The USA has Evidenced-Based Drug Prevention Policy & Practice: What does it look like?

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Overview

Central Question: Does the evidence in support of programs that appear on evidence-based lists come from sound evaluation practices?

Major Conclusions: While study designs are sound, the data analysis practices are not

Policy Implications: the evidence-base of evidence-based programs is no better than that of other programs
Importance of “Evidenced-Based” Interventions in US Drug Prevention

- **US Government Performance & Results Act (1993):** requires agencies to set performance goals & collect data in order to monitor these.

- **ONDCP introduced a Performance Measures of Effectiveness System in 1998**

- As part of this, federal agencies began creating lists of “model” and “exemplary” programs deemed to be “science-based”
The 10 Lists Reviewed

- Blueprints/NIJ (1997) - Violence (& Drugs)
- NIDA (1997; 2003) - Drugs
- CDC (2000) – Violence
- Communities that Care (2000) – Drugs & Violence
- DHHS (2001) – Violence
- NREPP/SAMHSA (2002/ongoing) – Drugs
- Sociometrics (2002) - Drugs
- RAND (2002/ongoing) – Drugs & Violence
The Programs

- 137 programs mentioned at least once
- 23 mentioned ≥4 times
- Curricula & therapeutic interventions best suited to lists
- Focused on 9 school-based drug & violence programs mentioned most often (5-9 mentions)
Most Mentioned Drug & Violence School-based Programs

- Life Skills Training (9)
- Seattle Social Development Project (8)
- Project STAR (MPP) (8)
- Athletes Training & Learning to Avoid Steroids (ATLAS) (7)
- Promoting Alternative Thinking Strategies (PATHS) (7)
- Project ALERT (6)
- Second Step (5)
- Child Development Project (5)
- Olweus Bullying Prevention Partnership (5)
Criteria used in Identifying Programs

Strong research design
- Design (experimental or quasi-experimental)
- Sample size (large)
- Attrition (low)
- Measures (valid & reliable)

Effect on behavioral outcomes
- Duration of effect (≥ 1 year)

Replication
Underlying Assumption

Science = Design + Methodology

– Hence, the better the design & method, the better the “science”

– And the better the science, the more confident we can be in the “science-based” results

Is there more to science than design & method?
Answer: “Yes”

“To yield knowledge, the scientific method must be accompanied by a scientific world view” (Bunge, 1991)

Some features of the scientific world view

– Admits fallibility of ideas
– Subjects ideas to critical tests (refutation)
– Accepts unfavorable data
– Welcomes criticism
US “Evidenced-Based” Drug Prevention

- Lacks a scientific world view

- Emphasis is on verification of the hypothesis that “Program X works”

- What evaluation practices has the search for verifications led to?
The Practices

- Practice #1: Multiple Subgroup Analysis
- Practice #2: Alter Outcome Variables
- Practice #3: *Post hoc* Sample Refinement
- Practice #4: Move Baseline
- Practice #5: Partial Reporting of Findings
- Practice #6: Routine use of $p \leq .10$ & 1-tail tests
Practice #1: Multiple Subgroup Analysis

- Make numerous statistical comparisons between intervention & control conditions

- Take those that show a statically significant difference between the groups at follow-up as evidence of program effectiveness

- Capitalizes on chance occurrences
Practice #2: Alter Outcome Variables

- Can involve:
  - a total change in outcome variables over the course of the evaluation
  - a change in the way a specific variable is constructed from study to study

- Raises the question as to whether program effects are simply measurement dependent
Practice #3: 

*Post hoc* Sample Refinement

- Change composition of study conditions at the stage of data analysis

- Example: exclude those subjects that did not receive an “ideal” dosage of the intervention

- Leads to selection bias & undermines randomization
Practice #4: Move Baseline

- Use something other than the pretest as the baseline

- Generally involves using the posttest sample size not the pretest sample size to calculate attrition rates

- Serves to obscure high attrition across the course of the evaluation
Practice #5: Partial Reporting of Finding
Practice #6: Use $p$ Values of .10 or 1-tail Tests

- Report-out data on selective variables and/or data on selective subgroups

- Practice #6: Routine use of $p \leq .10$ & 1-tail tests
  - Emphasis on statistical significance obscures the fact that many differences are of no practical significance
Conclusions: Prevention “Science”

- These data analysis & presentation practices serve to verify that a program “works”

- Not consistent with genuine hypothesis testing (and therefore science)

- Consistent with pseudoscience

- Review procedures have legitimized & encouraged these practices
Conclusions: Evidenced-Based Policy & Practice

Threshold for designating “evidenced-based” interventions very low
- Isolated statistically significant effects receive undue attention
- Ignore how effects are produced in data analysis

Preponderance of evidence should be considered in judging program effectiveness
More Details


