Alcohol consumption in the Greek population: is it related to abdominal obesity?

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First National Epidemiological Large Scale Survey on the Prevalence of Obesity in Greek Adults

Introduction I

- The metabolic syndrome is characterised by a group of metabolic risk factors. They include:
  - Central obesity
  - Atherogenic dyslipidemia
  - Raised blood pressure
  - Insulin resistance
  - Prothrombotic state
  - Proinflammatory state
- BMI is a tool for measuring obesity, but when measuring abdominal obesity waist-to-hip ratio and waist circumference are used
- In this study waist-to-hip ratio measurements were used

http://www.mayoclinic.com/

George A. Bray, Claude Bouchard, W.P.T. James; *Handbook of Obesity,* Marcel Dekker, New York, 1998

Introduction II

Chronic alcohol consumption has both

- adverse effects (e.g. hypertension, cardiomyopathy and liver cancer, etc.)
- beneficial effects (the French paradox, etc.)

http://www.mayoclinic.com/

Aim of this study

is to explore a potential relation of alcohol consumption to abdominal obesity

Patients / Sample

The data analysed were obtained from the **first national epidemiological large scale survey on the prevalence of obesity in Greek adults**, conducted by the Hellenic Medical Association for Obesity.

First national epidemiological survey on the prevalence of obesity in Greece

- Public schools throughout Greece were randomly chosen and questionnaires were filled by the students and all the members of their households
- The subpopulation used in the adult HMAO study were Greek men and women, 20 to 70 years old

Methods I

- WHR was calculated from waist and hip circumference and the following categories were used:

Normal	<1.00	<0.85
Pathologic	>1.00	>0.85

- *SPSS version 12.0* was used for statistical analysis, student's t-test and non parametric tests were used

Methods II

Alcohol consumption was calculated by adding the number of units consumed weekly, multiplied by the alcohol comprehensiveness of beverages (in this case beer, wine, whiskey and liqueur). The following categories were applied:

