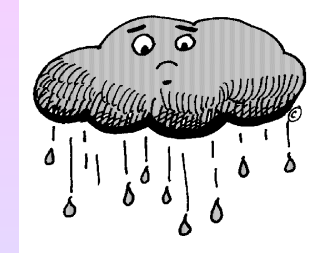


Too good to be true?



**“Evidence”-based substance use prevention in schools:
Biases in publication and research**



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Background

Pape, H.

School-based programs that seem to work:

Useful research on substance use prevention

OR

suspicious stories of success?

Nordic Studies on Alcohol and Drugs 2009, 26 (6), 521-535.

How my curiosity with respect to this question was aroused

An expert group,
appointed by the public health authorities in Norway
recently reviewed the quality of drug prevention programs
used in Norwegian schools.

The conclusion was that only one program

– *Youth & Alcohol* –

could be recommended

because its' effects on adolescent drinking had been demonstrated

Youth & Alcohol

- A theory-based school program targeted at 13-14 year olds
- Developed by a group of social scientists
- Focus: Drug refusal skills + alcohol-related attitudes & norms
- Aims: Increased consciousness of existing social norms in order to resist drinking
Delayed onset of drinking / reduced use of alcohol
- High popularity (e.g. used in *all* junior high schools in Oslo)

Youth & Alcohol

was evaluated by the program developers

and

the short term effects were published

in a high quality scientific journal.

Wilhelmsen BU, Laberg JC, Klepp KI.:

Evaluation of two student and teacher involved alcohol prevention programs.

Addiction 1994; 89: 1157-65

The evaluation of *Youth & Alcohol*

2 intervention groups: Detailed instructions (**DI**)
Flexible implementation (**FI**)

Control group (*no intervention*)

Effects after 2 months: **Less** drinking in the **DI** group
More drinking in **FI** group

However, in practice,
school programs are rarely implemented “by the book”

Hence,
if the results were taken at face value,
the expert group should **warn** against the program
rather than recommend it.

However,

due to an inadequate assessment of the teenagers' drinking
it is in fact unclear whether **Youth & Alcohol**
had any short-term effects at all.

Hence,

the study should **not** have been published in a scientific journal

The rest of the sad story about *Youth & Alcohol*

- The longer term effects were also assessed:

No program effects were observed 11 months after the intervention

- Publication bias:
- The negative result from the long term assessment is only reported in a Norwegian publication (as a "hidden" result)
- *Only* the **positive** short-term effects are reported in the program developers' later publications about *Youth & Alcohol*

**The story about *Youth & Alcohol*
aroused my curiosity:**

Have many other evaluations of
school-based drug prevention programs
also arrived at favourable conclusions on a suspicious basis?

Is the research literature reliable,
OR
is it biased in favour of “good news”
about drug prevention in schools?

Publication bias?

- The research literature is huge, but discouraging:
School-based drug prevention rarely affect adolescent alcohol & drug use

The true preponderance of negative results is probably even larger than that reported....

... because this literature is likely to be biased in favour of studies with positive findings

Publication bias: **A case of a “hidden” re-analysis**

Tobler et al's meta-analyses of school-based drug prevention programs

Published in easily available scientific journals (1996, 1997, 2000)

Findings. The **most successful** programs are:

- Life skills training programs
- Programs based on active participation from the pupils

Results of a more advanced re-analysis of the same data (2000):

All school programmes are about **equally ineffective**

Published in 2007 (!) – in an “unknown” web site

Why favouring positive findings
(rather than searching for “the truth”)

????

HOPE, PRESTIGE AND PROFIT

Almost all studies in favour of drug prevention programs have been conducted by **program developers**

Some of these researchers have an economic interest in their program.

Relevant research findings:

“Studies performed by program developers yield much stronger effects than studies performed by others” (Borman et al 2003)

Researchers with a financial conflict of interest are far less likely to report negative findings... (Eisner 2009).

“Independent outside evaluations often fail to confirm evaluations by program developers” (Skager 2007)

An Example: Botvin's Life skills training (LST)

- **LST** – one of the most widely used substance use prevention programs in American schools
- Botvin: program developer/owner, businessman & researcher
- According to Botvin, his studies demonstrate that **LST** is a "remarkably effective" program
- The tobacco industry has cooperated with Botvin on promoting **LST** (but the industry knew that they had nothing to fear)
- Critical reviews of Botvin's **LST**-research have uncovered systematic biases - in favour of the program
- Botvin has deliberately failed to report negative findings about **LST**
- **LST** has been assigned status as an **exemplary, evidence-based program** by several federal and academic agencies in the USA (e.g. the National Institute on Drug Abuse, the Center for Substance Abuse Prevention...)

Biases and weaknesses in the research behind many "evidence"-based school programs

- Selective reporting of positive findings
- Use of questionable analytical strategies and statistical tests (that increase the probability of "documenting" positive effects)
- The importance of small program effects are over-estimated
- Only short-term effects have been assessed (or reported), and long-term effects are much harder to achieve

Pseudo-scientific evaluation research

Some researchers obviously want to confirm

– *rather than to test* –

the hypothesis that substance use prevention works

(“Upside-down” research)

”The most serious challenge to the field [...] has been in proving that prevention works” (Botvin & Kantor 2000)

”It is essential that research provide evidence that, when it comes to prevention of addiction, “something works” (Dupont 1998)

Some additional weaknesses

School programs with "documented" effects on substance use have typically been implemented under **ideal** conditions

Whether these programs work when implemented in a large scale and under "real life" conditions is questionable

Incomplete "light versions" of preventive programs are typically used in ordinary school settings (Dusenbury et al 2003)

Replication studies of programs implemented in an ordinary school context are few and far between

Summing up & concluding

Despite a potential publication bias in favour "good news",
the literature on substance use prevention programs
is generally discouraging

Studies that conclude that
"school-based drug prevention programs works"
must be taken with a pinch of salt

Re-analyses and replication studies are called for!!

Some final suggestions

Do not throw the baby out with the bath water!!

Redefine the aims of the school-based interventions!!

**Combine school programs and other educational approaches
with more effective preventive measures!**