

Do brief interventions which target alcohol consumption also reduce cigarette smoking? Preliminary findings from a systematic review

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# Background 1

- BIs opportunistically targeting an increasingly wide range of individual behaviours
- Relatively recent emergence of BIs which target multiple behaviours
- Early surprising findings; discussion may not be needed for positive impact to be achieved
- Possible mechanisms; generalised health promotion effect, behaviours inter-related



# Background 2

- Possible that BIs for alcohol also impact upon other behaviours
- If so, these effects may have been overlooked
- Cigarette smoking judged behaviour for which most data most likely to have been collected
- Systematic review of studies in reviews 1995-



# Methods 1

- Search strategy identified 11 reviews
- BALLESTEROS 2004A, BALLESTEROS 2004B, BERTHOLET 2005, CUIJPERS 2004, DONOFRIO 2002, EMMEN 2004, KAHAN 1995, MOYER 2002, POIKOLAINEN 1999, WHITLOCK 2004, WILK 1997



# Methods 2

- Initial e-mail or postal questionnaire on data collection to all lead authors of primary studies
- Second questionnaire for actual data
- Smoking cessation and reduction data requested
- Recalculations for inclusion in meta-analyses in STATA using inverse variance weighted method



# Data Collection

- 62 citations included in 11 reviews
- Chafetz (1962) excluded
- 44 studies, counting WHO 1996 as single study
- Logsdon (1989) & Richmond (1999) alcohol not sole target: reduction in smoking non-significant



# Alcohol BIs

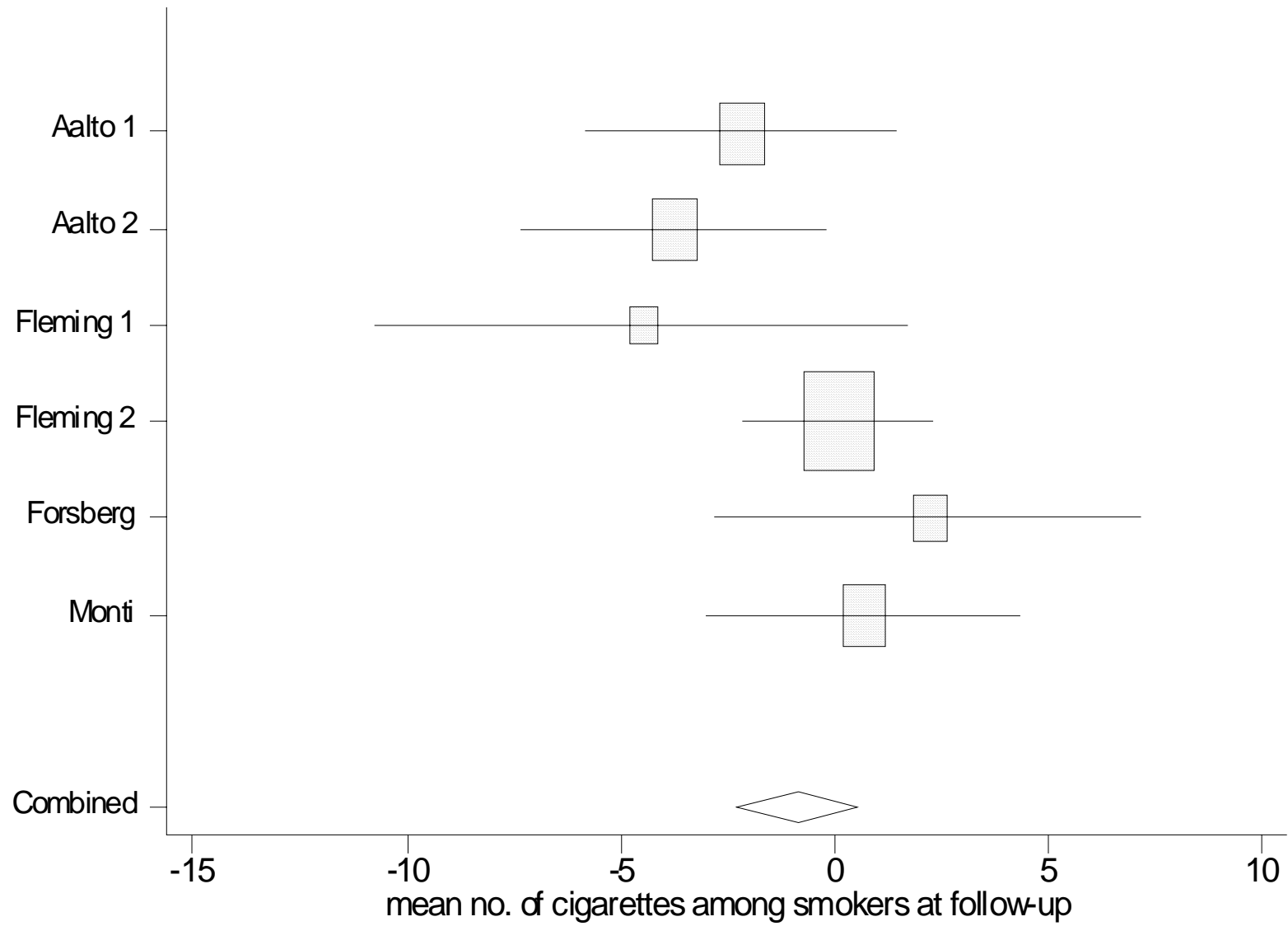
- 38 RCTs, 1 quasi-RCT, 3 quasi-experimental
- 22 collected some smoking data
- 14 smoking data at both baseline and follow-up
- 11/12 outcome data understood to be accessible
- 6 outcome data received 20/10/06 – 5/6 RCTs



