

# Hormonal contraception, depression and suicides

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Seminars in contraception, Tromsø,  
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# Hormonal contraception and depression

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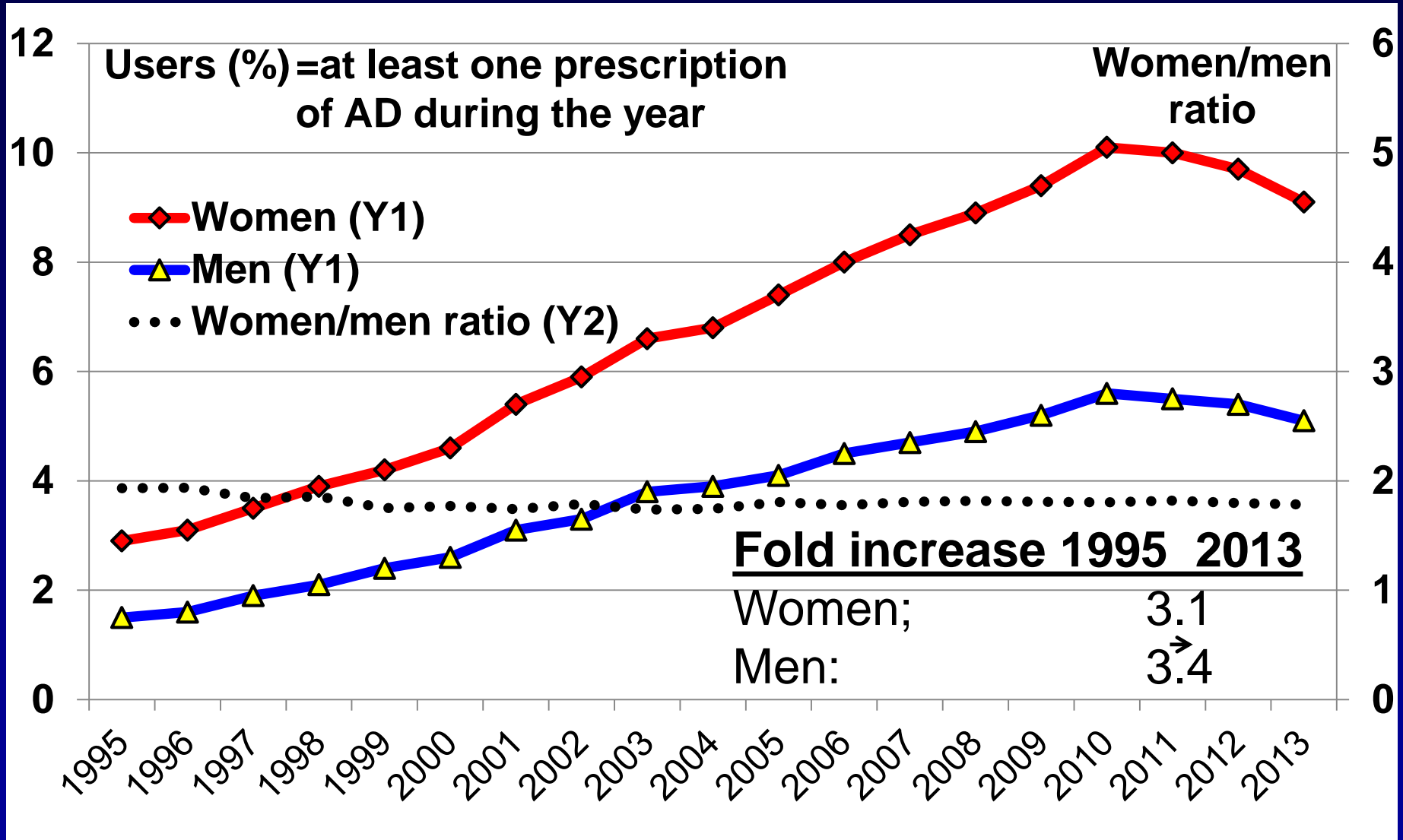
## Background

- Female sex hormones have an influence on many women's mood
- Exogenous hormones may likewise have an influence on some women's mood

