



What's New in Health?

Presented by
Fred Hardinge, DrPH, RD
+ PositiveChoices.com



Alcohol: Burden on Families

- 20% of men and 25% of women say that drinking is a cause of trouble in the family
- One third of all separated and divorced women were married at one time to a problem drinker or alcoholic
- Domestic violence & child abuse are more prevalent in homes with a problem drinker
- Alcohol is a major financial drain on many families
- 20% of all adults lived with a problem drinker or alcoholic while growing up

Institute for Health Policy, Substance Abuse, 1993



Typical 'Balanced' Recommendations

1. Heavy drinkers should drink less or not at all
2. Abstainers should not be indiscriminately encouraged to begin drinking for health reasons
3. Light to moderate drinkers need not be encouraged to change their drinking habits for health reasons except in exceptional circumstances

Pinder & Sandler (2004) J Psychopharmacology

2



Alcohol: Impact on Children

- Children from alcoholic families are more likely to:
- Have emotional and adjustment problems (aggressive behavior, difficulties with peers, conduct problems, hyperactivity, poor school adjustment)
 - Miss days from school
 - Have more illnesses and injuries
 - Become problem drinkers (especially boys) as adults

Institute for Health Policy, Substance Abuse, 1993



Alcohol: A Major Health Problem

- Alcohol is a major cause of premature mortality
- Major contributor to deaths from liver cirrhosis, accidents, suicide & homicide
- Half of deaths from cirrhosis, traffic fatalities and fires are alcohol-related
- 40% of all hospital patients are there because of problems linked to alcohol
- Problem drinkers average 4 times as many days in the hospital as non-drinkers

Institute for Health Policy, Substance Abuse, 1993



Alcohol: Societal Costs

- At least half of persons convicted of violent crime were under the influence of alcohol or drugs at the time of the crime
- Alcohol is present in one half to two thirds of homicides and serious assaults, in the offender, victim or both
- Health insurance costs for employees with alcohol problems are about twice those of other employees
- Lost productivity: problem drinkers miss days at work due to hangovers & illness, and some go to work a little drunk
- 40% of employees who begin alcohol treatment had worked under the influence at least once a week in the prior year

Peele & Brodsky, Drug & Alcohol Dependence, 2000



Alcohol: Bottom-line

- Alcohol is the 3rd leading preventable cause of death in the U.S.
- Alcohol kills about 100,000 Americans annually
- Annual economic costs for alcohol-related social, legal and health problems are more than \$185 Billion

McGinnis & Foegen 1993; JAMA, Freiberg & Samet 2005 *Circulation*



Mechanisms

- Moderate consumption of alcohol is associated with increases in (good) HDL-cholesterol
- Moderate consumption of wine or beer is associated with lower levels of systemic inflammatory markers (CRP, fibrinogen, plasma viscosity, & white blood cell count)
- Alcohol has anti-thrombotic effects: affects platelet function, coagulation and fibrinolysis in ways that protect against bleeding and clot formation

Inhof et al. *Eur Heart J* 2004; de Groot et al. *Haemostasis Thromb* 2003/2004



Health Benefits of Alcohol-1

- Overwhelming evidence from prospective, observational studies that persons who drink alcohol moderately (1-2 drinks/day) have a lower rate of overall mortality than heavy drinkers and non-drinkers
- Over 100 prospective epidemiologic studies have documented this J-shaped curve between alcohol and CHD mortality. Lowest rates of CHD mortality are observed at two drinks of alcohol per day
- Most authorities now attribute a causal role to the relationship: moderate alcohol consumption is presumed to reduce the risk of heart disease

Hill, *Am J of Medical Sciences*, 2005



Making Sense of Apparent Conflict

- “Rightly understood, science and the written word agree, and each sheds light on the other. Together they lead us to God by teaching us something of the wise and beneficent laws through which He works.” CT 426
- “Rightly understood, they (science and the Bible) are in perfect harmony... All truth, whether in nature or in revelation, is consistent with itself in all its manifestations. PP 114



Health Benefits of Alcohol-2

- Moderate alcohol consumption is also associated with:
 - Reduced Myocardial Infarction mortality
 - Reduced heart failure rates
 - Decreased risk of developing Diabetes
 - Reduced risk of ischemic stroke
 - Decreased risk of Vascular Dementia
 - Reduced risk of osteoporosis

Standridge et al. *Southern Med J*, 2004



Alternative Explanation Stress Reduction?

- Alcohol is widely used in society to reduce stress
- Could it be the negative effects of small amounts of alcohol are less damaging to the human organism than the negative effects of unresolved stress?