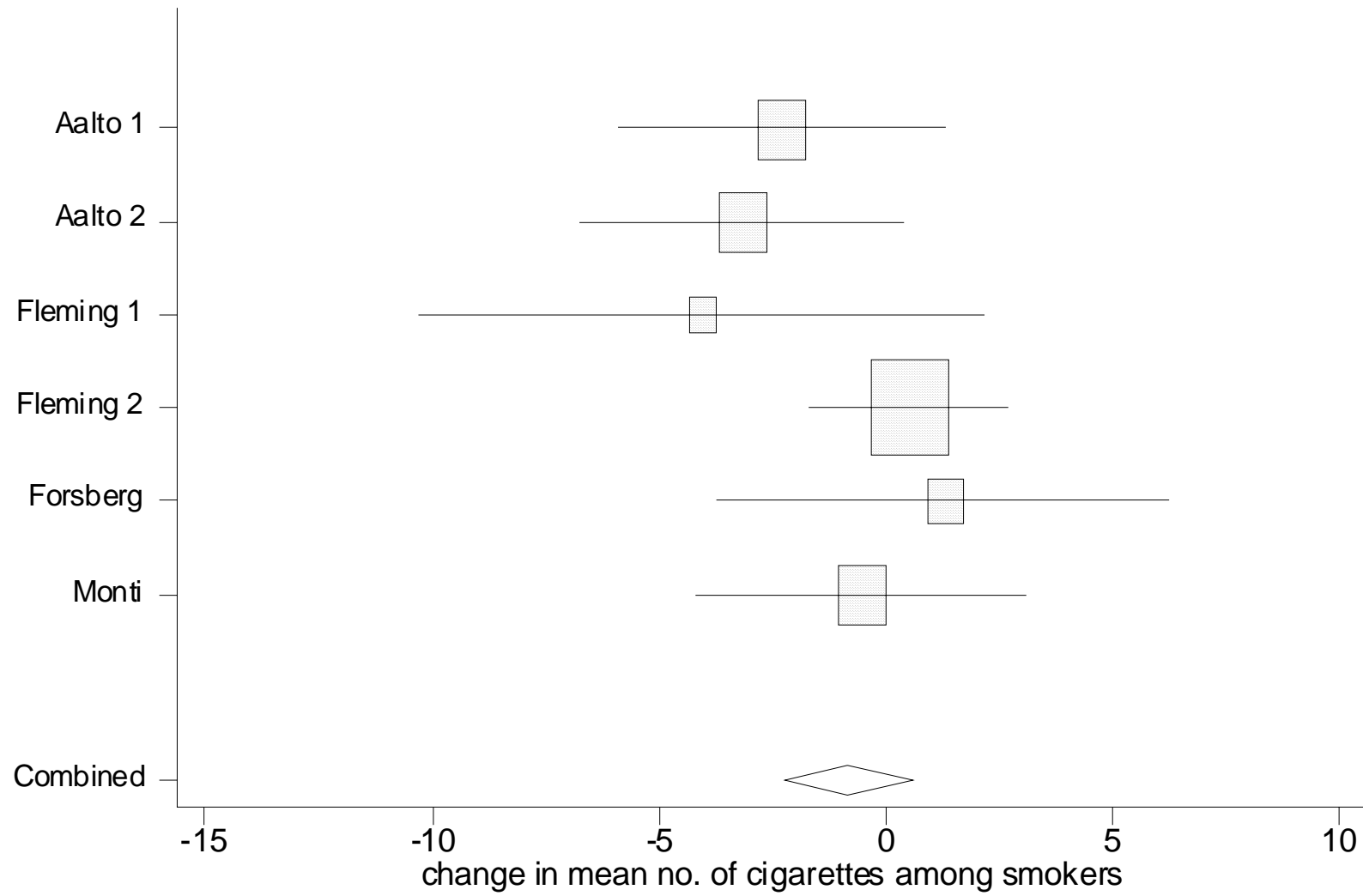
# Smoking Cessation Outcomes

	BI	Control
Aalto 1 (36)	4/100 (4.0%)	6/81 (7.4%)
Aalto 2 (36)	6/83 (7.2%)	
Fleming 1 (12)	2/12 (16.7)	0/14 (0%)
Fleming 2 (12)	42/222 (18.9%)	36/200 (18.0%)
Forsberg (6)	6/34 (17.6%)	2/30 (6.7%)
Monti (6)	4/49 (8.2%)	8/47 (17.0%)
Total RCT	64/500 (12.8%)	52/372 (14.0%)
Welte (6)	8/209	13/136

### Meta-analysis of effects of alcohol BI on smoking in 6 trials



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# A small effect on reduced cigarette smoking?

- RCT fixed and random effects estimates similar: reduction in cigarettes smoked -0.82 & -0.89
- Larger sample size necessary to reach statistical significance
- Public health significance?
- Dedicated funding for further data collection?



# Quotation from Fleming et al. 1997

- “The 20% reduction in alcohol use in the control groups was interesting. A majority of the other trials have similar reductions in alcohol use. The reason for this change is unknown but may be related to regression to the mean, historical changes in alcohol use, and the intervention effect of the research procedures. It is our impression that research procedures can have a significant intervention effect.”



# Mean (SD) change in cigs per day among smokers in BI groups

	Baseline	Follow-up