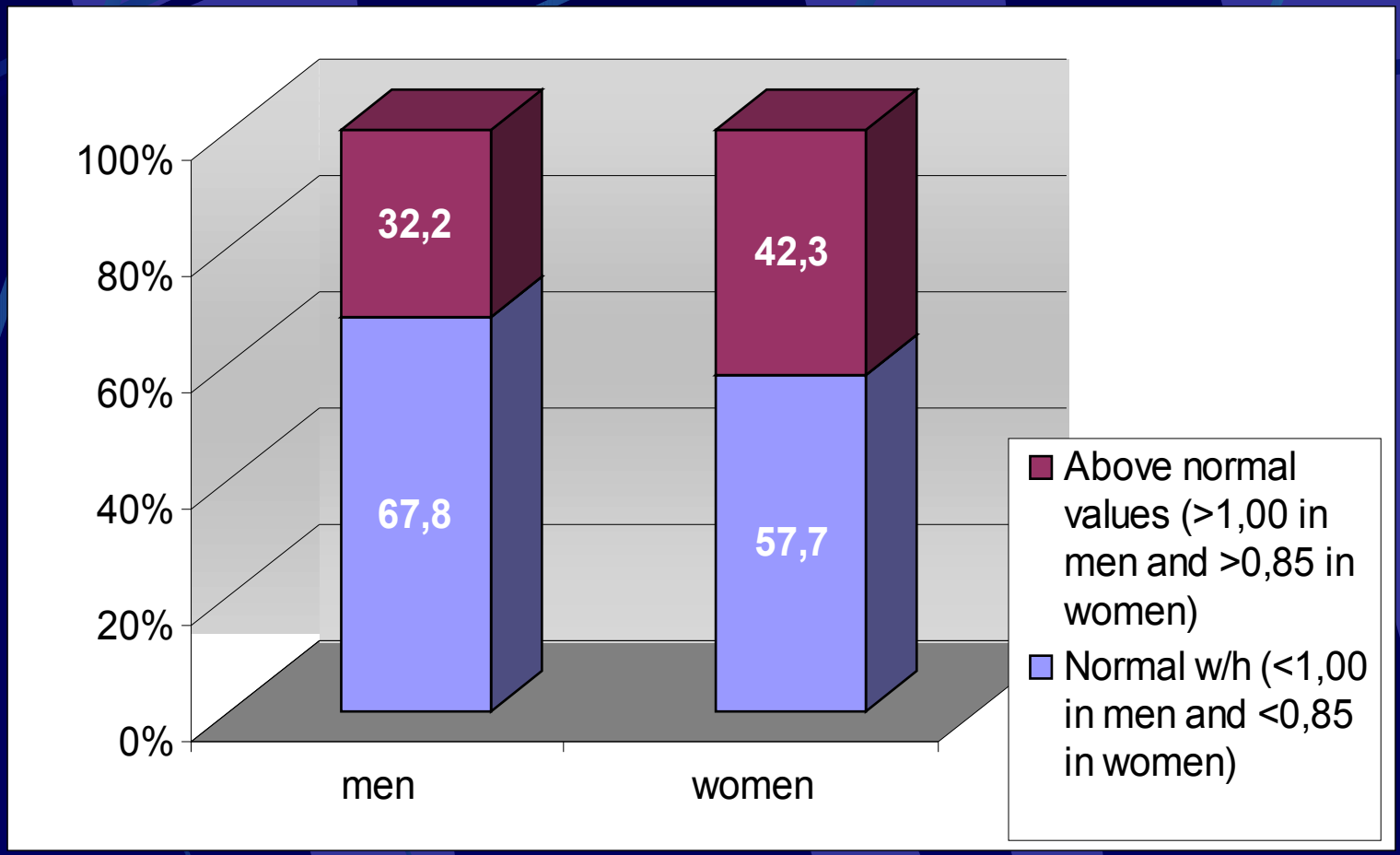
- 0 mg
- <50 mg → no alcohol
- 50 - 150 mg } moderate alcohol consumption
- 150 - 300 mg } heavy alcohol consumption
- >300 mg

