

***School-based prevention for illicit
drugs' use: a systematic review***

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Background

- School is an appropriate setting for illicit drugs use prevention programs for two reasons:
 - four out of five drug users begin before adulthood
 - schools offer the most systematic and efficient way of reaching a large number of young persons every year

Background

- There is a huge variability in programmes supplied to schools
 - most are theory-based
 - most have been evaluated for intermediate variables (knowledge, intentions...)
 - but the evaluation of effectiveness in reducing the use of drugs is very rare
- Considering that some evaluations demonstrated a higher drug consumption among intervention harm (Dukes 1997; Hawthorne 1996)
- A systematic review has been considered a priority by the Cochrane Drug and Alcohol Review Group (CDAG)

Background

- School-based interventions can be divided into:
 - **knowledge-only interventions**
 - **self-awareness building interventions**
 - **social life skills programs**
 - **knowledge plus affective interventions**
 - **alternative approaches**

Background

The systematic review:

School-based prevention for illicit drugs' use

by

Faggiano F, Vigna-Taglianti FD, Versino E, Zambon A, Borraccino A, Lemma P

has been firstly published by the Cochrane Library in April 2005

Methods

Literature search and inclusion criteria

- All RCTs evaluating any intervention program versus a control condition, and designed to prevent substance use in a school setting
- All CPS (Controlled Prospective Studies) comparing intervention vs control
- The following databases have been searched (from beginning to feb 2004)
 - Medline & Embase
 - ERIC, Sociological Abstracts, Psychinfo
 - Cochrane databases

Methods

Literature search and inclusion criteria

- Specific search strategies were used for each database
- No language restrictions were adopted
- The following terms (limited to human) were included: substance-related disorders, addiction, abuse, use, drug dependence, drug addiction, illicit drug, narcotics, morphine, cannabis, heroin, heroin dependence, hashish, marijuana, ecstasy, MDMA, psychedelic agent, hallucinogens, cocaine, crack cocaine, lysergic-acid, lsd, designer-drugs, Centers for Disease Control and Prevention, primary prevention, prevention, education program, health education, counselling, peer group, activities of daily living, psychological adaptation, adolescent psychology, interpersonal relations, social adjustment, social behaviour, life skills

Methods

Literature search and inclusion criteria

- To discover unpublished researches/results, research teams, and 18 authors of the included and excluded studies were contacted: 6 authors sent published/unpublished results
- The target populations were primary or secondary school pupils

Methods

Data collection and extraction

- 2216 abstracts have been retrieved and were read by two reviewers for relevance
- 678 reports have been obtained in full text and independently assessed by two reviewers
- 65 (40 RCTs) reports have been provisionally included
- 24 (21 RCTs) reports were excluded for methodological reasons

Methods

Data collection and extraction

- 41 reports included (29 RCTs) were then independently read by two reviewers in order extracted data using a standardized checklist
- 14 authors were contacted by e-mail in order to provide supplementary information: 8 replied and 3 provided the data requested
- When no replies were received after 6 months, the studies concerned were re-evaluated for inclusion

Methods

Data collection and extraction

- For the 29 studies included, interventions and control arms were classified as:
 - **skills focused**, aimed to enhance students' abilities in generic, refusal, and safety skills
 - **affective focused**, aimed to modify inner qualities (personality traits such as self-esteem and self-efficacy, and motivational aspects such as the intention to use drugs)
 - **knowledge focused programs**, aimed to enhance knowledge of and the effects, and consequences of drug use
 - **usual curricula**

Methods

Data collection and extraction

- The interventions were also classified as follows:
 - **interactive programs**, in which participants are actively involved in the activities
 - **passive programs**
- and also by type of involvement
 - teachers
 - external educators
 - peers

Methods

Outcomes

- The following outcomes were considered:
 - final outcomes:
 - use of drugs
 - intermediate outcomes:
 - drug knowledge
 - drug attitudes
 - acquirement of personal skills
 - peers/adults drug use
 - intention to use drugs

Methods

Quality assessment

- The quality of the studies included was assessed by two reviewers
- according to the CDAG's check list studies were grouped in 3 classes:
 - A: low risk of bias (scores 9-11)
 - B: moderate risk of bias (scores 6-8)
 - C: high risk of bias (scores 0-5)
- Disagreements were settled by a third reviewer

Methods

Statistical analysis

- Data were analysed with RevMan software
- A standardized effect size was calculated for each study, in function of its outcome
- Wherever possible, summary relative risks and 95% confidence intervals were calculated with a random effects model; for continuous outcomes measured in different ways a standardized mean difference (SMD) between groups was calculated to summarise results across studies
- When two or more studies were included in the meta-analysis, a test of heterogeneity was applied