Aalto 1	13.63 (9.4)	11.49 (9.1)
Aalto 2	12.94 (9.2)	9.91 (8.6)
Fleming 1	13.75 (7.0)	11.83 (6.7)
Fleming 2	19.42 (12.5)	14.0 (12.0)
Forsberg	18.03 (10.6)	14.21 (12.4)
Monti	14.55 (9.9)	11.02 (9.13)
Welte 1	22.73 (15.8)	20.44 (13.0)
Welte 2	19.32 (15.5)	16.65 (14.1)

# Mean (SD) change in cigs per day among smokers in control groups

	Baseline	Follow-up
Aalto	13.52 (8.9)	13.67 (9.9)
Fleming 1	14.21 (8.5)	16.33 (7.6)
Fleming 2	19.87 (12.7)	13.92 (11.8)
Forsberg	14.93 (6.7)	12.0 (7.8)
Monti	13.32 (9.9)	10.32 (8.6)
Welte	22.0 (14.4)	17.99 (13.5)

# Change in cigarette smoking over time

- Small between-group differences
- Small effect of BIs for alcohol on reduced smoking possible, not likely for cessation
- Larger change over time across groups, not natural history nor regression to the mean
- Change over time in both cessation and reduced smoking



# Limitations

- Unusual search methods
- Not yet undertaken formal analyses of bias in meta-analyses
- Change in cigarette smoking unvalidated self-report
- Incomplete - small sample size



# Preliminary Conclusions

- BIs for alcohol may have a small effect on reduced cigarette smoking and other behaviours
- Taking part in research studies probably has a much larger effect upon these behaviours

