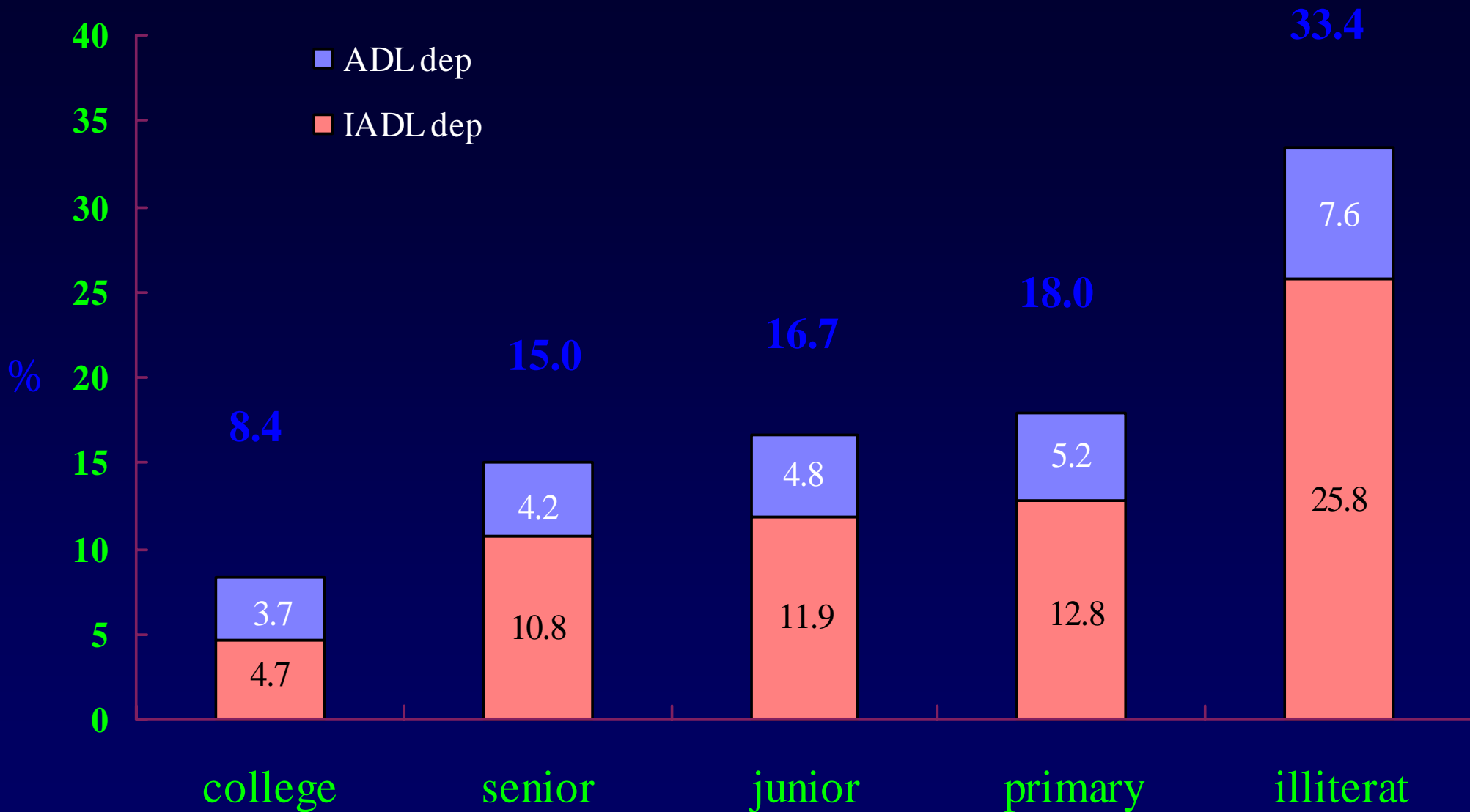
More than 1 IADL dependent and more than 3 ADL dependent

Prevalence of ADL & IADL dependence by gender & region

	Independent		IADL dep. □slight□		ADL dep (mod. & severe)		Total	
	N	%	N	%	N	%	N	%
Male	1078	79.7	194	14.2	83	6.1	1355	100.0
Female	1000	69.8	338	23.7*	93	6.5	1431	100.0
mount	484	73.8	137	20.9	35	5.3	656	100.0
Suburb	444	62.8	197	27.9*	66	9.3*	707	100.0
Urban	1150	80.8	198	13.9	75	5.3	1423	100.0
Total	2078	74.6	532	19.1	176	6.3	2786	100.0
Weighted		80.91		14.82		4.27		