Methods

Statistical analysis

- The study by Furr-Holden included an adjustment for cluster effect
- Since the adjusted RR could not be calculated from the crude absolute numbers, "adjusted numbers" of subjects in the treatment group were re-calculated for each outcome as the product of the adjusted RRs by the absolute numbers of the control group
- Some studies did not present data suitable for the inclusion in the meta-analyses: their results are reported in the results section in a narrative way

Methods

Statistical analysis

- The effect of the low quality studies on the overall results, was determined by a sensitivity analysis, with inclusion or exclusion the class C studies: no differences emerged
- Publication bias was not assessed

Methods

Excluded studies

- Twenty-one (published in 24 reports) were excluded
- Six because the randomisation process failed
- three presented secondary analysis of subsamples of original trials
- In the studies by Graham 1990 and Eggert-Thompson, 3 subsequent cohort of student were pooled for the analysis, but the programmes were different
- In one study the initial random assignment to the groups was not taken into account at the analysis stage, while one study gave no control group data

Methods

Excluded studies

- In two studies the randomisation procedure was unclear
- In the study by De La Rosa the randomisation units were too limited to assure the validity of the method
- In one study the randomisation procedure was applied to a subsample only
- In the study by Short subjects assigned to intervention and control groups were subsamples of different populations

Methods

Excluded studies

- The study by Duncan did not present any criteria for selecting the students
- In the study by Schinke the students enrolled were Native Americans and the intervention was focused on their culture and traditions

Methods

Included studies

- 29 studies (41 reports) were included
- 14 did not present data for inclusion in the meta-analyses (limited reporting from statistical models)
- 18 studies were of 6 and 7th grade students

- 18 studies presented a post-test assessment;
- 13 provided data at 1 year follow-up.
- Few studies provided data for longer periods

- 28/29 were conducted in the USA (1 RCT in the UK)

Methods

Included studies

- Type of programmes
 - 25 studies evaluated skills focused programs
 - 6 assessed affective programs,
 - 6 included a knowledge focused arm
- 27 out of 29 studies presented results for programmes performed using interactive techniques
- Administrators were external educators in 20 studies, teachers in 10, peer leaders in 4, and others (policemen) in 2

Results

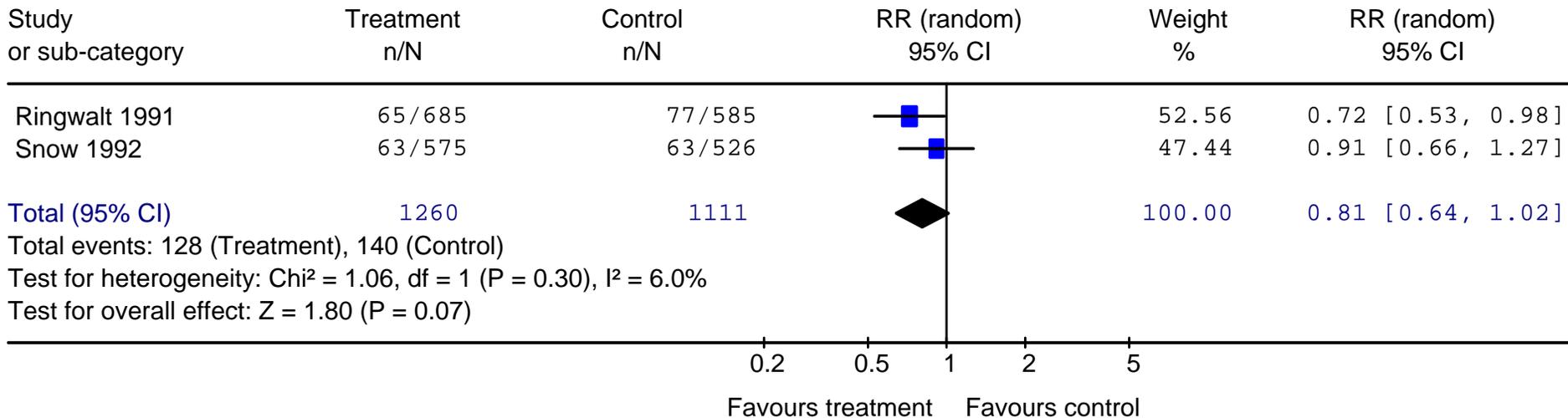
Skills versus usual curricula

The only comparison showing significant results are skills vs usual curricula

Review: School-based prevention for illicit drugs' use.

