



European Society for  
Prevention Research

IOA



## **4th International Conference and Members' Meeting**

Le Centquatre, Paris, France  
**November 13-15, 2013**



# Prevention Programmes can reduce Social Inequalities in Health?

**Buscemi D\***, Caria MP\*, Vigna Taglianti F\* ^, Faggiano F\*


\* Department of Translational Medicine – Avogadro University, Novara, Italy (Via Solaroli E-mail: [daria.buscemi@gmail.com](mailto:daria.buscemi@gmail.com))

^ University of Turin, Italy




Socioeconomic inequalities in health are among the major priorities of public health policies in Europe.

Higher prevalence of unhealthy behaviors in lower socioeconomic groups explains a relevant fraction of these inequalities.

A vertical spiral binding on the left side of the page, consisting of a series of metal or plastic loops.


Alcohol is estimated to account for 9.2% of DALYs (Disability Adjusted Life Years) of the world disease burden [WHO 2002].

Almost 15% of people who have ever used alcohol become addicted.[Leshner 1997].

A vertical spiral binding on the left side of the page, consisting of a series of metal or plastic loops.

This evidence cannot be found among adolescents: family affluence did not appear to be an important determinant for weekly drinking, early drunkenness and binge drinking [HBSC 2010].

But adolescence is a key period for the prevention of health inequalities in adulthood.

- 
- ✓ Nearly all (90%) 15-16 years old European students have drunk alcohol at least once during their lifetime;
  - ✓ Average age at onset is 13 years;
  - ✓ 43% of them reports at least one episode of binge-drinking in the last 30 days.


[ESPAD 2011]

A vertical spiral binding on the left side of the page, consisting of a series of metal or plastic loops.

Several prevention programs have been developed for adolescents:

- ✓based on environmental interventions (like media campaigns);
- ✓often in combination with complementary community actions (price or availability policies);
- ✓with school-based and family interventions.

Very little is known about the effect of prevention interventions among different SES (socio-economic status) groups.

A vertical spiral binding on the left side of the page, consisting of a series of metal or plastic loops.

The study presented is a part of the TEENAGE project [Van Lenthe 2009].

The purpose is to assess whether interventions to prevent the use and abuse of alcohol among adolescents undergoing evaluation in the European context, have different effects on different SES groups.



# Methods

A systematic search of the literature has identified all high quality European interventions, proven to be effective in reducing alcohol use or abuse.

The main inclusion criteria were:

- ✓ randomized control trial design
- ✓ interventions targeting adolescents for primary prevention of alcohol use or abuse;
- ✓ publication date from 1995 and 2010;
- ✓ European setting;
- ✓ English language.