Results

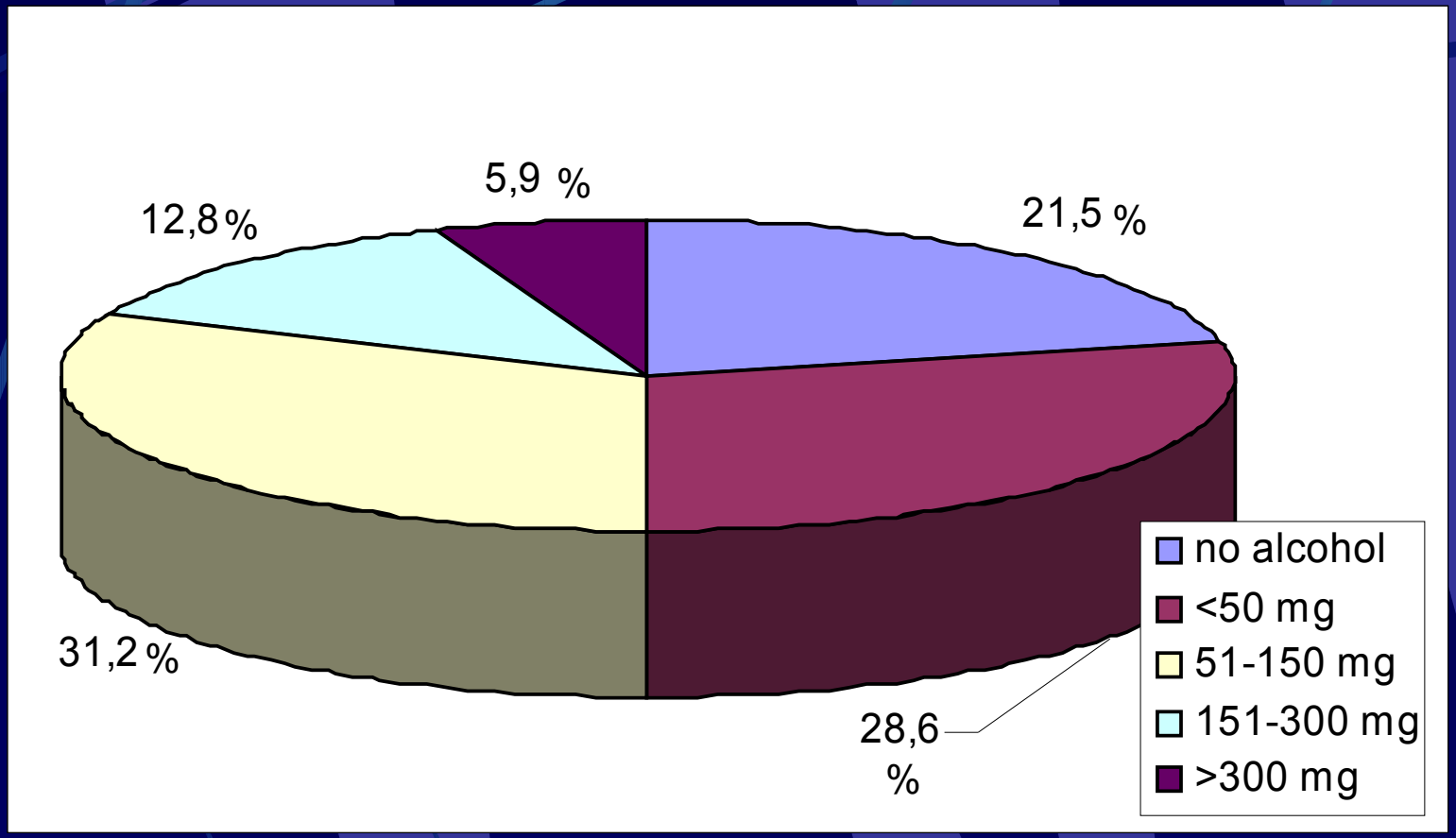
- 8090 men, age 44.6±10.5 years (x±SD), and 9313 women, 41.5±11.1 years, were included