Comparison: 02 skills vs usual curricula

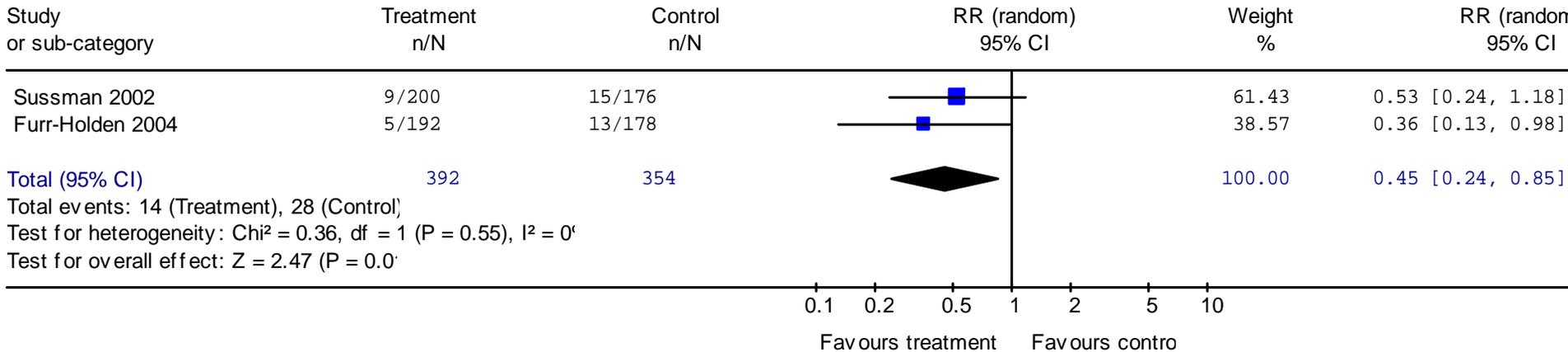
Outcome: 07 drug use



Results

Skills versus usual curricula

Review: School-based prevention for illicit drugs' use. (Vs first published 2/2004)
 Comparison: 02 skills vs usual curricula
 Outcome: 13 hard drugs use



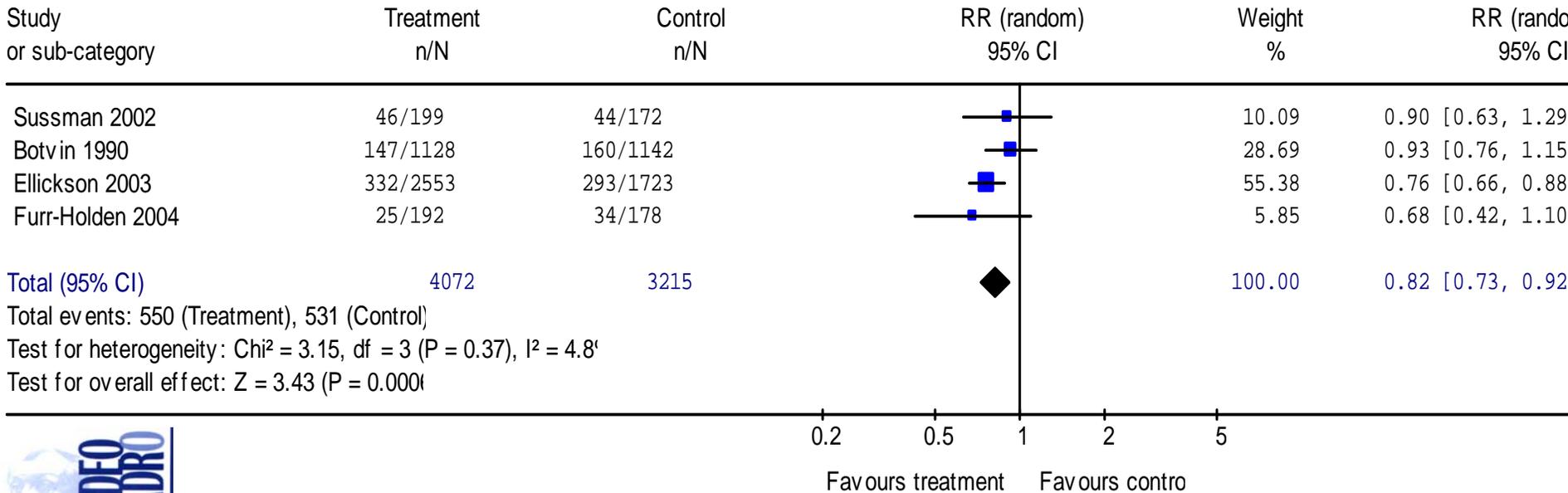
Results

Skills versus usual curricula

Review: School-based prevention for illicit drugs' use. (Vs first published 2/2006)