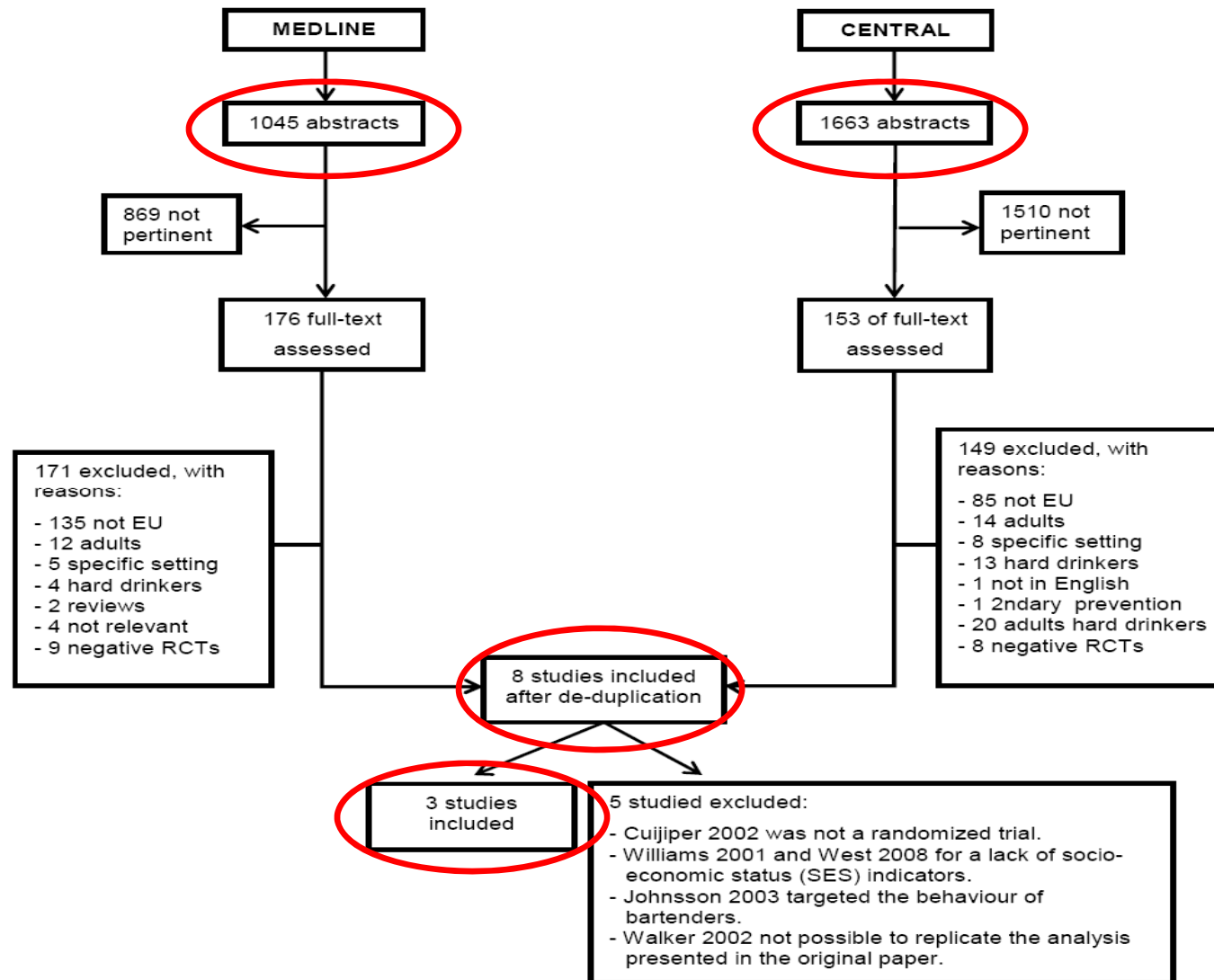


# Methods

The electronic databases searched were:

- ✓ **MEDLINE;**
- ✓ Cochrane Central Register of Controlled Trials (**CENTRAL**).

# Systematic literature research



# Methods

Included studies are (*table 1*):

✓ **EUDAP study** (European Drug addiction prevention trial), which evaluates the program ***Unplugged*** [Faggiano 2010];

✓ **Conrod study** that analyzes the program called ***Preventure*** [Conrod 2008];

✓ **Morgenstern study** describing the program ***Aktion Glasklar*** [Morgenstern 2009].

# Design of the interventions included in the re-analyses of effect by SES.

Table 1

	UPLUGGED [Faggiano 2010]	PREVENTURE [Conrod 2008]	AKTION GLASKLAR [Morgenstern 2009]
<b>SAMPLE SIZE</b>	7079 students enrolled (7409 eligible) response rate= 95.5%	368 high-risk students enrolled (1022 eligible) response rate=36.0%	1686 students enrolled (1875 eligible) response rate= 90.0%
<b>OUTCOMES</b>	Primary: smoking habits; alcohol use; cannabis use Secondary: knowledge about substance use; skills; attitudes and intention	personality risk; alcohol use; -binge drinking	knowledge about alcohol; attitude and intentions; life-time alcohol use; life-time drunkenness; life-time binge drinking
<b>STUDY DESIGN</b>	Cluster randomized controlled trial	Randomized controlled trial	Cluster randomized controlled trial
<b>SES</b>	3 SES at school level (low, middle, upper)	SES based on national census data on family income associated with the individual's postal code	2 SES at secondary school level (low and upper )
<b>PERSONALITY PROFILE</b>	—	Substance Use Risk Profile Scale(SURPS) discriminating SS,AS,NT,IMP (related with alcohol abuse)	—
<b>STUDY PERIOD</b>	2004-2005 school year	Not reported	2006-2007
<b>COUNTRIES</b>	9 centres of 7 European countries (Austria, Belgium, Germany, Greece, Italy, Spain, Sweden)	10 London boroughs	Germany (Schleswig-Holstein)
<b>LENGTH OF FOLLOW UP</b>	3 months	6 months –12 months	4 months –12 months
<b>STATISTICAL ANALYSES</b>	Multi-level regression analysis	Multi-group regression analysis	Multi-level regression analysis
<b>TYPE OF COLLECTION DATA</b>	Self-completed anonymous questionnaires	Self-reports	Self-completed anonymous questionnaires
<b>COMPARISON</b>	3547 intervention (1190 basic arm (1084 analyzed at 3 months, 106 unmatched); 1164 parent arm (1068 analyzed at 3 months, 96 unmatched); 1193 peer arm(1044 analyzed at 3 months, 46 drop-out, 103 unmatched) 3532 control arm [standard drug education] (3174 analyzed at 3 months, 73 drop-out, 285 unmatched)	199 intervention (151 analyzed at 1 year) 169 control[usual curriculum] (132 analyzed at 1 year)	839 intervention (714 analyzed at 1 year, 85 drop-out) 847 control[usual curriculum] (719 analyzed at 1 year, 96 drop-out)



