Wine Consumption and Health: Heaven or Hell?

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Objectives

- To compare the measure of health effects of alcohol intake
- Two cases:
  - Positive effects: Coronary heart disease
  - Negative effects: Breast cancer
- In both cases the methodology is the same
- In both cases large number of studies on different samples
- However critics on methodology occurs mainly when positive effects are described
- Is it politically incorrect to stress on benefit?

Methodology

- Epidemiologic studies
  First step:
  - Epidemiologic studies melting together lot of observable variables shows correlations between alcohol consumption and health
  Second step:
  - the correlations are then explained by ex-post built theories
    Sometimes 20 years after the links are still unexplained
- Meta analysis
  - Regression of the results of different epidemiologic studies for one particular risk, mixing of countries results, national results from different samples, estimation of dose effects

Methodology

- Critics
  1. Availability and quality of the explanatory variables available in the different data bases
    - Availability: most of the variable are personal characteristics what you eat, what you drink, sport practices... nothing about working conditions, environmental aspects.....
    - Quality: how to measure alcohol consumption?
  2. Potential confounders: way of drinking (next slide), better cognitive function, higher socio-economic status, better subjective health, healthier diet, stress..........
  3. Non drinkers as controls
  4. Meta analysis
    - Publication bias
    - Validity of the mixing of results of non-comparable studies
Methodology

- Definition of alcohol consumption
  - Drinking patterns (steady or binge drinking)
  - Frequency
  - Quantity
  - Beverage choice/different types of alcohol
  - Life cycle pattern
  - Moderate consumption?
    - Vary from 5 to 60 g of alcohol per day
    - USDA 2005 dietary guidelines no more than one drink per day for women, two for men
    - 2 drinks a day: 30g of alcohol

The positive impacts

- In the seventies epidemiologic studies reported that moderate drinkers were at significantly lower risk than non-drinkers to develop coronary heart disease
- the French paradox based on the observation of low rate of coronary disease in France despite relatively high levels of usual risks factors. The hypothesis was that regular consumption of red wine was responsible for the lower rate of coronary heart disease in France

- Since 35 years, 100 different studies at least for 25 different countries
  - Epidemiologic studies, meta-analysis...
- Gerald Shaper (1988) et alii: the sick quitter hypothesis
  - the reference category of abstainers were at higher risks not because they did not currently drink but because they stopped drinking due to existing illness
- E.B. Rimm and C. Moats (2007): further analysis with data having removed sick quitters and updated alcohol and covariate information on lifestyle and diet factors add to the evidence that alcohol consumption is causally related to a lower risk of CHD
- Kaye Fillmore (2007): abstainers and light or moderate drinkers are at equal risk
- Mechanism
  - Benefits likely mediated through effects of alcohol on: HDL cholesterol, fibrinogen, and glycemic control
The positive impacts

- Recent studies: importance of drinking patterns, frequency, quantity, beverage choice, differences in physical activities, diet, alcohol consumption during life cycle...

- Wine consumption and related variables/confounders:
  - Additional effect for wine or same effect for beer, wine and spirits (ethanol) unassessed
  - Regular consumption (US, Denmark for men not for women)
  - Wine consumption and IQ (men-Copenhagen): Intelligence seemed to correlate strongly purchase of fresh food (Denmark)
  - Reported by Gronbaek (2007): it may be the drink, but it may also be the drinker
  - Prime study: comparison France Northern Ireland
  - Identical amounts of consumption with different patterns: wine/beer, Friday-Saturday, all week

The negative impacts: alcohol consumption and breast cancer

- The message on moderate drinking
- Reluctancy to accept the data showing potential beneficial effects

- Numerous epidemiological studies conflicting results:
  - May contribute...
  - Not a proof of causality but strongly supportive of an association between alcohol consumption and breast cancer...
  - Modest size of the association, variation in results across studies leave the causality in question...
  - Institut National du Cancer (2007): different studies have shown an association between alcohol consumption and breast cancer (increased risk of 30% / 3 glasses per day)
  - Light to moderate drinking appears to have little effect on the risk for breast cancer
The negative impact: alcohol consumption and breast cancer

- Klim Mc Pherson (2007) Oxford: "The association found for alcohol with breast cancer is not strong and not necessarily causative, at least for moderate consumption"
- Unknown confounders and publication bias: negative findings have a better chance of publication
- Drinking patterns
- Diet
- Hormones
- Relation of alcohol consumption to the risk of breast cancer modified by folate intake

ICAP 2003 Recommended daily levels of intake of alcohol

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<th>Women</th>
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<tr>
<td>USA</td>
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</table>

The negative impact: alcohol consumption and breast cancer

- Shi (2004) meta-analysis need correction for
  - grouped dose measures,
  - heterogeneity and
  - publication bias
- Confirmation of Longnecker’s conclusions (1988): “the modest size of the association and variation of results across studies leaves the causal role of alcohol in question”

The negative impact: alcohol consumption and breast cancer

- Contest: "Women’s Community Cancer Project” 1989, to put the environmental question in the core of breast cancer research:
  - impact of the presence of chemical industries in US regions with higher rates of breast cancer: chlorine, pesticides, herbicides
  - Low rates in Asian countries (5x less) not for Asian women leaving in the US reach the US rates in one generation
The negative impact: alcohol consumption and breast cancer

- No research on these causes
- but a stress on individual responsibilities: diseases occur because of a moral failing
- A stress on early depistage
- And on treatment (power of the pharmacological industry: R.W. Moss “The Cancer Industry”)

Conclusions

- The sick enter hypothesis
- Klatsky (2007): "All considered, a causal protective effect of moderate alcohol drinking against CDH and total mortality is strongly supported by the data"
- Mac Pherson (2007): "The disparity of the scientific effort dedicated to investigating the causative nature or the apparent protection of moderate alcohol consumption against CHD comparing with investigating the apparent raised risk of breast cancer seems completely misplaced. The latter is assumed to be causal, while the former is contested vigorously. On the whole, the breast cancer association seems to be accepted without serious criticism and yet the public health implications, where a lack of causality has been demonstrated, are quite profound"
- Social and cultural harms and benefit of moderate drinking
- Putting the responsibility at the individual level