Comparison: 02 skills vs usual curricula

Outcome: 08 marijuana use (all studies)



Results

Skills versus usual curricula

- Skills based intervention reduced
 - drug use (RR=0.81)
 - hard drug use (0.45)
 - marijuana use (RR=0.82)
- Moreover
 - drug knowledge (WMD=2.60; CI95%: 1.17, 4.03)
 - decision making skills (SMD=0.78; CI95%: 0.46, 1.09)
 - peer pressure resistance (RR=2.05; CI95%: 1.24, 3.42)
 - self-esteem (SMD= 0.22; CI95%: 0.03, 0.40)

Other results

- Other interventions
 - No significant differences were found comparing other programmes with usual curricula
 - neither in comparisons between programmes
- interactive vs passive
 - only 1 study compared interactive vs passive and shows lower hard drug use but no differences in marijuana use
- peer involvement
 - no final outcomes have been used by studies comparing peer involvement vs control

Discussion

- Skills focused programs have a positive effect on both mediating variables and final outcomes, compared to usual curricula
 - 20% lower use of marijuana
 - 55% lower use of hard drugs
- This results appear to persist even years after the intervention
- most of the RCTs included have a satisfactory methodological quality (mainly quality score=B)

Discussion

- There is a satisfactory consistence between
 - final and intermediate outcomes
 - our work and those of Tobler on drug use
 - our work and the Cochrane reviews of alcohol prevention among young people and school-based smoking prevention
- This suggests:
 - that the theory that unifies the pathways of risk and risk factors for alcohol, tobacco and drug among the young can be confirmed
 - to delivery of a single school-level intervention to prevent the initial use of all the harmful substances
- None other programme shows any effect

First conclusion

- Number needed to treat (NNT; $1/ARR$) is 33 for marijuana use
- Since the prevalence of marijuana among controls was 16.5%, 5 out of 33 students (16.5% of 33) will use this drug.
- Of this, 1 would be prevented by the intervention

So the intervention should be able to obtain a 20% reduction of the new initiators

General considerations

- Study quality
 - none of the RCTs satisfied all the quality criteria of the review.
 - there are few data from long-term follow-ups
 - only six studies were designed to take account of the cluster effect
- Heterogeneity
 - many studies present only statistical indicators (f, p...) instead of epidemiologic measures (RR, ARR...)
 - the choice of effect measure appears to be done by chance (or by opportunity); in many cases it was impossible to combine them into the meta-analysis

General considerations

- The vast amount of research undertaken since 1980, has not generated the expected evidence
- out of 50 selected RCTs, only 29 were included
- the wide variability of indicators, scales and scores employed, and the limited reporting of data, made it difficult to summarise the evidence:
 - the maximum number of RCTs comprised in a single meta-analysis was only 4 out of 29

General considerations

- validity and comparability of results are aspects that must be taken into consideration in future studies
- The low validity of RCTs on primary prevention of drug addiction was due to:
 - failure of the randomisation process in 11 out of 21 RCTs excluded
 - attrition rates higher the 50% in 2 RCTs
 - the uncontrolled cluster effect

General considerations

- Lastly, there is the question of generalisability: 28/29 RCTs included were conducted in the USA
- Our results need further corroboration in well designed, long term follow-up, cluster-randomised trials, especially in countries other than the USA



EUropean Drug Addiction Prevention trial

A multicentre Cluster Randomised Controlled Trial for the evaluation of the effectiveness of a school-based prevention program

9 centres in 7 countries

(Italy, Spain, Greece, Sweden, Germany, Belgium, Austria)