# Methods

The authors were contacted in order to obtain a re-analysis of the efficacy data stratified according to SES.

They were asked to re-apply the same statistical model used for the published un-stratified analyses.



# Socio-economic variables

## EU-Dap Study

The randomization of schools was stratified in 3 groups by SES: high, medium, low.

SES are based on the area level according to the most reliable available indicator (for example, the type of school, average family income or past surveys data of the school's catchment area).



# Socio-economic variables

## **Preventure evaluation study**

The randomization of schools was stratified in 2 groups by SES: high and low.

The average family income per week, based on national census data, associated with the individual's postal code of residence, was used to classify pupils in two SES groups.



# Socio-economic variables

## Aktion Glasklar evaluation study

The randomization of schools was stratified in 2 groups by SES: high and low.

SES was associated with the type of school: the *Hauptschule* and *Realschule* schools tend to recruit pupils from lower SES groups, *Gesamtschule* and especially the *Gymnasium* schools serve middle- and upper-class students.

# Results

## EU-Dap study:

The overall results at the 2nd year follow-up showed (*table 2*):

- ✓ reduction of frequency of *Drunkenness* in the last 30 days (OR=0.80; 0.66-0.96);
- ✓ reduction of *Frequent drunkenness* (OR=0.61; 0.47-0.80);
- ✓ reduction of *Alcohol related problems* in the past year (OR=0.78; 0.62-0.98).

# EU-Dap study results: effectiveness of the intervention at the 2<sup>nd</sup> year follow-up by SES\* [Faggiano 2010]

Table 2

		N.	n.	OR	95%CI
Any episode of drunkenness	Whole sample			0.80	0.66 – 0.96
	High SES	1941	278	0.82	0.63 – 1.07
	Medium SES	1700	248	0.94	0.66 – 1.34
	Low SES	1768	342	0.63	0.46 – 0.86
Frequent drunkenness	Whole sample			0.61	0.47 – 0.80
	High SES	1941	70	0.64	0.38 – 1.09
	Medium SES	1700	88	0.68	0.39 – 1.18
	Low SES	1768	119	0.60	0.40 – 0.91
Weekly drinker	Whole sample			0.92	0.78 – 1.09
	High SES	1968	452	0.92	0.73 – 1.15
	Medium SES	1725	327	1.20	0.87 – 1.66
	Low SES	1803	408	0.75	0.56 – 0.99
Alcohol related problems	Whole sample			0.78	0.62 – 0.98
	High SES	1968	129	0.81	0.56 – 1.18
	Medium SES	1736	117	0.89	0.58 – 1.38
	Low SES	1805	154	0.66	0.43 – 1.01

Any episode of drunkenness = any episode of drunkenness in past 30 days

Frequent drunkenness = three or more episode in past 30 days

Weekly drinker = at least one drink a week

Alcohol related problems = at least one alcohol related problem in past year

\*= SES based on the SE status of the catchments area of the school

# Results

## EU-Dap study:

The re-analyses by SES (*table 2*) showed that children of disadvantaged social classes derive greater benefits from the program than the other: this difference were statistically significant for all the outcome, except for *Alcohol related problems*.