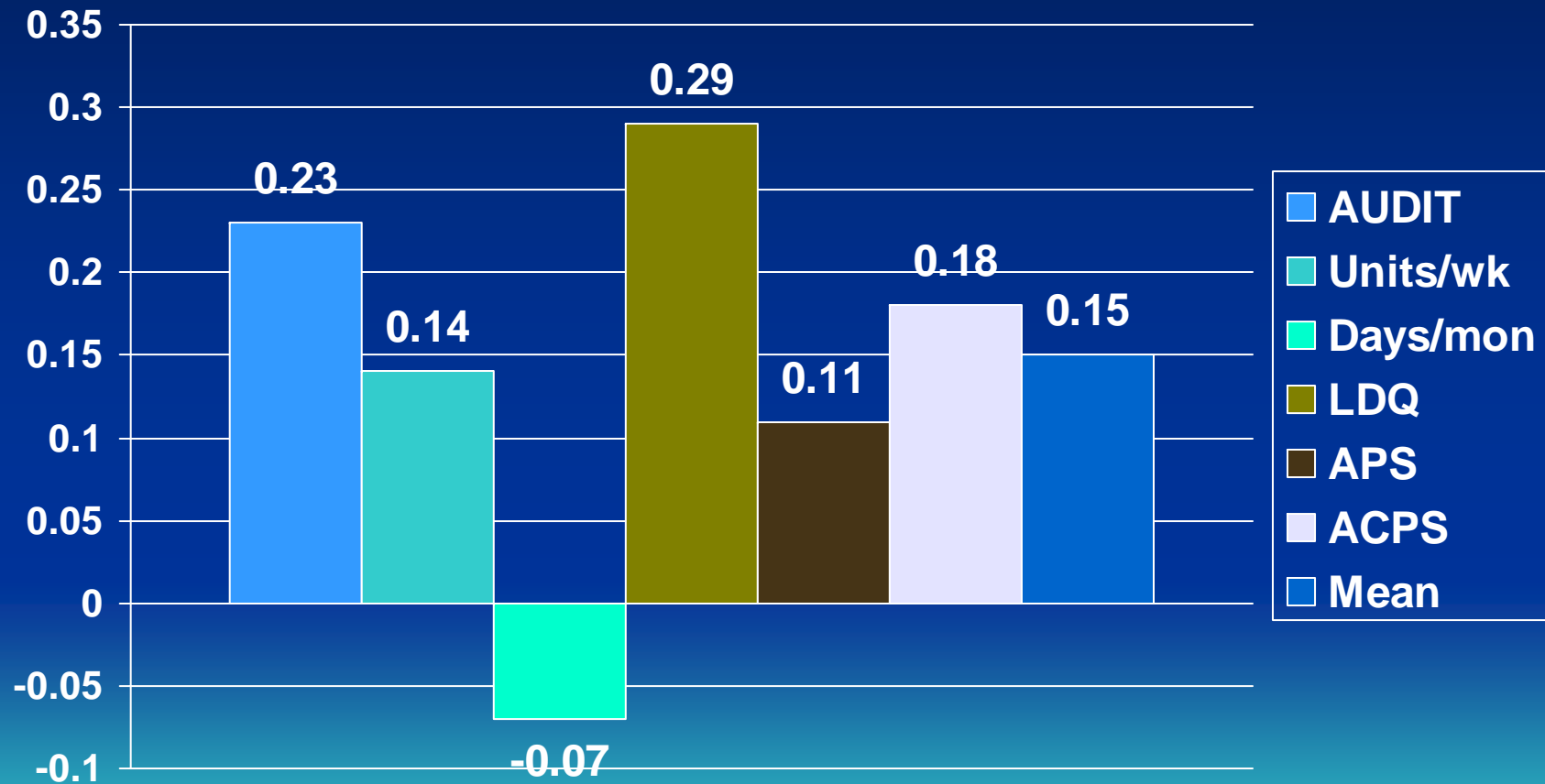


# Postscript: findings from dedicated RCT of Hawthorne Effect

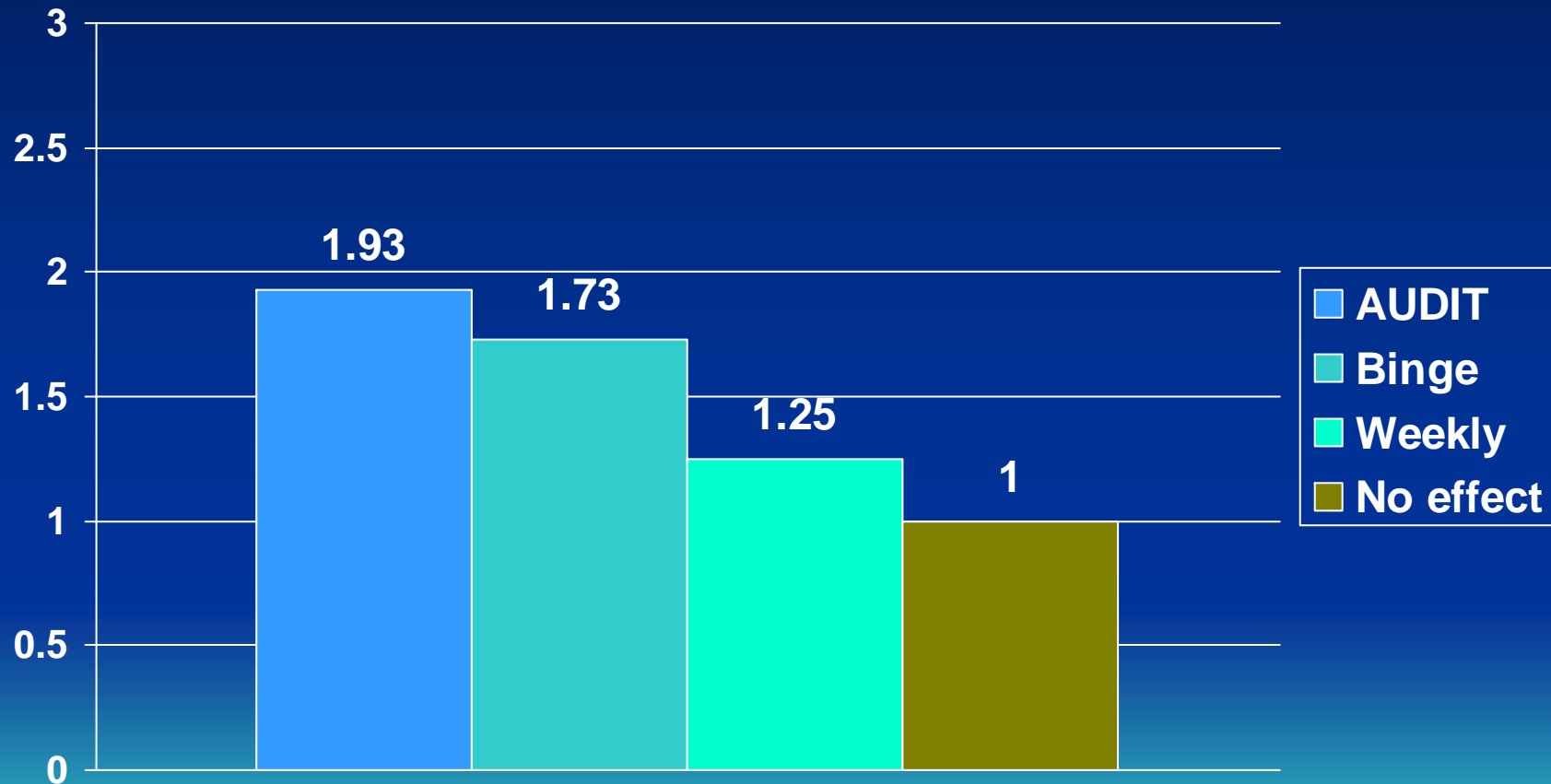
- Pilot study to estimate power of trial in convenience pop. of 421 students aged 18-24
- Blinded to study purpose, HTS only baseline 'alcohol' data
- Double-blinded manipulation of sealed envelopes of AUDIT reactivity & surveillance
- Saliva consent baseline and prior to 2/3 month follow-up (n=326 [ 77%], 300 drinkers)



# Effect sizes (standardised mean differences) for 6 continuous outcomes



# Odds ratios for 3 binary hazardous drinking outcomes



# Conclusions

- Experimental evidence that taking part in an alcohol study produces behaviour change
- Hawthorne Effect on drinking behaviour and/or compromised reliability of self-report?
- Underestimation of BI effectiveness if only between-group differences examined?
- Study design, policy and practice implications for screening if mirrors 'surveillance' conditions