Trend of ADL and IADL independence by age and gender





ADL and IADL dependence rate by education

Changes in physical activities

Of 3257 elderly, 2229 survived in 1997 survey, the physical function among them changed in different ways:

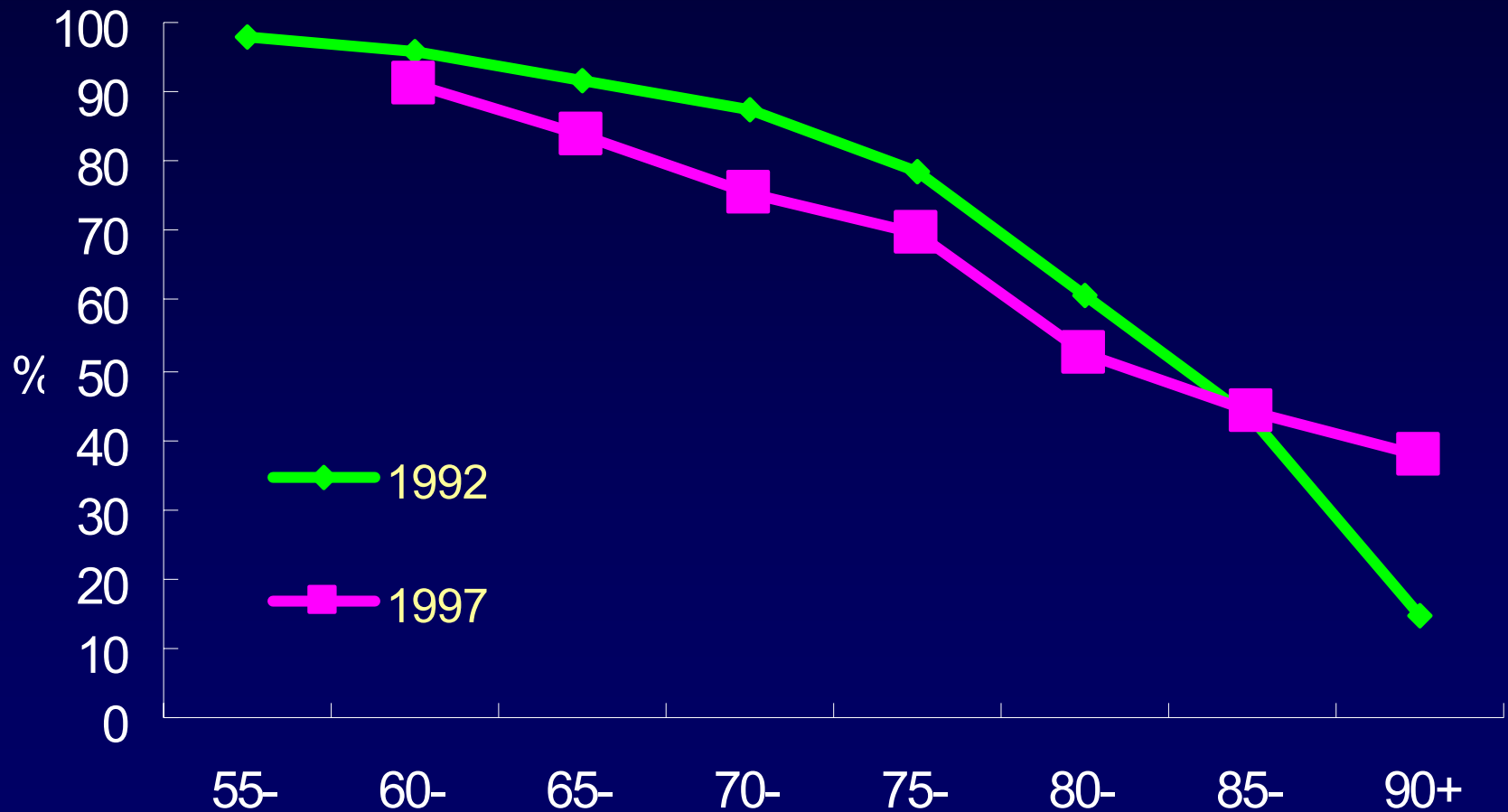
73.9% remained stable

17.3% declined in functional capability

8.8% improved in functional capability

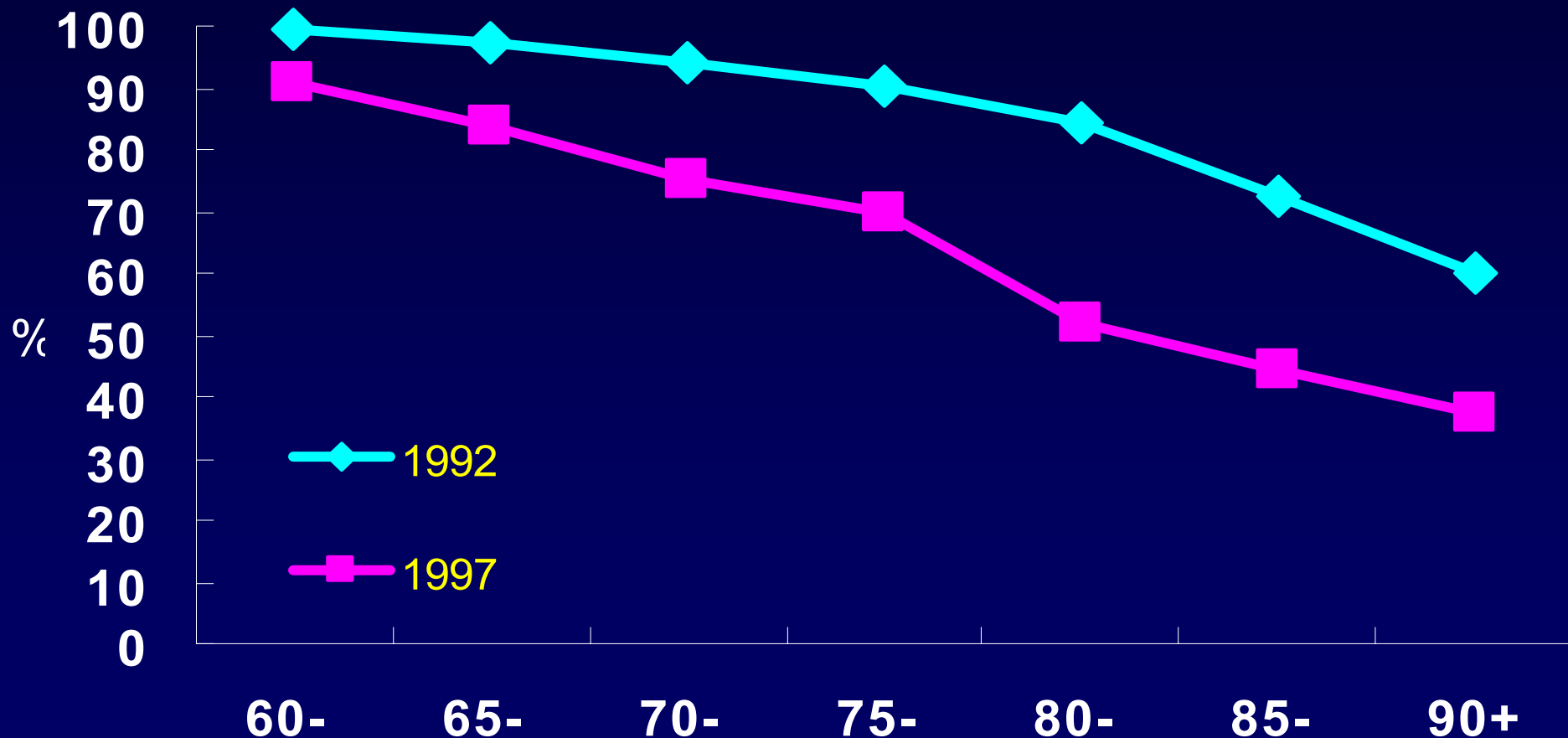
The change of ADL and IADL independence

(1992 to 1997, cohort)