# EU-Dap study results: effectiveness of the intervention at the 2<sup>nd</sup> year follow-up by SES\* [Faggiano 2010]

Table 2

		N.	n.	OR	95%CI
Any episode of drunkenness	Whole sample			0.80	0.66 – 0.96
	High SES	1941	278	0.82	0.63 – 1.07
	Medium SES	1700	248	0.94	0.66 – 1.34
	Low SES	1768	342	0.63	0.46 – 0.86
Frequent drunkenness	Whole sample			0.61	0.47 – 0.80
	High SES	1941	70	0.64	0.38 – 1.09
	Medium SES	1700	88	0.68	0.39 – 1.18
	Low SES	1768	119	0.60	0.40 – 0.91
Weekly drinker	Whole sample			0.92	0.78 – 1.09
	High SES	1968	452	0.92	0.73 – 1.15
	Medium SES	1725	327	1.20	0.87 – 1.66
	Low SES	1803	408	0.75	0.56 – 0.99
Alcohol related problems	Whole sample			0.78	0.62 – 0.98
	High SES	1968	129	0.81	0.56 – 1.18
	Medium SES	1736	117	0.89	0.58 – 1.38
	Low SES	1805	154	0.66	0.43 – 1.01

Any episode of drunkenness = any episode of drunkenness in past 30 days

Frequent drunkenness = three or more episode in past 30 days

Weekly drinker = at least one drink a week

Alcohol related problems = at least one alcohol related problem in past year

\*= SES based on the SE status of the catchments area of the school

# Results

## Preventure evaluation study:

The overall results of Preventure assessment study showed (*table 3*):

✓ reduction of *Binge drinking* at short term (OR=0.41; 0.21-0.80);

✓ no reduction of alcohol use.

The results of *Binge drinking* at long term appeared to be consistent, although without a statistically significant effect.

# Preventure evaluation study results: effectiveness of the intervention at 6 months and 12 months follow-up by SES\* [Conrod 2008]

Table 3

		6-month FU				12-month FU			
		N.	n.	OR	95%CI	N.	n.	OR	95%CI
Drinking status	Whole sample	348	205	1.07	0.60 - 1.90	348	211	1.10	0.65 - 1.86
	High SES	153	84	1.43	0.59 - 3.46	153	91	0.96	0.40 - 2.34
	Low SES	195	121	0.87	0.41 - 1.89	195	120	1.18	0.61 - 2.29
Binge drinking	Whole sample	190	97	0.41	0.21 - 0.80	190	108	0.66	0.35 - 1.23
	High SES	78	41	0.37	0.13 - 1.07	78	44	0.50	0.18 - 1.44
	Low SES	112	56	0.40	0.16 - 0.99	112	64	0.79	0.36 - 1.73

Drinking status = drinking alcohol or being abstinent from alcohol, over the past 6 months

Binge drinking = consuming more than four or five alcoholic beverages on one occasion, over the past 6 months

\*= SES based on average family income per week of the postal code area of residence



# Results

## Preventure evaluation study:

The re-analyses by SES (*table 3*) showed a reduction for *Binge drinking* between SES groups, but statistically significant only for lower SES group at short term (OR=0.40; 0.16-0.99).



# Preventure evaluation study results: effectiveness of the intervention at 6 months and 12 months follow-up by SES\* [Conrod 2008]

Table 3

		6-month FU				12-month FU			
		N.	n.	OR	95%CI	N.	n.	OR	95%CI
Drinking status	Whole sample	348	205	1.07	0.60 - 1.90	348	211	1.10	0.65 - 1.86
	High SES	153	84	1.43	0.59 - 3.46	153	91	0.96	0.40 - 2.34
	Low SES	195	121	0.87	0.41 - 1.89	195	120	1.18	0.61 - 2.29
Binge drinking	Whole sample	190	97	0.41	0.21 - 0.80	190	108	0.66	0.35 - 1.23
	High SES	78	41	0.37	0.13 - 1.07	78	44	0.50	0.18 - 1.44
	Low SES	112	56	0.40	0.16 - 0.99	112	64	0.79	0.36 - 1.73

Drinking status = drinking alcohol or being abstinent from alcohol, over the past 6 months

Binge drinking = consuming more than four or five alcoholic beverages on one occasion, over the past 6 months

\*= SES based on average family income per week of the postal code area of residence

# Results

## Aktion Glasklar evaluation study:

The overall results of Aktion Glasklar evaluation study showed (*table 4*):

- ✓ reduction of *Lifetime binge drinking* (OR=0.56; 0.41-0.77 for short term; OR=0.74; 0.57-0.97 at the 12 months follow-up);
- ✓ no reduction of alcohol use.