Alcohol and Stress Reduction

Experimental and non-experimental studies show that low and moderate doses of alcohol:

- Can have tension-reducing and fear-reducing effects
- Can have mildly analgesic and sedative effects
- Reduce self-consciousness
- Reduce magnitude of physiologic response to stressful stimuli
- Increase mood (affective expression, happiness, euphoria, pleasant and care-free feelings)
- Can reduce negative effects of stress on mental health

Baum-Baicker, Drug and Alcohol Dependence, 1985

13



Support for Moderation

- Protective effect of moderate alcohol is more a function of frequency of use than of volume
- Risks associated with 1-2 drinks per day is not equivalent to the risk associated with drinking the same weekly amount in one or two days.

Gunzerath et al. 2004, Alcoholism: Clin & Exper Res



Alcohol and Stress Reduction Lessons

- Chronic unresolved stress is a major contributor to ill-health in our society
- Partial amelioration of stress may have some negative effects, but stress that is unaddressed in any way may be even more damaging to human health
- A call to “*Cast all of our cares on Him*”?
- A reminder that “*earth has no sorrow that heaven cannot heal*”
- Invitation: “*Come unto Me all ye that labor and are heavy laden and I will give you rest*”



Moderation: Example

- Men and women with one or two days of binge drinking had a higher CHD risk than abstainers even though their weekly total use of alcohol was low
- Case-control study of 11,511 acute MI or coronary deaths and 6,077 controls in the NSW (Australia) site of the MONICA study

McElduff & Dobson 1977, BMJ



Alternative Explanation

- The ability to drink two drinks or less consistently may be reflective of an underlying psychological characteristic of moderation
- This consistent self-regulation evident in the use of alcohol could be a more general orientation that is reflected in many other aspects of life (and this leads to lower levels of multiple forms of risk-taking behavior)



Alcohol and Personality

- A reminder of the role of balance and “temperance” in life
- A lifestyle characterized by the principle of moderation may avoid a broad range of risk factors for poor health outcomes.
- Temperance or self-control is a fruit of the Spirit

18



Methodological Limitations

“Certain complications are inherent in interpreting this literature.”

National Institutes of Health (NIH) Formal Position Paper on the Health Risks and Potential Benefits of Moderate Alcohol Use

Gunzerath et al. 2004: Alcoholism: Clin & Exper Res

19



Methodological Limitation

Most studies of moderate alcohol and health control for major risk factors. However, unmeasured characteristics that are linked to health and related to moderate alcohol consumption could lead to a distortion of our understanding of the association between alcohol and health.

22



Complicating Factors

- Time over which alcohol is consumed
- Interactions with genetic vulnerability
- Confounding by lifestyle factors
- There are 3- to 4-fold differences in metabolic and 2- to 3-fold differences in behavioral responses to alcohol between different individuals
- Wide range of blood alcohol content (BAC) for same amount of alcohol
- Alcohol elimination rates increase 45% with food consumption compared to fasting

Gunzerath et al. 2004, Alcoholism: Clin & Exper Res

21



Residual Confounding—Evidence I

- Compared to moderate drinkers, non-drinkers:
 - Were older, widowed or never married, non-white
 - Had less education and income
 - Had less access to medical care and preventative screenings
 - Were more likely to be overweight & physically inactive
 - Had poorer psychological well-being
 - Were more likely to have diabetes and hypertension

U.S. probability sample of 116,841 non drinkers and 118,889 moderate drinkers (BRFSS)

Naimi et al. Am J Preventive Med, 2005

23



MAJOR Methodological Limitation

- The apparent effect of some exposure (e.g. alcohol) and health is distorted because there is some other factor(s) that is related to both alcohol and health and accounts for some/all of the observed relationship between the two.
- Are moderate drinkers and abstainers different on other health-related factors?

21



Residual Confounding—Evidence II

- 90% (27 of 30) of CVD-associated risk factors more common in nondrinkers
- Moderate drinkers and abstainers are two very different populations and alcohol use is unlikely to be the cause of most of these differences
- Thus, at least some of the reported protective effects of moderate drinking are likely due to residual confounding (other unmeasured factors)

Naimi et al. Am J Preventive Med, 2005

24



MAJOR Methodological Limitation

- Does the “abstainer” category contain high-risk drinkers?
- Many older people reduce or terminate drinking due to increased illness, disability, frailty, and/or medication use
 - Former drinker misclassification error
 - Occasional drinker misclassification error
- Such bias would **exaggerate** the risk of “abstainers”

25



Gender Difference?

- Protective effect of moderate alcohol use on all-cause mortality restricted to women (20% reduced risk vs 10% non-significant reduction in men). Women are more likely to use wine (study of 129,000 adults followed for 20 years)
- Meta-analysis shows that the protective effect of wine on CVD risk is small (13%) in studies of men but much larger (47%) in studies of both genders
- A sex difference in the protective effect of wine?