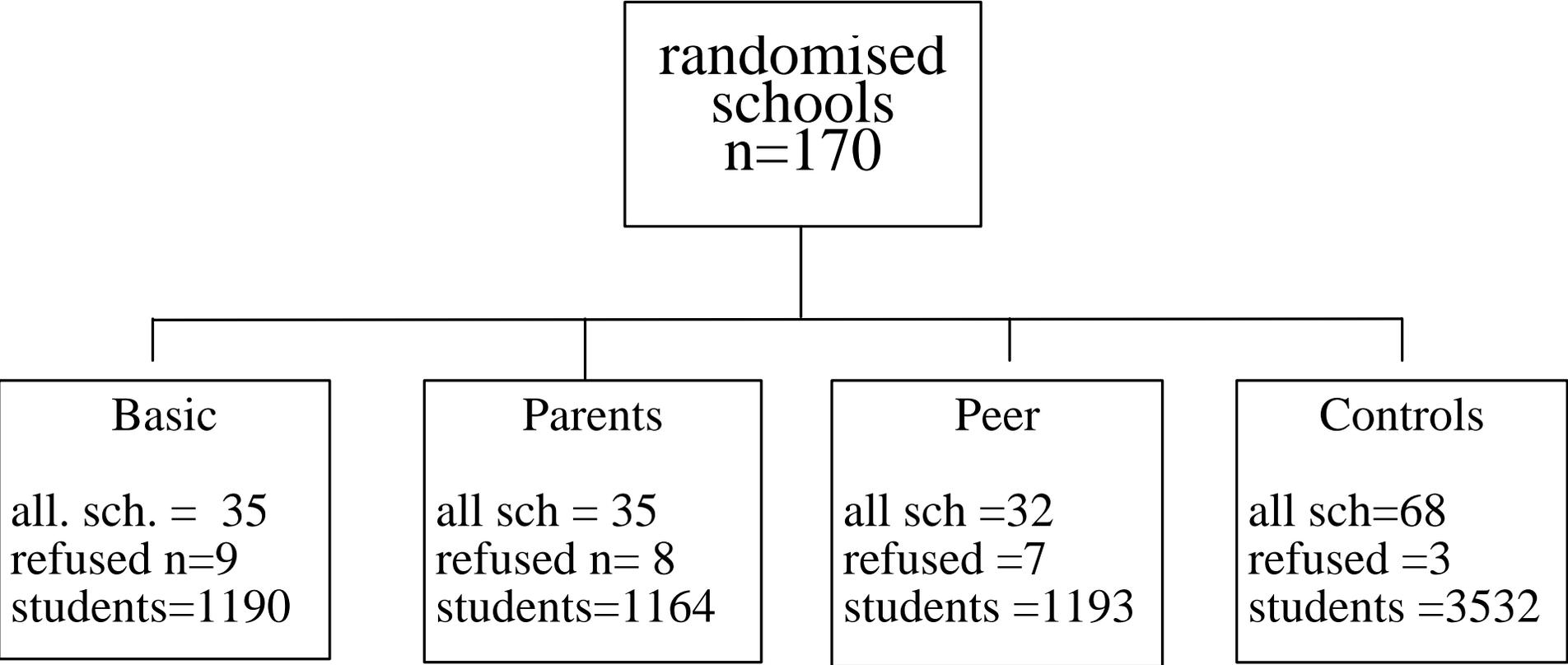
with the support of the EMCDDA

- 7079 students involved
 - 7th to 9th degree of school
 - 12 to 14 years old
- 12 units of 1 hour each

The program: Unplugged

- **Unit 1:** Opening “Un-plugged”
- **Unit 2:** Choices: risk and protection
- **Unit 3:** Drugs – get informed
- **Unit 4:** Smoking the cigarette – get informed
- **Unit 5:** Your beliefs, norms and information: are they correct?
- **Unit 6:** To be or not to be in a group
- **Unit 7:** Express your self
- **Unit 8:** Party tiger (contacts and non-verbal and verbal ways to present one self)
- **Unit 9:** Get up stand up (respect for the rights and opinions of the other people)
- **Unit 10:** Coping competence
- **Unit 11:** Problem solving/ decision making
- **Unit 12:** Goal setting and closure

Structure of the study



(very) preliminary results

	CONTROLS				INTERVENTION ARMS				
	Nb	users	P	RR	Nb	users	P	RR	95%CI
Smoking last 30d	2968	605	0.20	1	2979	496	0.17	0.82	0.73-0.91
>=6 cigarettes / week	3126	329	0.10	1	3144	239	0.08	0.72	0.62-0.85
Drunkenness last 30d	3054	353	0.12	1	3083	253	0.08	0.71	0.61-0.83
>=6 times last 30d	3054	63	0.02	1	3083	42	0.01	0.66	0.45-0.97
Cannabis use last 30d	3130	225	0.07	1	3150	152	0.05	0.67	0.55-0.82
>=6 times last 30d	3130	95	0.03	1	3150	63	0.02	0.66	0.48-0.90

Presentation of final results

- Final results will be presented in an international conference in Lisbon (15-17 December)
- in the premises of the EMCDDA
- in this conference results will be presented to a restrict group of policy makers (coming from EU, WHO, UNDCP, Reitox Academy, and from national representatives)
- to whom a question will be posed:

What do you plan to do with this results?

thank you for the patience!