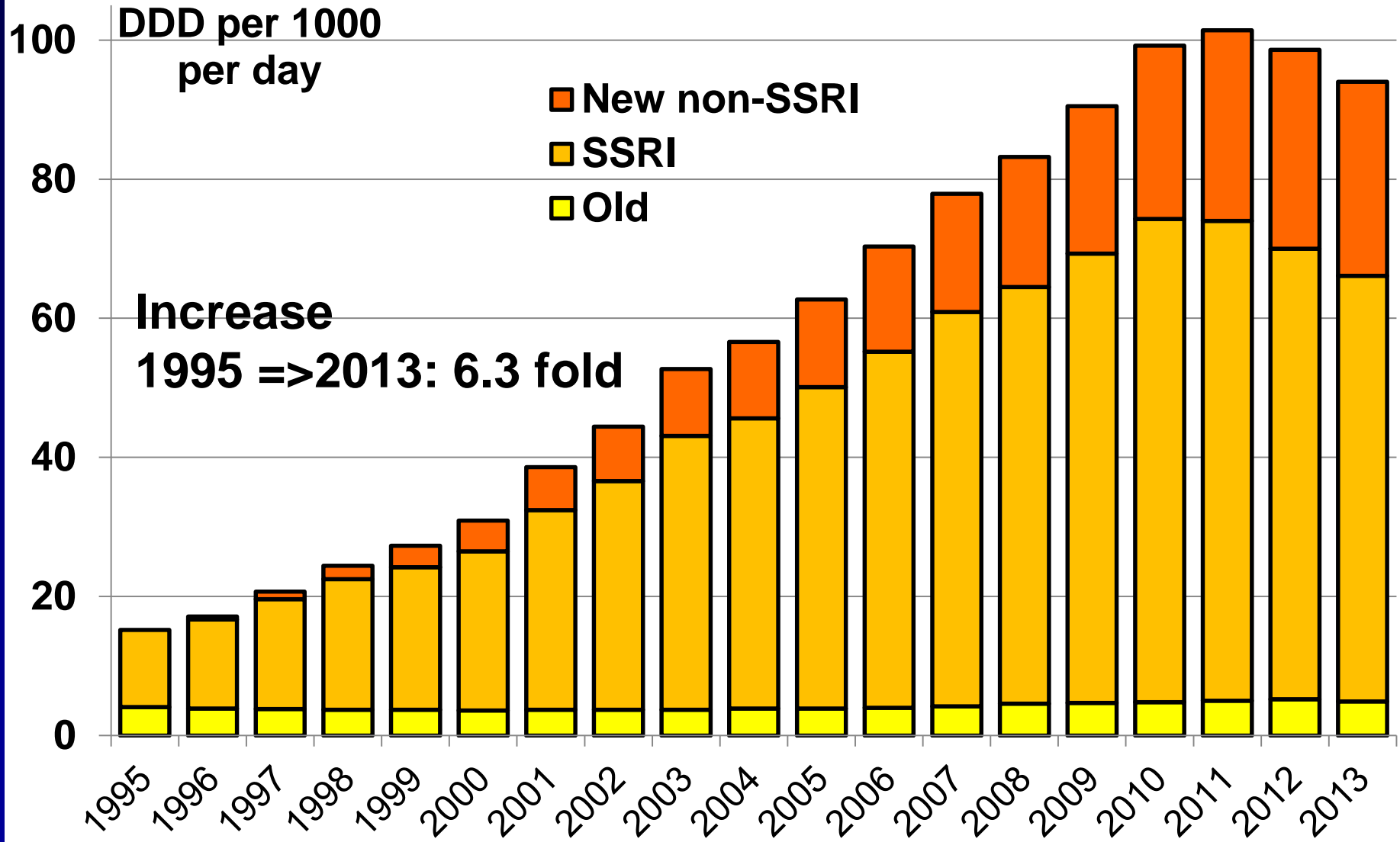
## Aim

- To assess the risk of being user of antidepressants (AD) and of getting a depression discharge diagnosis with use of different types of hormonal contraception
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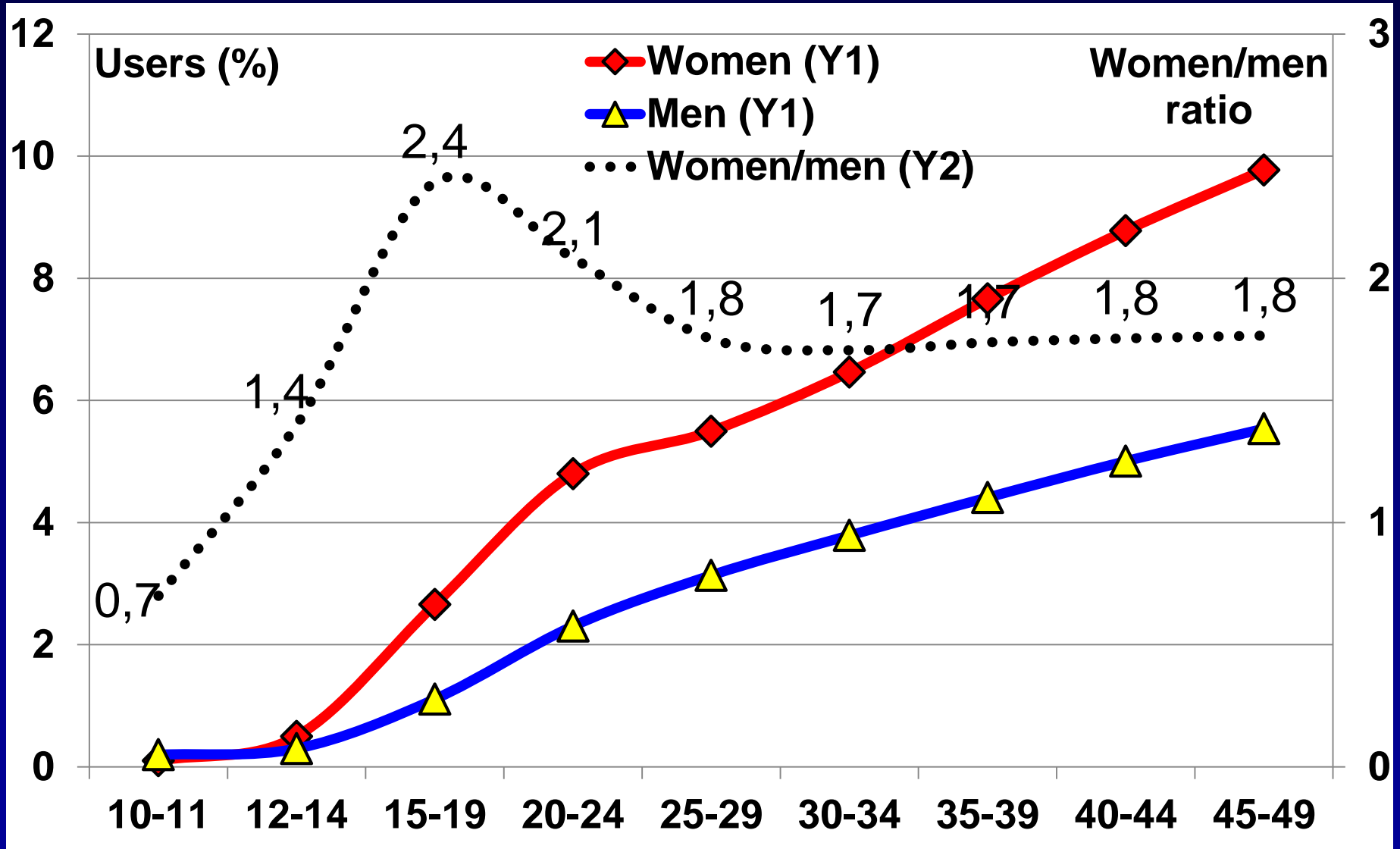
# Users of AD in women 15-49 years