# Aktion Glasklar evaluation study results: effectiveness of the intervention at the post-test and 12 months follow-up by SES\* [Morgenster 2009]

Table 4

				Post-test follow-up		12-month follow-up	
		N §	n §	OR	95% CI	OR	95% CI
Lifetime alcohol use	Whole sample	1686	820	0.81	0.57-1.16	0.90	0.67-1.21
	High SES	698	214	0.70	0.38-1.28	0.89	0.56-1.40
	Low SES	984	606	0.88	0.57-1.35	0.90	0.64-1.29
Lifetime drunkenness	Whole sample	1686	309	0.70	0.48-1.02	0.77	0.52-1.12
	High SES	698	70	0.45	0.26-0.77	0.57	0.37-0.88
	Low SES	987	239	0.86	0.54-1.37	0.88	0.53-1.46
Lifetime binge drinking	Whole sample	1686	212	0.56	0.41-0.77	0.74	0.57-0.97
	High SES	699	51	0.51	0.30-0.86	1.00	0.65-1.53
	Low SES	985	161	0.60	0.41-0.89	0.63	0.45-0.89

§ multiple missing imputation has been used to fill in missing data over the past 6 months

Lifetime alcohol use = ever drinking alcohol

Lifetime drunkenness = ever being drunk

Lifetime binge drinking = ever drinking five or more drinks of alcohol in a row

\* = SES associated with the type of school (mixed and middle-upper classes vs low and middle classes)

# Results

## Aktion Glasklar evaluation study:

The re-analyses by SES (*table 4*) showed:

- ✓ reduction of *Lifetime binge drinking* at long term of students belonging to the lower social classes compared to students of the higher SES group (OR=0.63; 0.45-0.89);
- ✓ a larger reduction of *Lifetime drunkenness* at long term for the higher SES group compared to the lower SES group (OR=0.57; 0.37-0.88).

# Aktion Glasklar evaluation study results: effectiveness of the intervention at the post-test and 12 months follow-up by SES\* [Morgenster 2009]

Table 4

				Post-test follow-up		12-month follow-up	
		N §	n §	OR	95% CI	OR	95% CI
Lifetime alcohol use	Whole sample	1686	820	0.81	0.57-1.16	0.90	0.67-1.21
	High SES	698	214	0.70	0.38-1.28	0.89	0.56-1.40
	Low SES	984	606	0.88	0.57-1.35	0.90	0.64-1.29
Lifetime drunkenness	Whole sample	1686	309	0.70	0.48-1.02	0.77	0.52-1.12
	High SES	698	70	0.45	0.26-0.77	0.57	0.37-0.88
	Low SES	987	239	0.86	0.54-1.37	0.88	0.53-1.46
Lifetime binge drinking	Whole sample	1686	212	0.56	0.41-0.77	0.74	0.57-0.97
	High SES	699	51	0.51	0.30-0.86	1.00	0.65-1.53
	Low SES	985	161	0.60	0.41-0.89	0.63	0.45-0.89

§ multiple missing imputation has been used to fill in missing data over the past 6 months

Lifetime alcohol use = ever drinking alcohol

Lifetime drunkenness = ever being drunk

Lifetime binge drinking = ever dinking five or more dinks of alcohol in a row

\* = SES associated with the type of school (mixed and middle-upper classes vs low and middle classes)



# Conclusion

Out of the three programme included (**EU-Dap study** and **Aktion Glasklar** evaluation study) have a greater effectiveness among students belonging to lower social classes, particularly in relation to outcome in alcohol abuse.



# Conclusion

School-based prevention:

- ✓ does not appear to contribute to an increase of social inequalities;
- ✓ seems more effective for adolescents belonging to low socioeconomic groups.

# Limits

Such evidence is weak:

- ✓ It is based on a limited number of studies that have not enough power to highlight effects at the level of social stratum;
- ✓ all the included studies are school-based ;
- ✓ all the included studies have low reliability of SES data.

This lead to a lack of evaluations of the effect of interventions other than school-based.





# Suggestions for the future

In order to increase the power of evidence of effects of prevention interventions, it is important to consider SES as a variable to be collected and used in the testing.