Di Castelnuovo 2002 Circ; Klatsky et al 2003, AJE

28



Misclassification of Drinkers — Evidence

- A recent meta-analysis of 54 all-cause mortality studies and 35 CHD mortality studies examined the effect of misclassifying as abstainers many people who had reduced or stopped drinking:
- The pooled studies showed the traditional J-shaped curve with higher risks for abstainers than moderate drinkers
- Studies with only former drinker classification also showed protective effects of moderate consumption
- Studies in which both classification errors were accounted for showed no protective effects of moderate consumption

Filmore et al. 2006; Addiction Research & Theory

27



Effects of Wine: Confounding?

- Compared to beer drinkers, wine drinkers had:
- Higher parental and personal education
- Higher IQ scores
- Better personality functioning (e.g. lower neuroticism) and lower psychological distress
- Lower high risk-drinking, smoking and illicit drug use
- Study of 693 adults aged 29 to 34 in Denmark

Mortensen et al. 2001 Arch Intern Med

29



Special Properties of Wine?

- Wine contains Phenols (flavonoids and non-flavonoids) that are powerful antioxidants that destroy free radicals in the body
- There has been much attention to “resveratrol” - a non-flavonoid (stilbene) which is unique to grapes. Red wine contains more than white wine.
- However, wine is not a good source of antioxidants: the fermentation process removes most of it from the wine; and, as wine ages, the number of antioxidants increases but their bioavailability decreases
- So to get your supply of resveratrol, consume grapes

NY Academy of Sciences Newsletter, 2001

27



Type of Beverage

- The best scientific evidence suggests that there is no real advantage to one type of alcoholic beverage versus another.
- Modest and regular use versus episodic consumption of large quantities, appears to be much more important

Vogel 2002 Rev Cardiovasc Med

30



The Other Side of The Coin

Moderate alcohol use has a broad range of other **Negative Effects**



Need for RCT

- “A randomized controlled trial of alcohol is needed before any prescriptions can be made.”
- Hormone replacement therapy, Beta Carotene and Vitamin E therapy are examples of when randomized controlled trials did not demonstrate the beneficial cardiovascular effects that were found in observational studies.

Freiberg & Samet 2005, Editorial, Circulation



Questions Remain

- “This abundance of evidence supporting the hypothesis that alcohol itself leads to lower incident coronary heart disease events is **not**, however, **definitive**.”
- Problems include: confounding; risks of abuse and dependence, methodological issues related to assessing dosing, level and duration of use over the life-course, non-representativeness of study populations

Marchand et al., J Studies Alcohol, 2003



“... Probably No Free Lunch”

- “... likely explanation for an artifactual association – uncontrolled confounding – has been too readily dismissed by many researchers including ourselves...”
- “Any coronary protection from light to moderate drinking will be very small and unlikely to outweigh the **harms**. While moderate to heavy drinking is probably cardio-protective [relatively “clean” coronary arteries in autopsies of alcoholics], any benefit will be overwhelmed by the known harms”

Rod Jackson et al. 2005, Comment, Lancet

35



Diversity Among Non-drinkers

- Non-drinkers are a very diverse category
- Need to study the variation in this group
- Studies of principled non-drinkers show that they have lower levels of cardiovascular disease:
 - -- Studies of Adventists in the U.S. and Europe
 - -- Studies of Temperance Society members in Norway



Caution

- “ If alcohol were a newly discovered drug... no pharmaceutical company would develop it to prevent cardiovascular disease. Nor would many physicians use a therapy that might reduce the rate of myocardial infarction by 25 to 50 percent, but that would result in thousands of additional deaths per year due to cancer, motor vehicle accidents, and liver disease.”
- “substituting one disease for another is not a medical advance”

Goldberg, 2003 NEJM Editorial

36



When Evidence and Profits Clash

“Alcohol industry advocacy groups also like to emphasize the protective health effects of alcohol consumption for older adults. These benefits have been contested, and even if they exist, they are small, at best, and much smaller than the overall harm.

...the alcohol industry cannot afford to reduce the risky alcohol consumption that generates most of its profits. Conservatively estimated, two thirds of all alcohol consumption in Australia (and 90% of that consumed by young men) is consumed in ways that put drinkers' and others' health and wellbeing at risk.”

Hall and Room, 2006, Editorial, Medical Journal of Australia

37



- Copies of this presentation will be available at:

- www.fit4heaven.com

- Contact:

- Fred Hardinge
- fred@positivechoices.com

PositiveChoices.com



Conclusions - I

- A large body of scientific evidence finds an association between moderate drinking and reduced CVD & mortality risk.
- This association is unlikely to be causal. It is likely due to other unmeasured factors, and to other methodological problems
- Moderate alcohol use increases the risk of several diseases
- Moderate alcohol use increases the risk of accidents, suicides, violence, etc.



41



Conclusions - II

Moderate alcohol use can lead to

- loss of inhibition,
- impairment in judgment,
- and reduced physical coordination and mental alertness.

The scientific evidence suggests that any purported benefits of alcohol use do not appear to outweigh the many costs to both the individual and the society.

39