# Use of AD in women 1995-2013

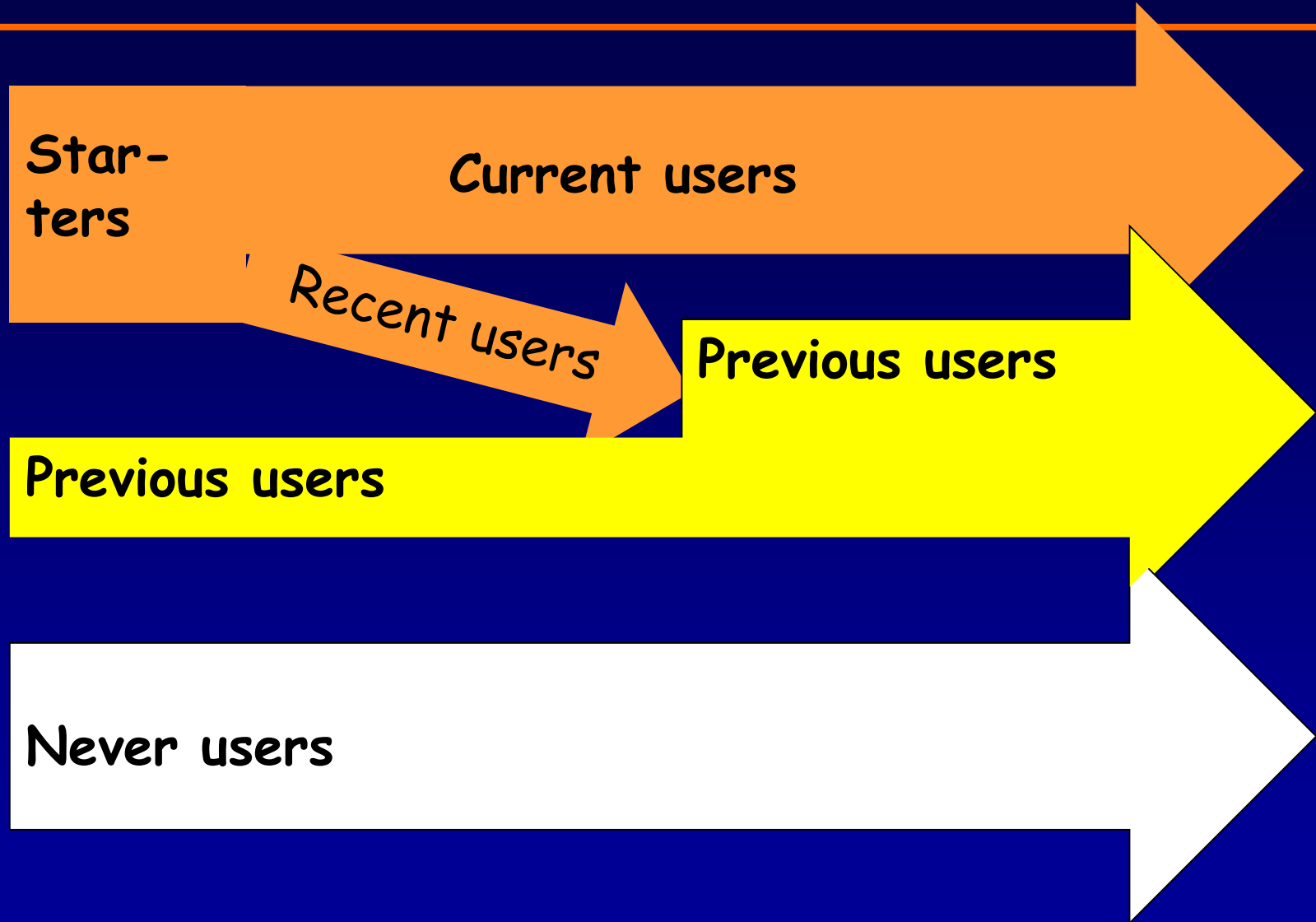


# Users of AD acc to age 1995-2013

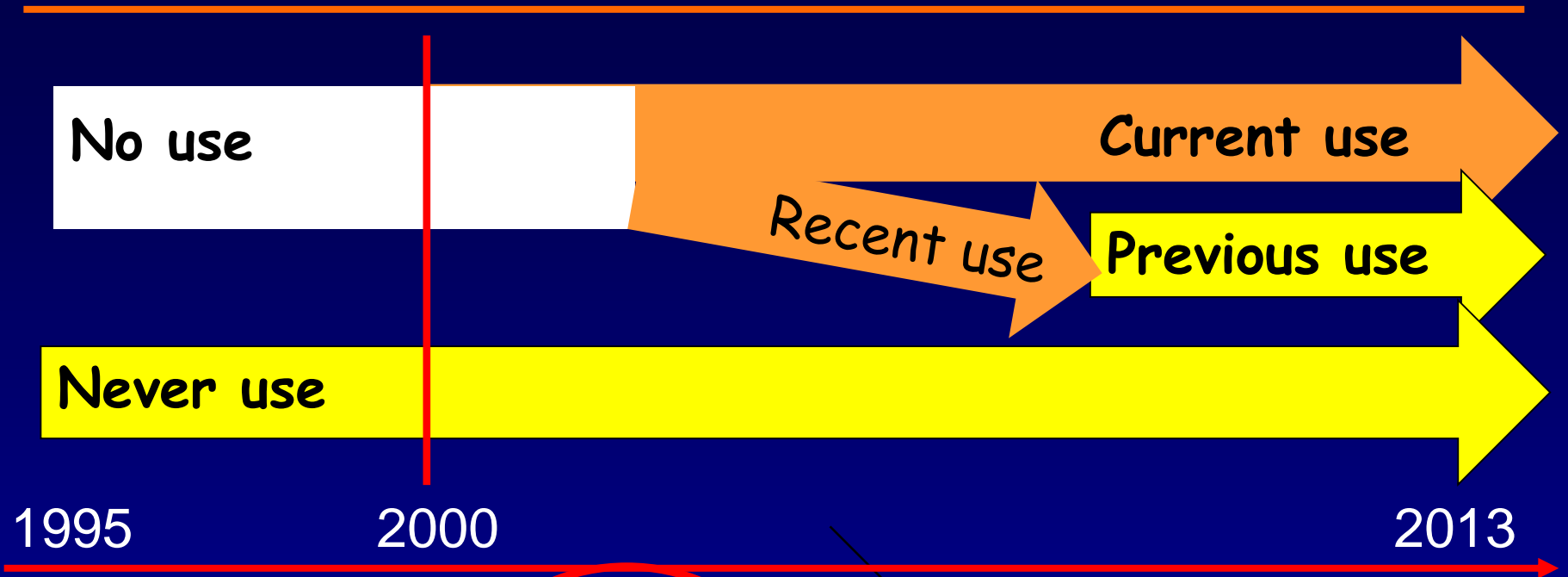


# HC & AD: Methodological points

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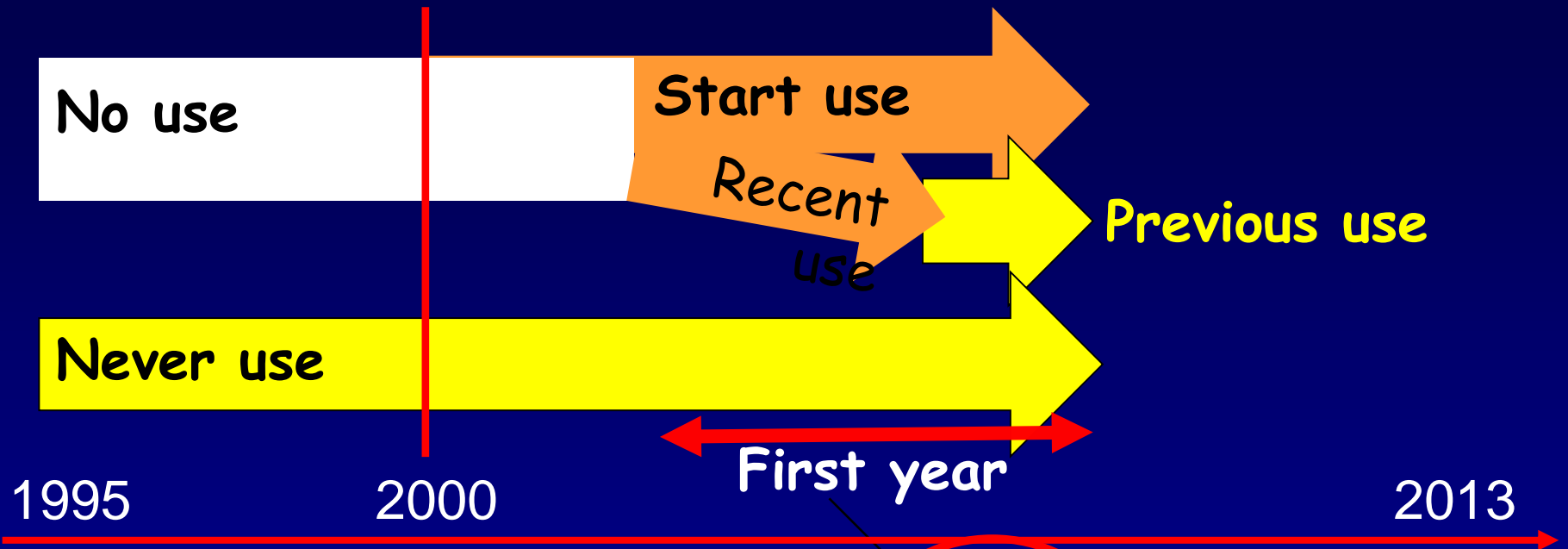


# HC & AD: Methodological points



Analysis	Main	Starters	Ever-users
Numerator	Current use	Start use	Start use
Denominator	Non-use	Non-use	Before use