- WHR was 0.97±0.3 and 0.87±0.3 in men and women, respectively

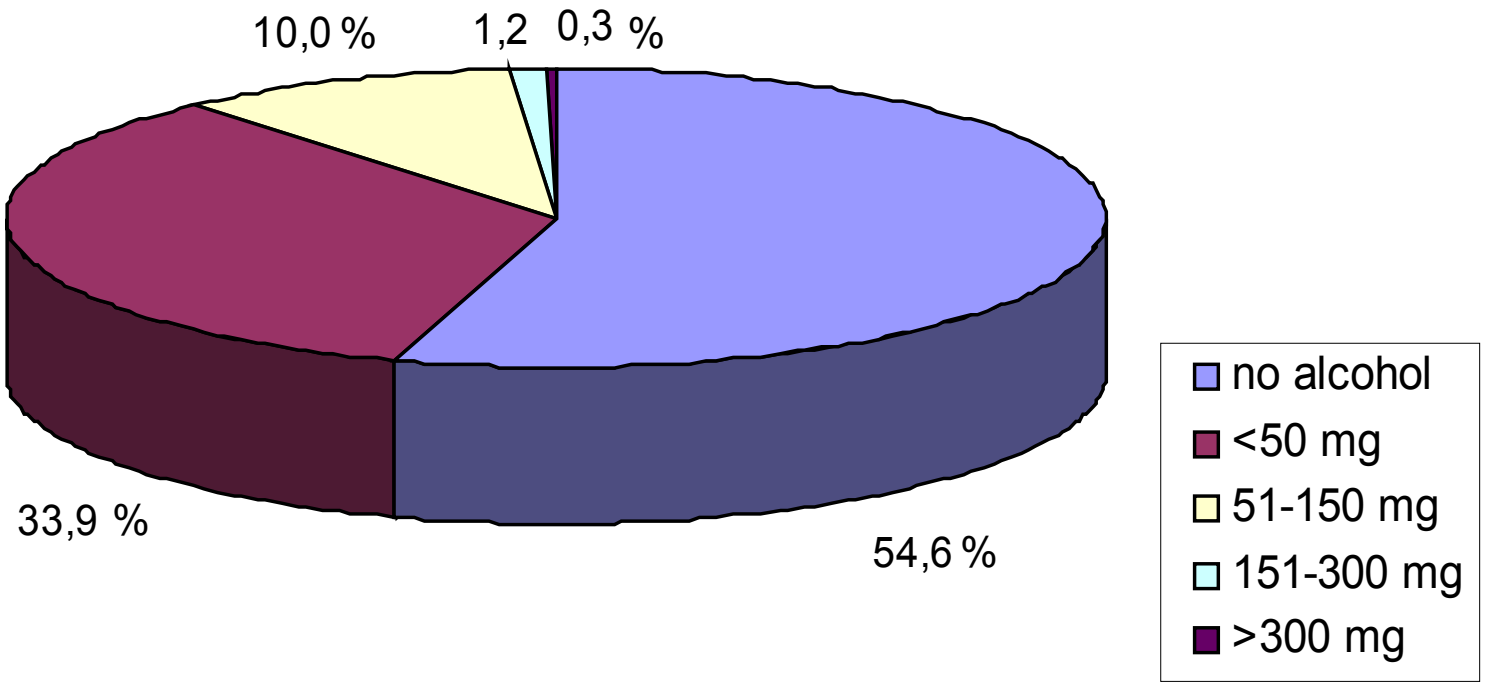
Waist-to-hip ratio in men and women



How much alcohol do men drink?