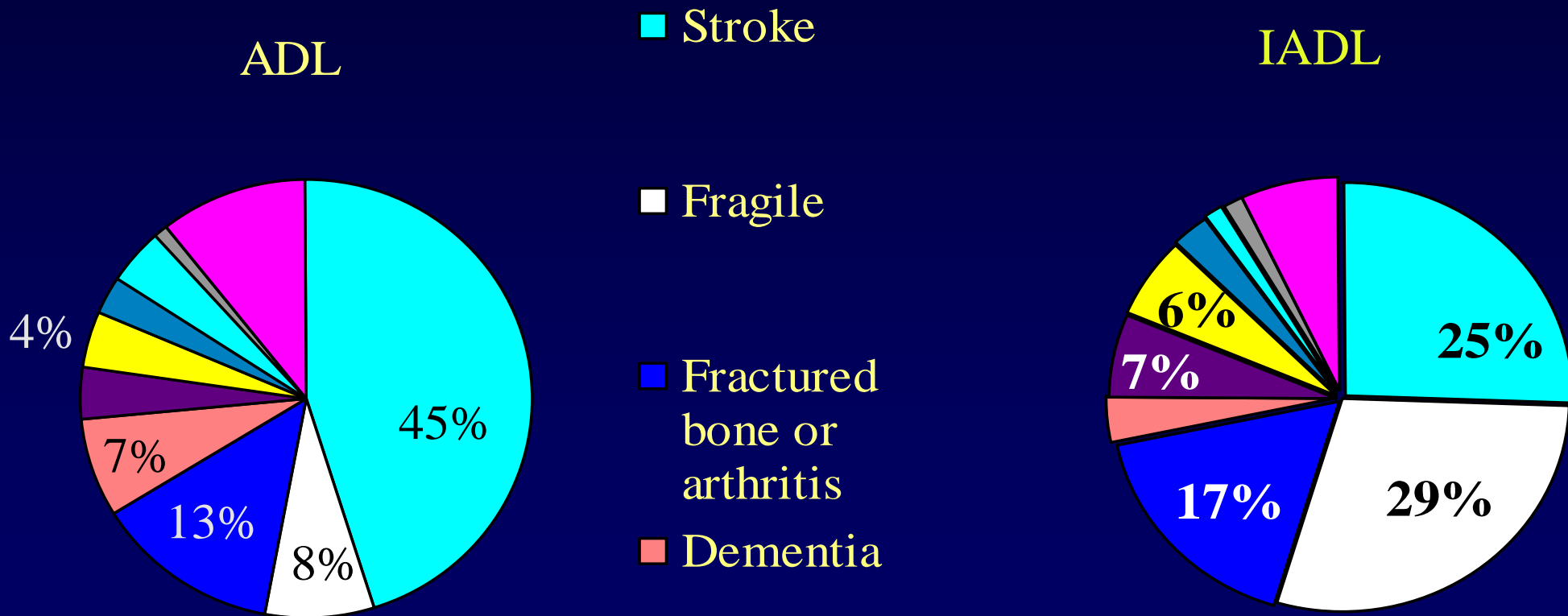


The change of ADL and IADL independence

(1992 to 1997, cross-sectional)



The diseases or condition attribute to ADL & IADL dependence



ADL dependence and chronic disease

Diseases	ADL Dependence(%)	OR	95% CI
Dementia	72.7	9.69	7.05--3.33
Poor CF	49.2	4.98	4.05--6.12
Stroke	53.4	4.00	3.10--5.14
Impaired hearing	35.6	1.96	1.63--2.37
Tumor	32.3	1.41	0.82--2.42
Diabetes	30.8	1.29	0.84--1.98
Poor sighted	27.5	1.14	0.90--1.44
CHD	27.2	1.13	0.94--1.38
Resp Dis	26.9	1.10	0.87--1.38
Arthritis	24.8	0.96	0.77--1.20