# HC & AD: Methodological points

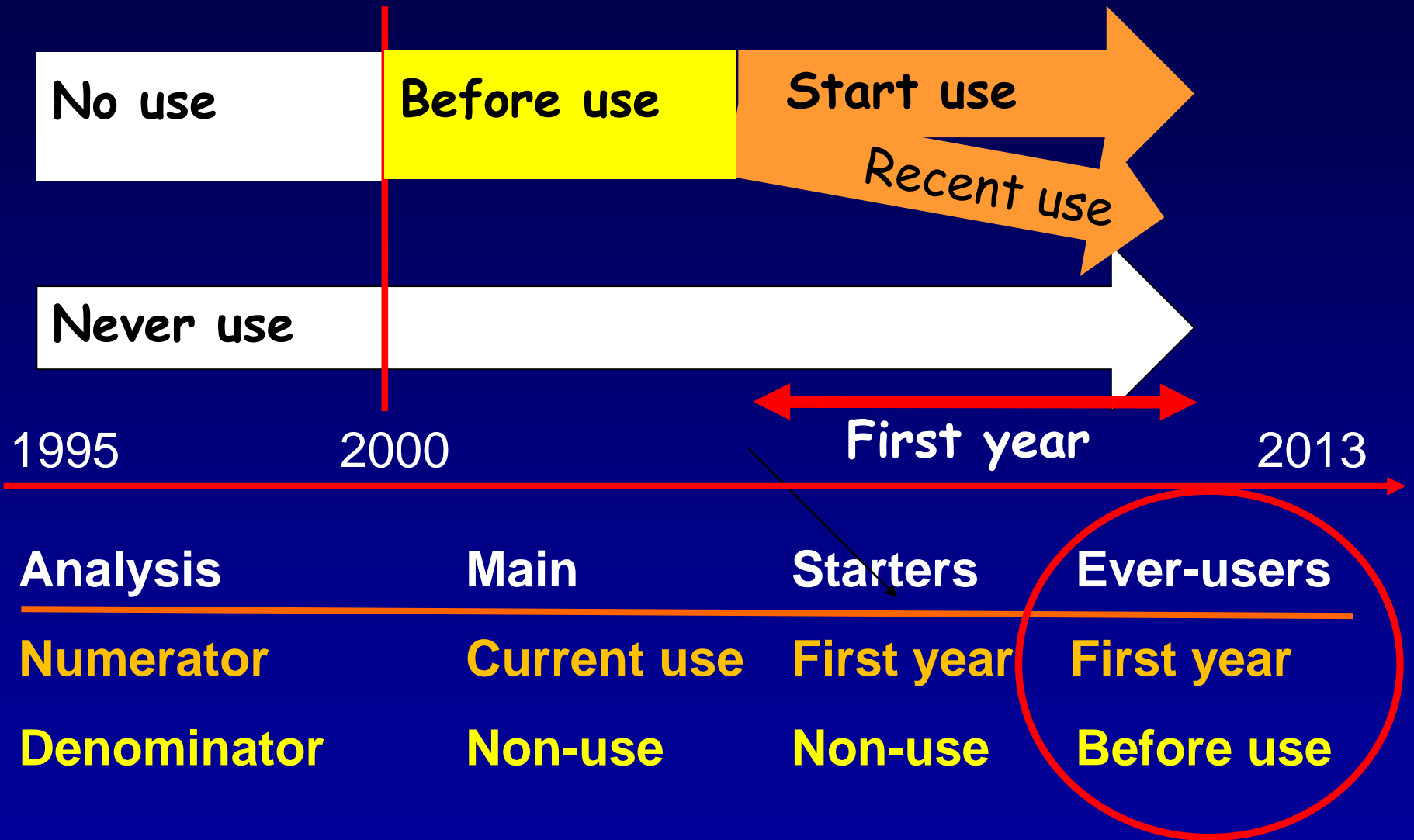


Analysis	Main	Starters	Ever-users
Numerator	Current use	First year	Start use
Denominator	Non-use	Non-use	Before use





# HC & AD: Methodological points



# HC & AD: Methodological points

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**Use of AD Numerator**

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**Denominator**

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Highest

**Starters**

**Previous users**



**Current users**

**Non-users**

Lowest

**Long-term users**

**Never users**

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# HC & AD: Methodological points

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**Use of AD Nominator**

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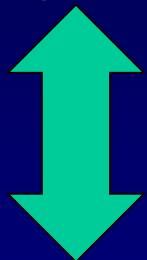
**Denominator**

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Highest

**Starters**

**Previous users**



**Current users**

**Non-users**

Lowest

**Long-term users**

**Never users**

What is the most correct:

What is the least correct:

What is the most used:

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# HC & AD: Methodological points

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**Use of AD Nominator**

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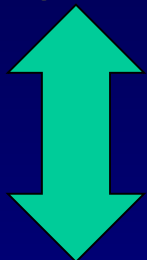
**Denominator**

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Highest

**Starters**

**Previous users**



**Current users**

**Non-users**

Lowest

**Long-term users**

**Never users**

What is the most correct: Starters/never us.

What is the least correct: Long-term/non-us.

What is the most used: Current users / non-us

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# Hormonal contraception and depression

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Øjvind Lidegaard<sup>1</sup>

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# Danish infrastructure

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## National Psychiatry Registry (>1989)

Depression diagnoses  
In- and out patients  
Only hospitalised (5%)

## Prescription Registry (>1994):

HC use,  
Medication against  
depression, all other  
prescriptions

1995

→ 2013

## Cause of Deaths Registry (>1977)

Suicides

## Statistics of Denmark

PIN-codes, education  
vital status, emigration

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# HC & AD: Methods

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## Included confounders

- Age, Calendar year
- Education
- Endometriosis and PCOS
- Parity: Nulliparous versus parous

## Statistical analysis

- Poisson regression analysis
- First use of antidepressants in starters/users of hormonal contraception
- First depression diagnosis in users of HC



# HC & AD: Results

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## Included

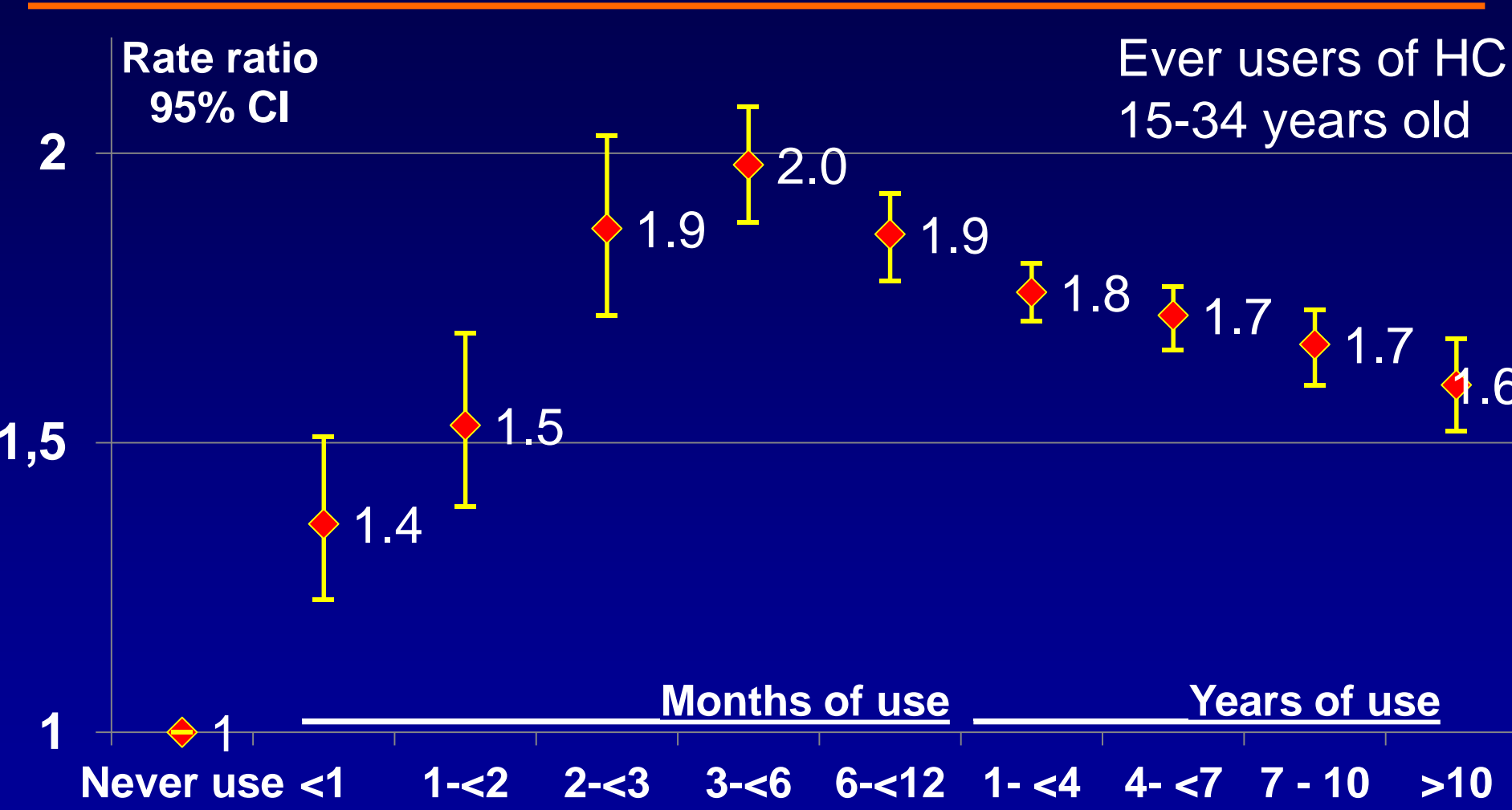
- 1.1 mio women 15-49 years included
  - 6.8 mio women years of observation
  - 441,523 starters of hormonal contraception
  - 135,750 first users of antidepressants
  - 14,691 first depression diagnoses
  - Categorisation of hormonal contraceptives:
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# Hormonal contraception