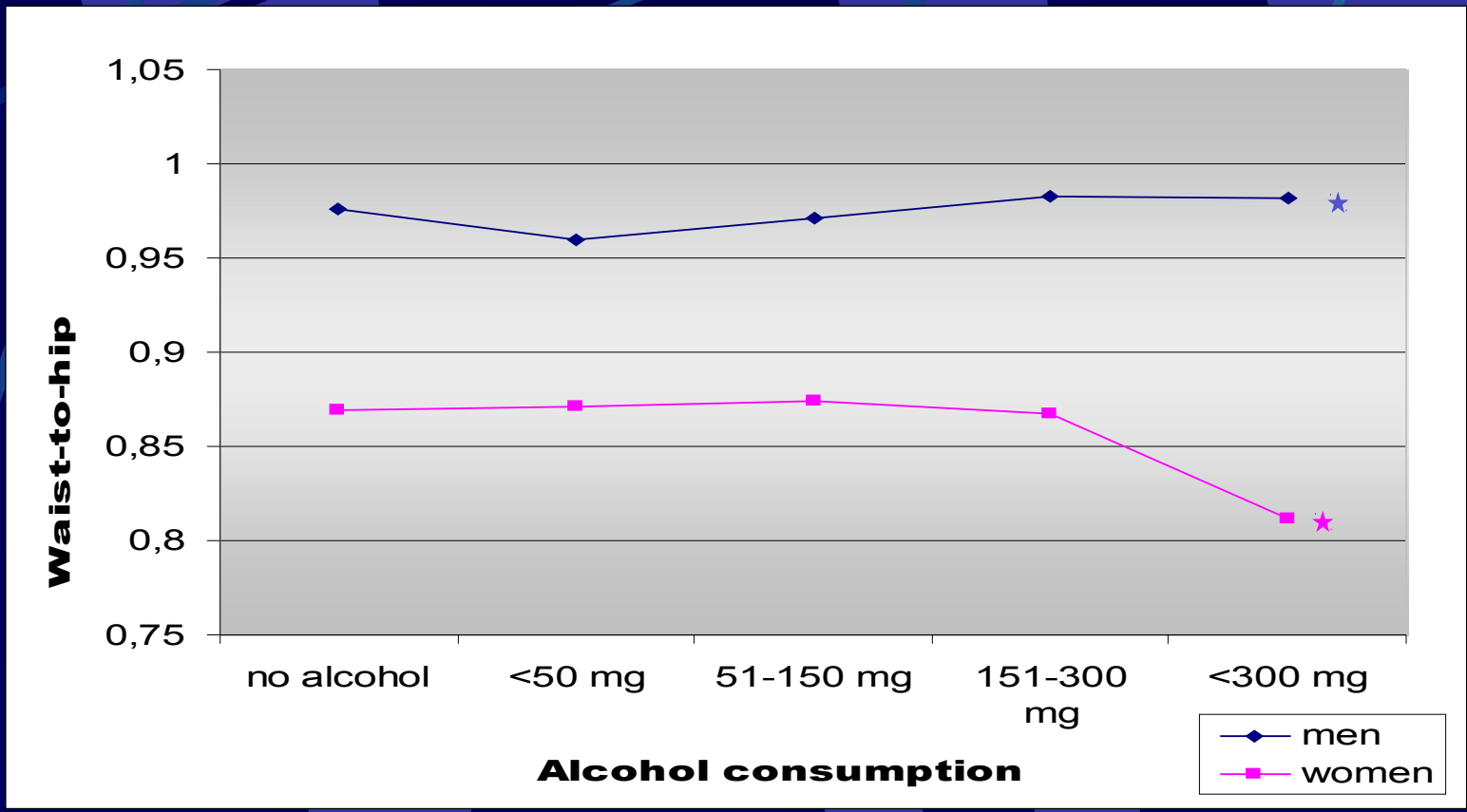
How much alcohol do women drink?