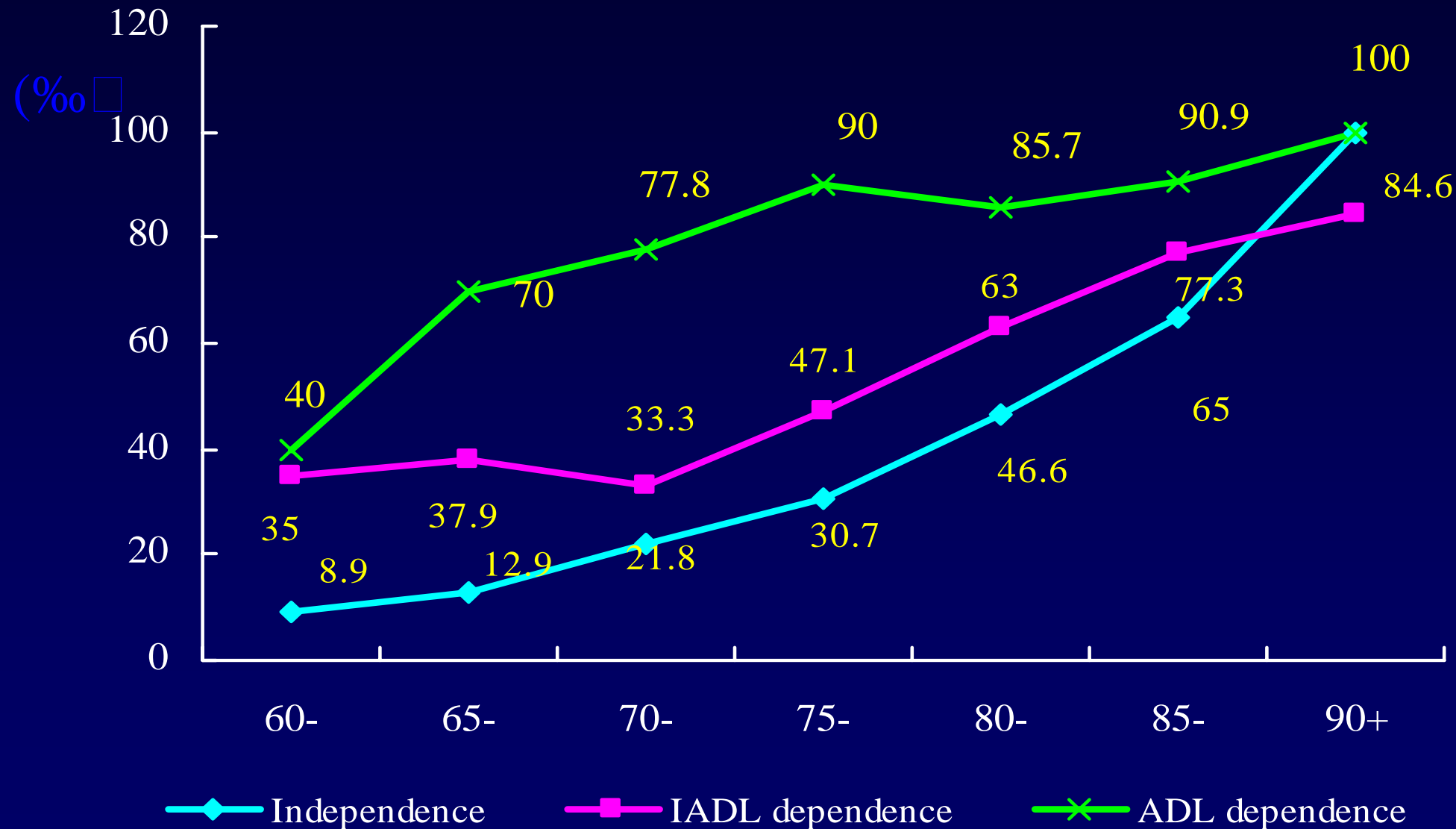
Factors ADL & IADL indenpence by age & gender

		Case no.	Total		<75yrs		≥75yrs	
			N	%	N	%	N	%
marriage	No spouse	965	613	63.5	322	78.5	291	52.4 **
	With spouse	1821	1465	80.5 **	1187	84.1 **	278	68.0
Family type	alone	267	211	79.0	120	83.3	91	74.0
	With spouse	781	641	82.1	510	84.2	131	74.9
	With children	1737	1225	70.5**	879	82.0	346	52.0**
finance	Good or fair	674	559	82.9	428	87.0	131	72.0
	poor	1919	1449	75.5**	1055	83.1**	394	60.7*
Physical exercise	often	1307	1102	84.3	813	89.2	289	73.0
	no	1478	975	66.0**	696	76.4**	279	49.2**

** $P < 0.01$

* $P < 0.05$

Five-year cumulative mortality by ADL and IADL



Summary

- ❖ **The prevalence of ADL dependence among Beijing elderly was 9.1% (weighted)**
- ❖ **The prevalence of ADL dependence increased with age, the rate was significant higher in old-old group**
- ❖ **rural/urban =1.97, female/male =1.69**
- ❖ **Longitudinal study: Physical functions changed in different direction**
 - ❑ **73.9% remained stable**
 - ❑ **8.8% improved**
 - ❑ **17.3% declined, the deterioration in function was moderate in old-old group, but the tendency became less in recent years.**
- ❖ **The main cause for functional deterioration was physical health, but it was also affected by social factors.**

- ❖ **ADL was highly associated with physical function, IADL is affected by environmental situation and cultural background**
- ❖ **Physical function deterioration among elderly in rural area was related with social factors.**
- ❖ **The prevalences of ADL and IADL dependence were highest among the elderly with dementia, cognitive defect and stroke.**
- ❖ **The all-cause mortality was highest among the elderly with ADL dependence**
- ❖ **For the elderly with ADL dependence: nursing care of chronic diseases and basic daily living services needed**
- ❖ **For the elderly with IADL dependence: community services needed**