## Combined – route – e-dose – e/p type

EE dose	NETA Norethisterone	LNG Levonorgestrel	NGM Norgestimate	DGS Desogestrel	GSD Gestodene	DRSP Drospirenone	CPA Cycloproterone-acetate
<b><u>Combined products</u></b>							
Middle	1st	2nd gen		3rd gen		4th gen	
Low		Loette					
Nat oe		E2V-DNG	Qlaira		E2 NOMAC	Zoely	
N-oral			Patch	Vaginal ring			
<b><u>Progestogen only products</u></b>							
Oral	POP			Desogestrel	DRSP		
N-oral		IUS		Implant		Depot	

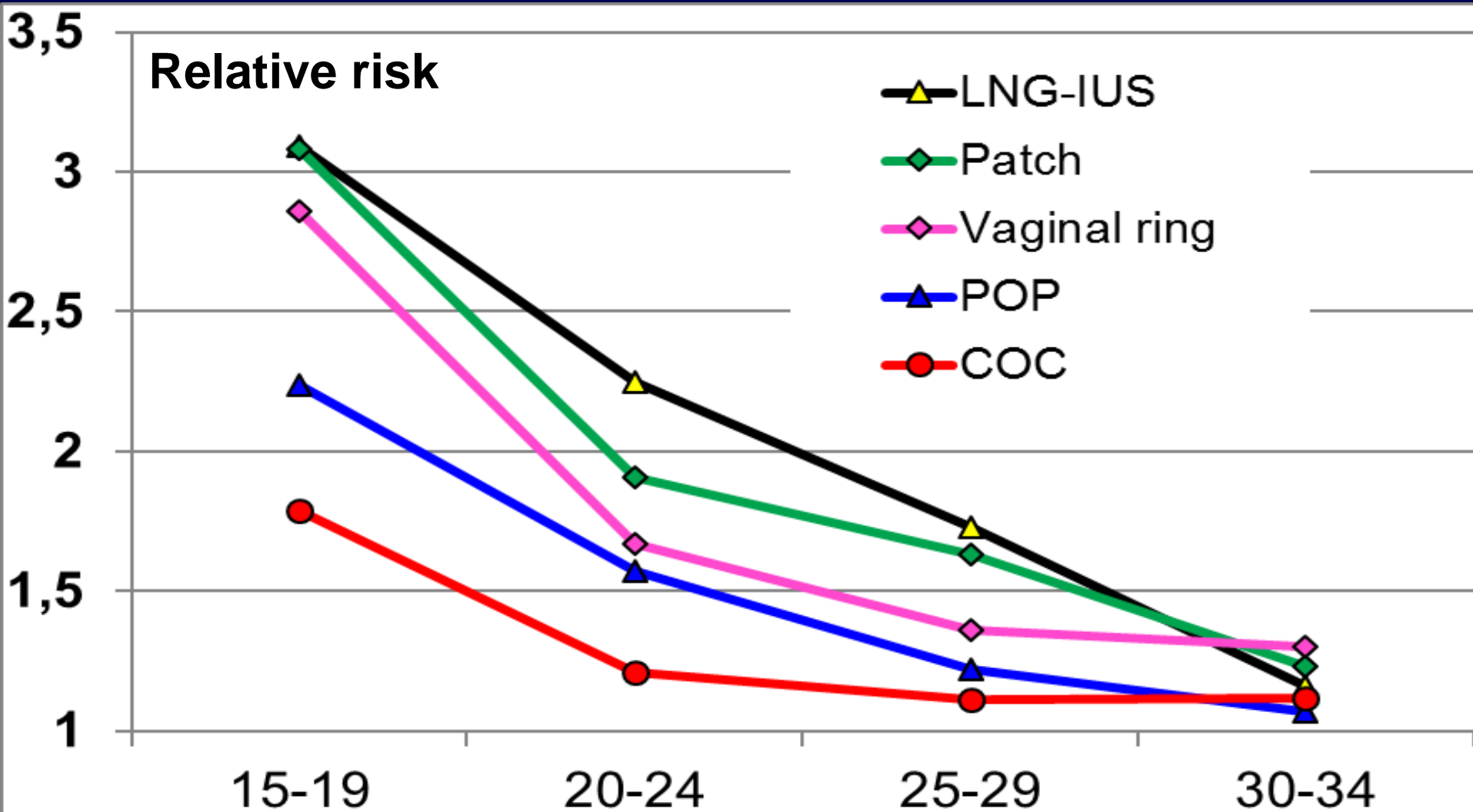
# First use of AD according to length of first use of hormonal contraception



# First use of antidepressants in prevalent users of hormonal contraception 15-34 years. Never use ref.

Low risk <1.5		Med. Risk 1.5-1.9			High risk ≥2		No data	
EE dose	NETA Norethisterone	LNG Levonorgestrel	NGM Norgestimate	DGS Desogestrel	GSD Gestodene	DRSP Drospirenone	CPA Cyproterone-acetate	
<b>Combined products All COC: 1.7 (1.66-1.71)</b>								
Middle 30-40 ug	1.4 1.3-1.6	1.7 1.67-1.77	1.7 1.6-1.7	1.8 1.27-1.35	1.7 1.6-1.7	1.9 1.8-1.93	2.0 1.96-2.10	
Low 20 µg EE				1.6 1.55-1.62	1.6 1.55-1.62	1.9 1.76-1.95		
Nat E2	2.4 2.0-2.9		E2V-dienogest			Few events		E2 NOMAC
Non oral	Patch → 2.6 2.4-3.0		2.2 2.1-2.3		← Vaginal Ring			
<b>Progestogene only products All POP: 1.8 (1.7-1.9)</b>								
Oral	1.7 1.6-1.9		Desogestrel → 1.9 1.8-2.0		MPA depot			
Non oral	← LNG-IUS		1.9 1.8-2.0		2.8 2.7-3.0		Implant ←	3.6 3.3-3.9