Results

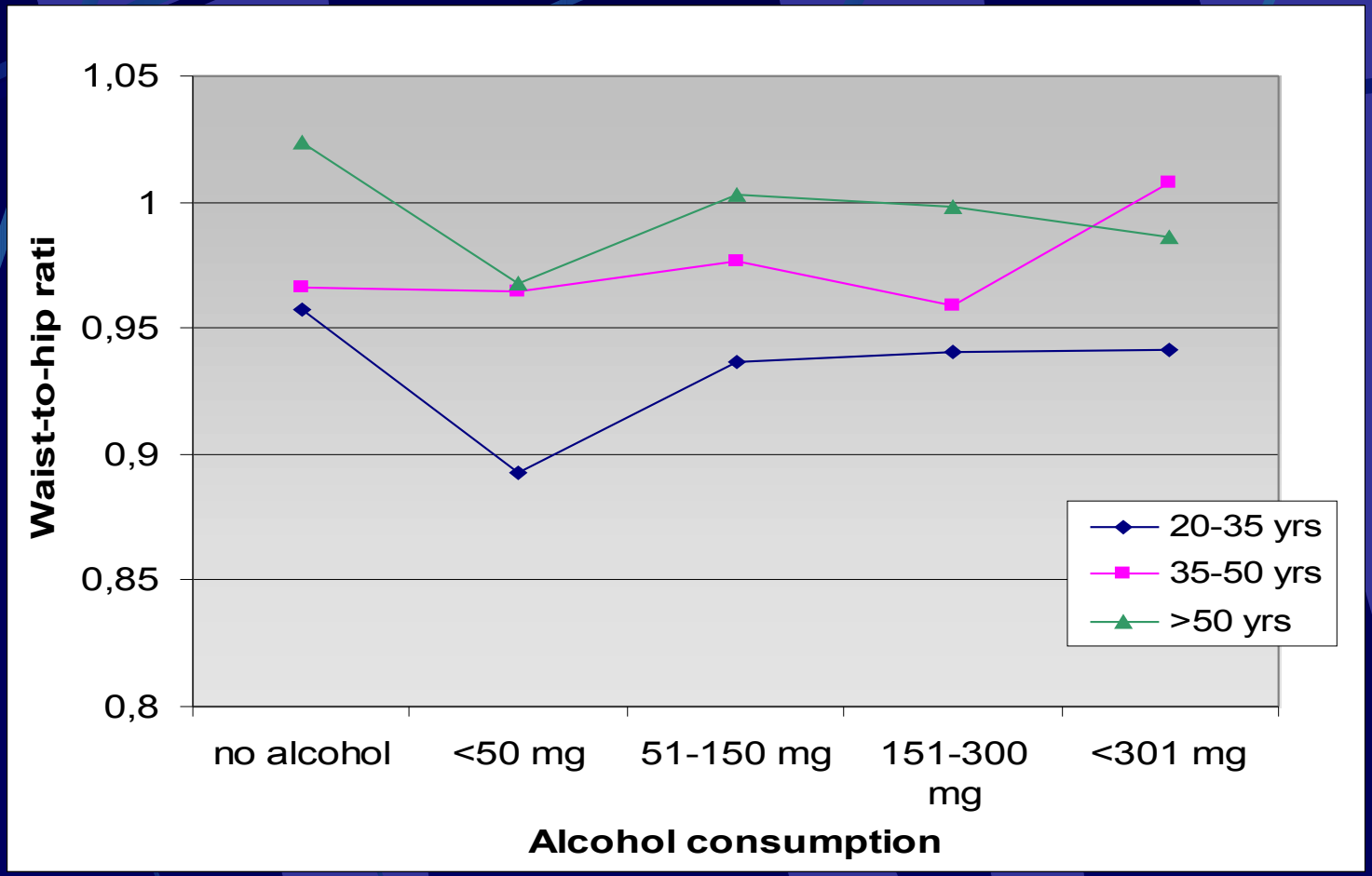
- In men, WHR was associated to alcohol consumption (Kendall's tau-b, p=0.044, statistically significant)
- This was not the case with women (p=0.823, N.S.)

