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Drug Policies Beyond the War on Drugs

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An MCDA framework for evaluating and appraising government policy for psychoactive drugs

Professor Larry Phillips
London School of Economics
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**Drug harms in the UK: a multicriteria decision analysis**

*David J Nutt, Leslie A King, Lawrence D Phillips, on behalf of the Independent Scientific Committee on Drugs*

**Summary**

**Background** Proper assessment of the harms caused by the misuse of drugs can inform policy makers in health, policing, and social care. We aimed to apply multicriteria decision analysis (MCDA) modelling to a range of drug harms in the UK.

**Method** Members of the Independent Scientific Committee on Drugs, including two invited specialists, met in a 1-day interactive workshop to score 20 drugs on 16 criteria: nine related to the harms that a drug produces in the individual and seven to the harms to others. Drugs were scored out of 100 points, and the criteria were weighted to indicate their relative importance.

**Findings** MCDA modelling showed that heroin, crack cocaine, and metamfetamine were the most harmful drugs to individuals (part scores 34, 37, and 32, respectively), whereas alcohol, heroin, and crack cocaine were the most harmful to others (46, 21, and 17, respectively). Overall, alcohol was the most harmful drug (overall harm score 72), with heroin (55) and crack cocaine (54) in second and third places.

**Interpretation** These findings lend support to previous work assessing drug harms, and show how the improved scoring and weighting approach of MCDA increases the differentiation between the most and least harmful drugs. However, the findings correlate poorly with present UK drug classification, which is not based simply on considerations of harm.
Multi-Criteria Decision Analysis

- A methodology for appraising options on multiple criteria, and combining them into one overall appraisal

- MCDA converts all input evaluations of decision outcomes into common units of *value added*
A system *not* based on MCDA

MCDA doesn’t compare apples to oranges.

It compares the added values of apples and oranges for achieving your objectives.
Method

Study design

- 16 harm criteria developed by the UK’s ACMD
- 20 drugs
- ISCD members plus 2 external experts
- Meeting facilitated as a decision conference
Decision Conference

- A one-to-three-day workshop
- To resolve important issues of concern
- Attended by key players who represent the diversity of perspectives on the issues
- Facilitated by an impartial specialist in group processes and decision analysis
- Using a requisite (just-good-enough) model created on-the-spot to help provide structure to thinking
## The 20 drugs

<table>
<thead>
<tr>
<th>Heroin</th>
<th>Crack</th>
<th>Cocaine</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>Amphetamine</td>
<td>Mephedrone</td>
<td>Buprenorphine</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Cannabis</td>
<td>Anabolic Steroids</td>
<td>Ecstasy</td>
</tr>
<tr>
<td>Ketamine</td>
<td>LSD</td>
<td>Mushrooms</td>
<td>Methylamphetamine</td>
</tr>
<tr>
<td>Khat</td>
<td>Butane</td>
<td>Methadone</td>
<td>GHB</td>
</tr>
</tbody>
</table>
Results

Ratios of the total numbers represent ratios of harms, e.g., alcohol is three times as harmful as cocaine.
Drug Harm Policy project

- Collaboration: DrugScience + Frisch Centre
  - DrugScience (Professor David Nutt is founder and Chair)
  - Ragnar Frisch Centre for Economic Research (Ole Rogeborg is the lead researcher)
  - Funded by the Norwegian Research Council.
- Purpose
  - Develop an analytic framework for describing, measuring, assessing and discussing drug policy
- Decision conferences
  - 10-11 September 2015 and 20-21 January 2016
  - 18 participants, various backgrounds
  - Phillips & Nutt facilitating
  - Three models to test framework: alcohol, cannabis and heroin
## Policy options

<table>
<thead>
<tr>
<th>Production</th>
<th>Sale/distribution</th>
<th>Purchase</th>
<th>Purchase volume (for legal users)</th>
<th>Possession</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illegal (strong sanctions)</td>
<td>Illegal (strong sanctions)</td>
<td>Illegal (strong sanctions)</td>
<td>None - illegal</td>
<td>Illegal (strong sanctions)</td>
<td>Illegal (strong sanctions)</td>
</tr>
<tr>
<td>Illegal (weak sanctions - de jure or de facto decriminalized)</td>
<td>Illegal (weak sanctions - de jure or de facto decriminalized)</td>
<td>Illegal (weak sanctions - de jure or de facto decriminalized)</td>
<td>Per person quotas</td>
<td>Illegal (weak sanctions - de jure or de facto decriminalized)</td>
<td>Illegal (weak sanctions - de jure or de facto decriminalized)</td>
</tr>
<tr>
<td>State controlled</td>
<td>State-licensed retail stores or pharmacies</td>
<td>Only adults (age restrictions)</td>
<td>Per purchase quotas</td>
<td>Limited quantity per person (e.g., for personal use)</td>
<td>Only in specific licensed venues or private homes</td>
</tr>
<tr>
<td>No restrictions for companies or individuals</td>
<td>No restrictions - any retail store</td>
<td>No restrictions</td>
<td>No restrictions</td>
<td>No restrictions</td>
<td>No restrictions</td>
</tr>
</tbody>
</table>

- **Absolute Prohibition**
- **State Control**
- **Decriminalisation**
- **Free Market**
Drug Harm Policy value tree

7 impacts
- Health
- Social
- Political
- Public
- Crime
- Economic
- Costs

27 evaluation criteria (with clear definitions)
Scoring the policy options

Direct scoring of harm

A cardinal scale: differences between scores are interpretable, not their ratios.
Weighting the criteria

- Some criteria represent more harm reduction than others.
- Swing-weights equate the units of harm on all the criteria: the reduction in harm from 0 to 100.
- The group considered this question to compare the levels of harm reduction on the criteria:
  “How big is the difference in harm reduction and how much do you care about that difference?”
But, the four policies are all hypothetical states about the future.

There are no data about the future.

So, how reliable (repeatable) and valid (represent actual harm) are direct preference judgements?
Drug harm: UK 2010 vs. Europe 2013

Direct preference judgements are reliable and valid in a decision conference if:

• Criteria are defined clearly
• Group members represent differing perspectives
• Peer review occurs face-to-face
• Group is properly facilitated

\[ r = 0.993 \]
For both drugs, a legal but strictly regulated market is judged to yield the best reduction in harm overall.
MCDA results

Heroin

Cannabis

A strictly regulated market is best at reducing harm for both drugs.
Sensitivity analyses at each node

cannabis

State Control remains most preferred option over a wide range of weights.

Also for alcohol and heroin.
Current state

1. Alcohol results confirm current public health and medical opinion. Not so for cannabis or heroin.
2. For both substances, a legal but strictly regulated market is judged to yield the best reduction in harm.
3. Was there a ‘reformist bias’ in the group?
4. Need further research by other teams.
5. We now have the beginnings of a coherent analytic framework for describing, measuring, assessing and discussing drug policy.
A guide to further reading

Multi-criteria analysis: a manual, 2000
(Dodgson, Spackman, Pearman & Phillips)
Chapter 6 is an MCDA tutorial.

Cambridge University Press, 1993
The book that introduced MCDA in 1976 (Wiley).

UIT Cambridge Ltd, 2012
Explains the harms of misusing psychoactive legal & illegal drugs.
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