# First use of AD in first year of HC use according to age. Reference non-users



# HC and depression

## Is it a causal influence?

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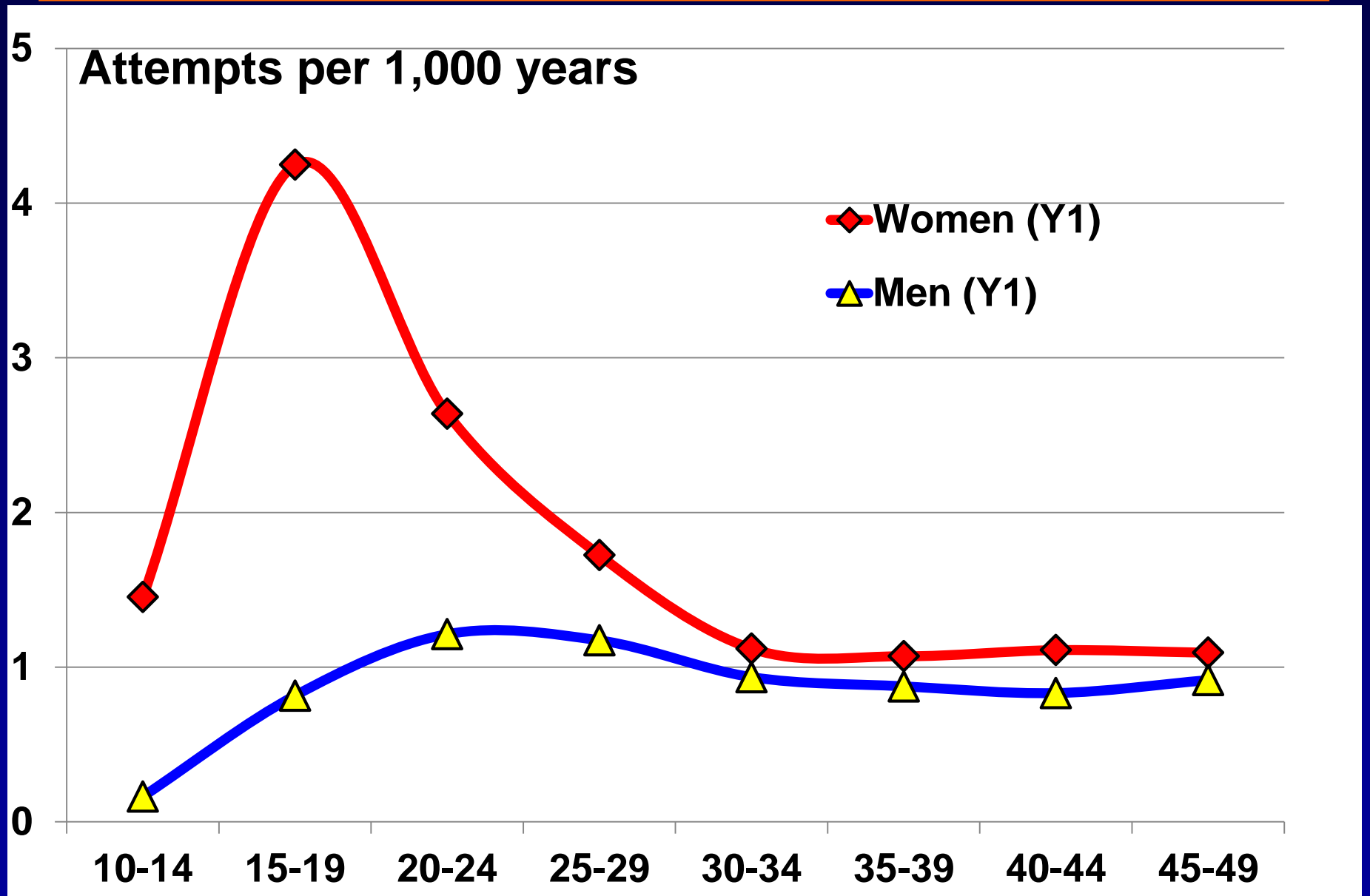
- Already at their GP, therefore association
- Nasty men are met first time at first HC
- Users of HC are more neurotic, and therefore disposed for depression
- Previous studies did not find any association
- Danish registry data are unreliable.

### Conclusion

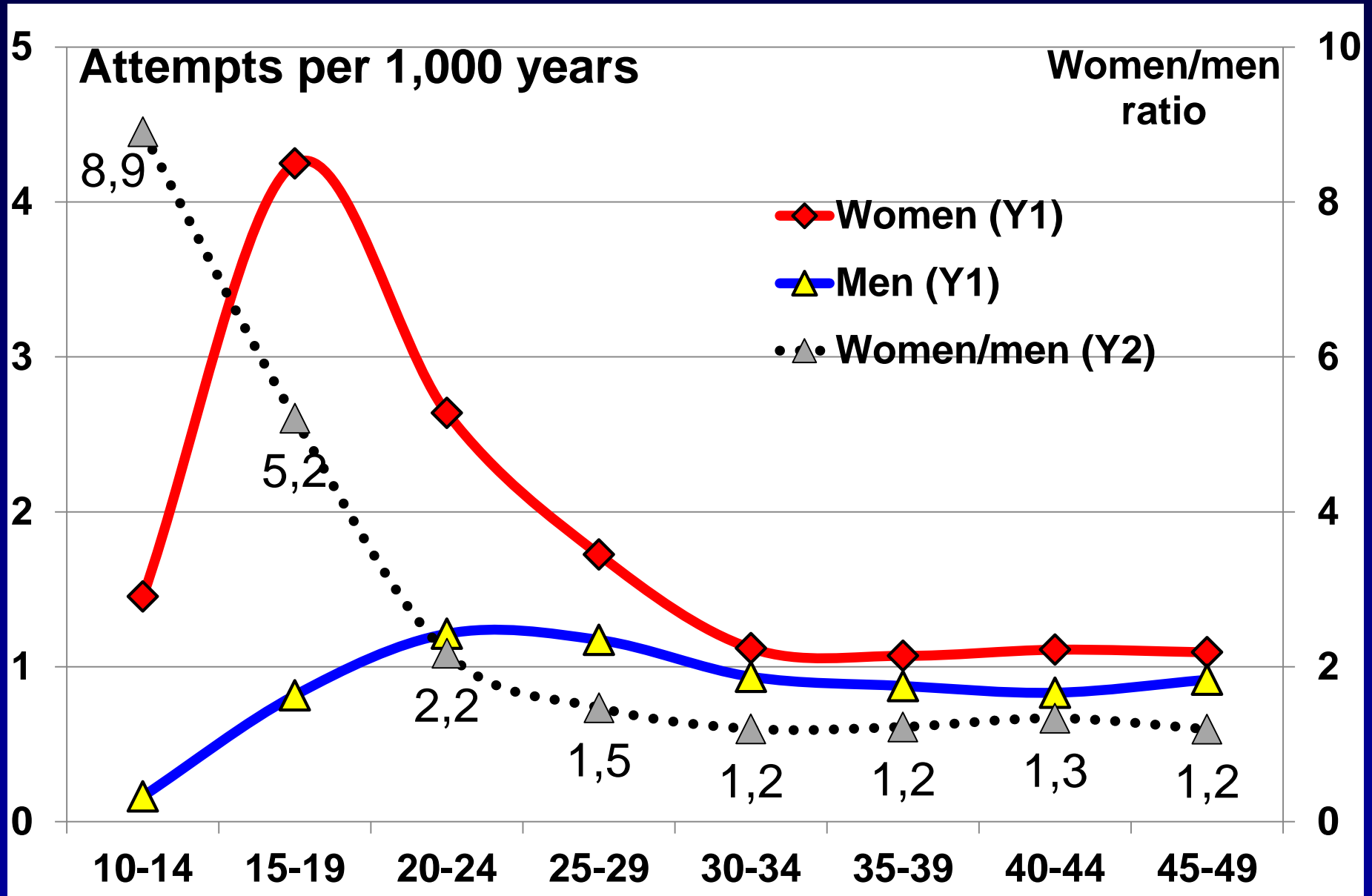
Nobody has so far explained the association

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# Suicide attempts in DK 1995-2013