Waist-to-hip ratio varies with alcohol consumption in men and women

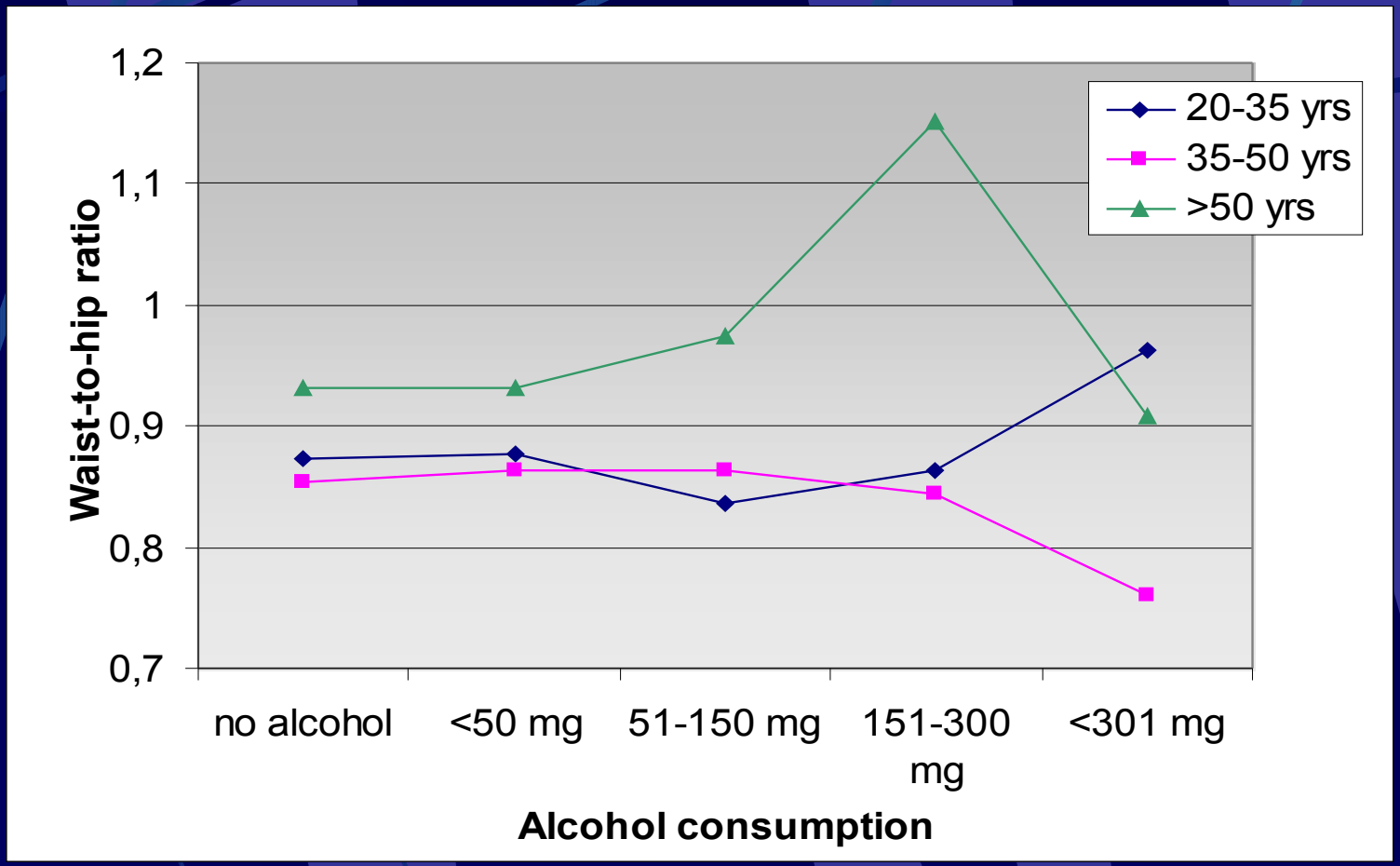


★ p=0.044 , ★ p=0.823, Kendall's tau-b

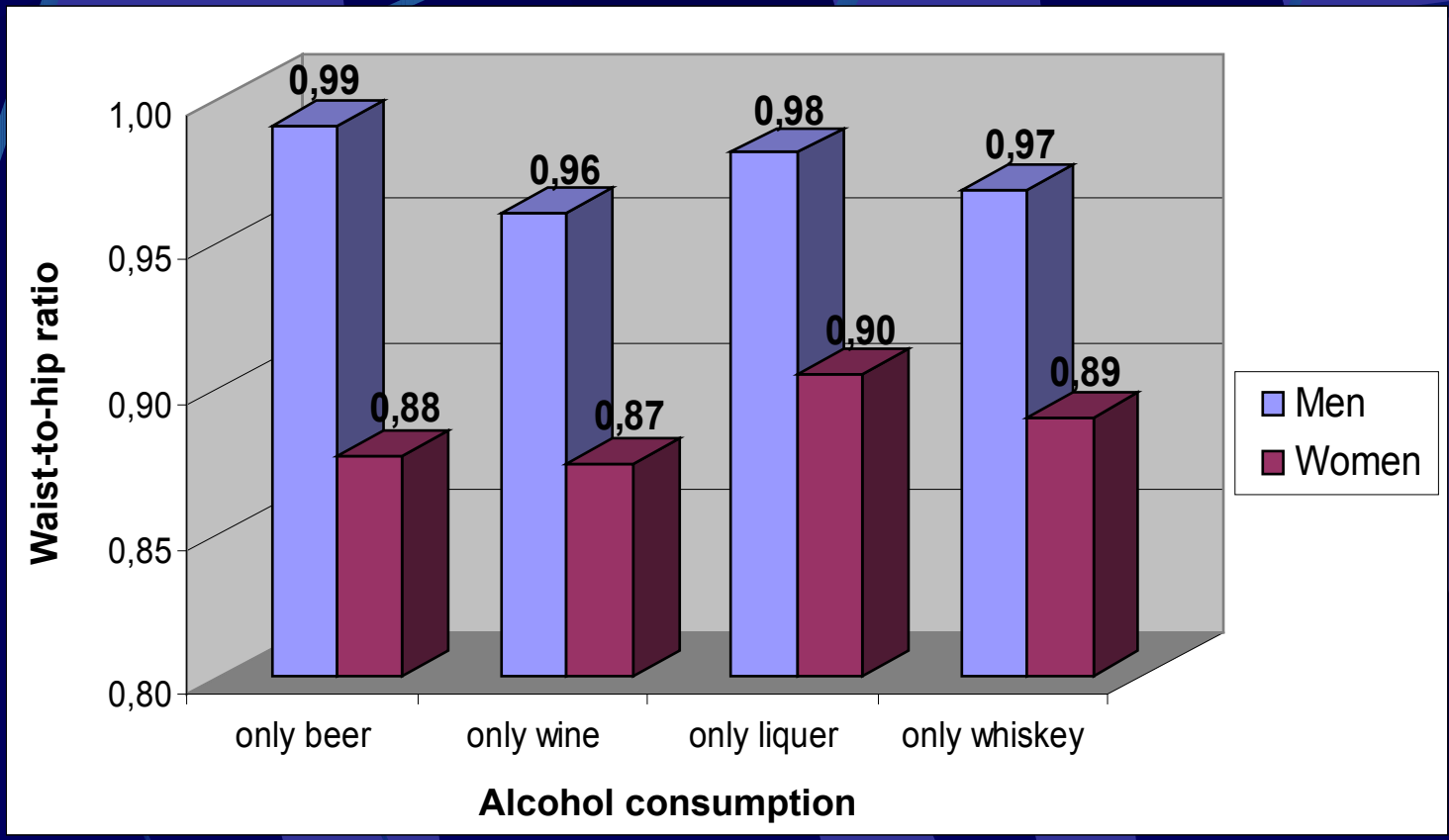
Waist-to-hip ratio Vs alcohol consumption in men



Waist-to-hip ratio Vs alcohol consumption in women



Waist-to-hip ratio compared with consumption of specific types of alcohol



Conclusions I

- In the Greek population, men drink more alcohol than women
- Women are more likely to have abnormal WHR than men

Conclusions II

- In addition to the effects of alcohol consumption to risk factors of various diseases, alcohol is related to abdominal obesity in men only

Discussion I

- Jequier introduced the alcohol paradox, which suggests increased alcohol induced energy intake without weight gain
- Other studies suggest that alcohol intake promotes leanness in women , but not in men
- This study shows that there is an association between waist-to-hip ratio to alcohol consumption in Greek men, but not in Greek women

Am J Epidemiol 1991;133:810-817
American Journal of Clinical Nutrition, Vol. 69, No. 2, 173-174, February 1999

Discussion II

- A survey conducted in Japan, which studied male self-defense officials, showed that alcohol consumption is strongly and independently associated with waist-to-hip ratio in men

Eur J Epidemiol. 1997 Dec;13(8):893-8

Discussion III

Simply looking at the total *quantity* of alcohol consumed over time obscures the importance of the *pattern* of alcohol consumption. 1-2 drinks each day is associated with better health and greater longevity whereas consuming the same quantity (7-14 drinks) once a week is associates with negative health. The same quantity of alcohol can have either beneficial or harmful consequences depending on the pattern of its consumption.

National Health Interview Study (NHIS), American Journal of Epidemiology