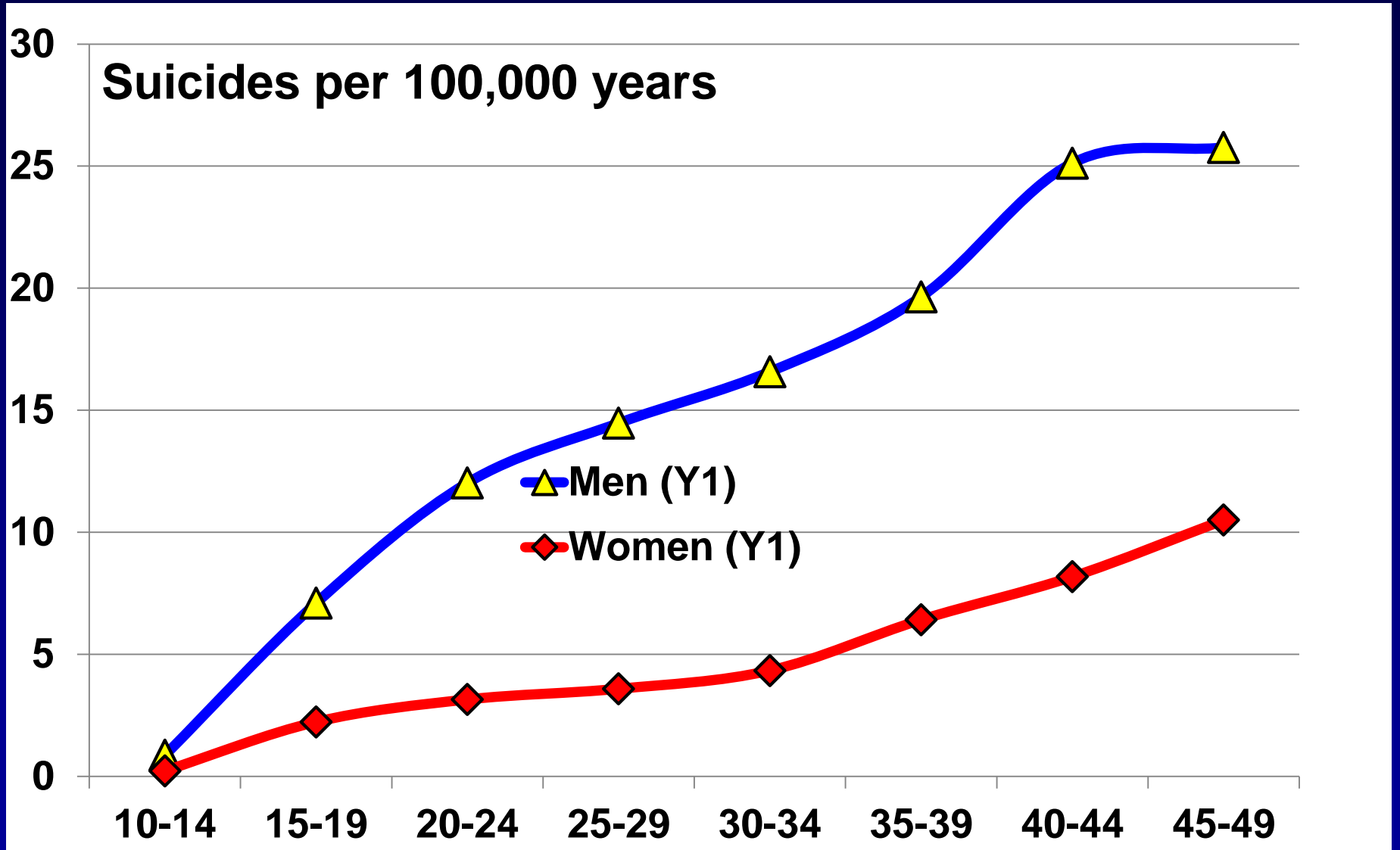


# Suicide attempts in DK 1995-2013

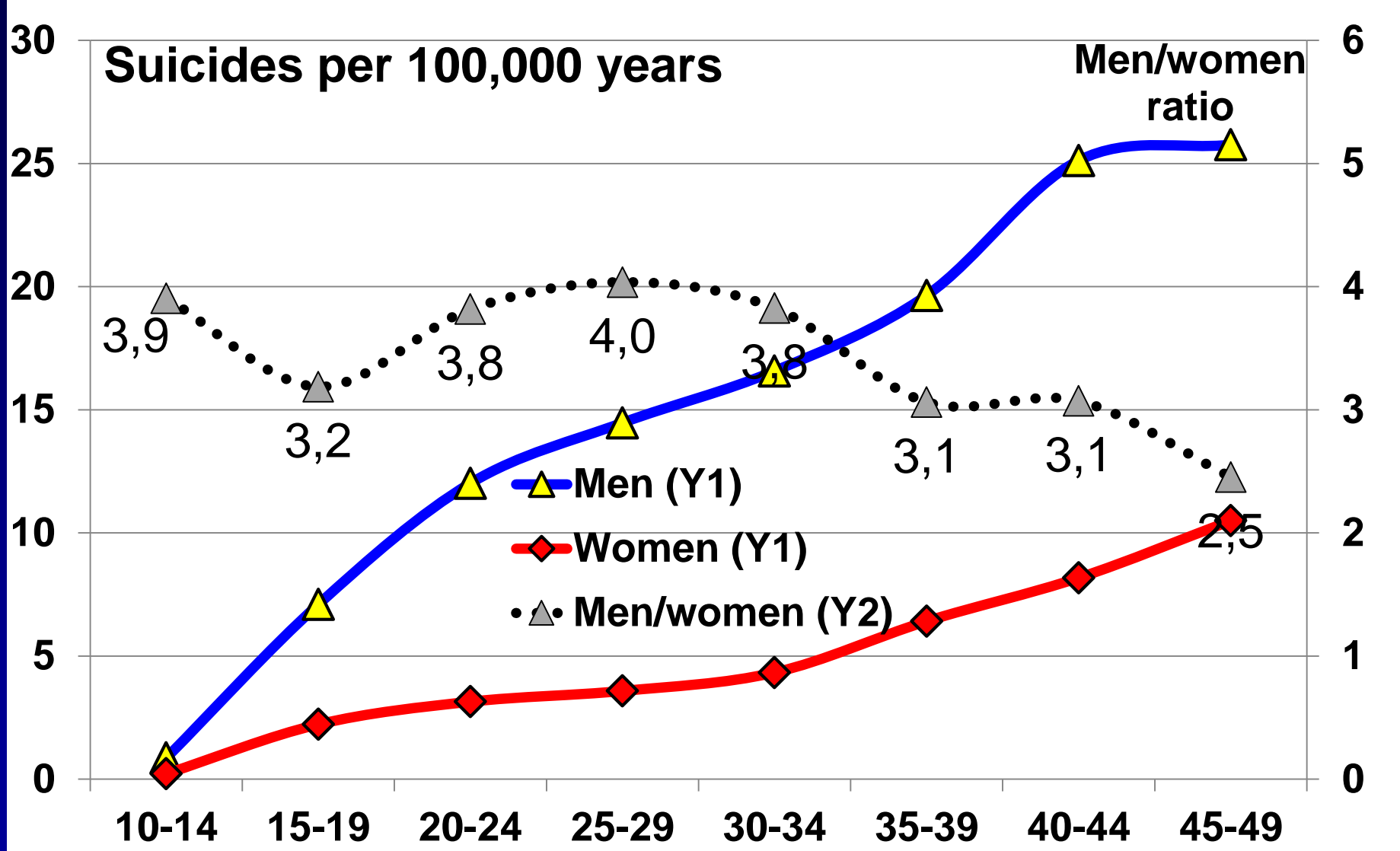




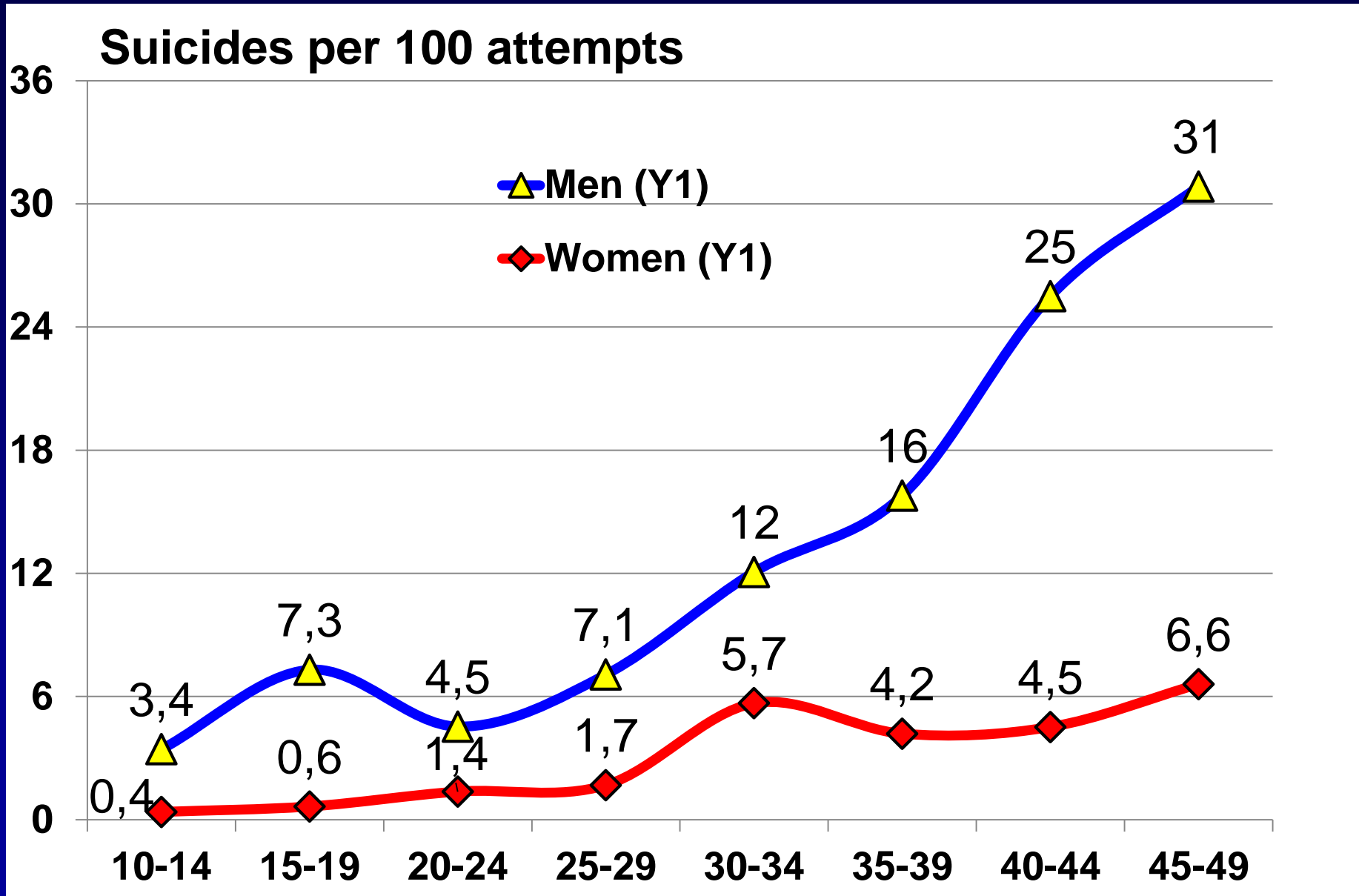
# Suicides in DK 1995-2013 acc to age



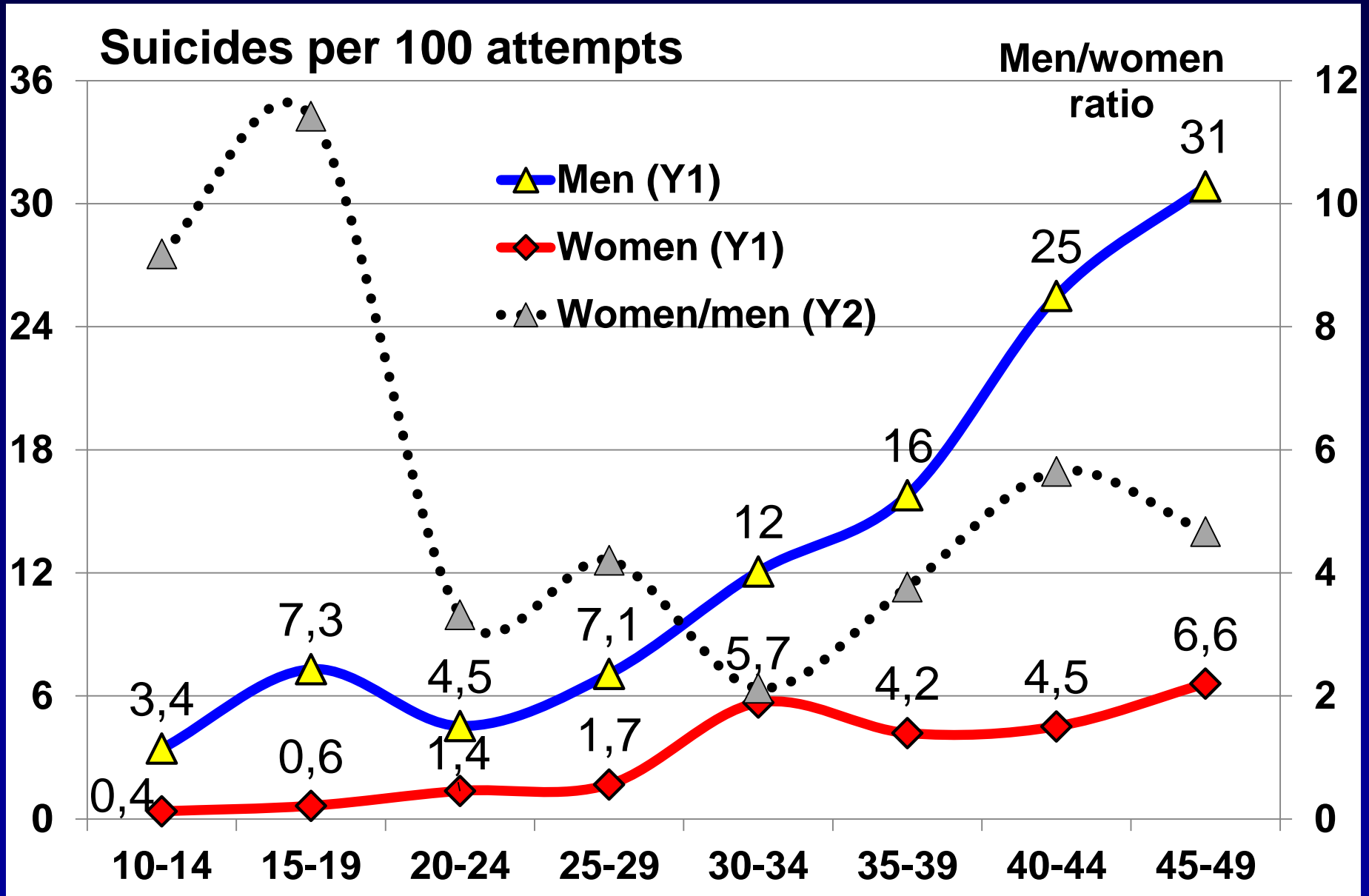
# Suicides in DK 1995-2013 acc to age



# Case-fatality rate (suicides/100 attempts)



# Case-fatality rate (suicides/100 attempts)



# **Hormonal contraception, suicide attempts and suicides**

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# HC and suicide attempt and suicide

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- Included: 475,802 women
- Followed from 15 years
- During the period 1996-2013 (18 years)
- 54% of user time were with use of HC
- 6,999 suicide attempts and 71 suicides
- Confounder control for age, year, education, endometriosis and PCOS
- Reference group: Never users.

# HC and suicide

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## Results:

To be published.

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# HC and depression/suicide

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Thanks for your attention

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