

Making high quality research relevant and accessible to policy makers and social care practitioners

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**“Making high quality research relevant
and accessible to policy makers and
social care practitioners”**

Or

Sheep, goats and systematic
reviewers

MRC SPHSU Evaluation Programme *

Systematic reviews, e.g.

- Tobacco control
- Walking
- Housing renewal
- Urban regeneration
- New road building
- Employment and health



Ongoing primary research, e.g.

- SHARP (Housing); Renton
- GoWell (Housing and regeneration)
- M74 motorway extension
- Youth Crime Prevention
- Employment transition

Dissemination & Knowledge Transfer

- Briefing papers & new reports
- Work with practitioners

- **Making high quality research relevant and accessible: is this what systematic reviews really do?**

Why do we need reviews anyway?

- An efficient method of dealing with information overload
- Single studies are rarely definitive
- Transparent
- Unbiased
- Powerful hypothesis-testing tool
- To identify “best evidence” about “what works” – whether interventions are effective or not

1. Information overload

“...there can be no doubt that our experimental literature is increasing in bulk – not only in the sense that more investigations are being published every year, but also in the sense that the single papers are becoming longer...”

Edward B. Titchener 1867-1927 : A plea for summaries and indexes (1903)

- *“Poor current information policy resembles the worst aspects of our old agricultural policy which left grain rotting in thousands of storage files while people were starving. We have warehouses of unused information ‘rotting’ while critical questions are left unanswered and critical problems are left unresolved”*

Al Gore, in 1997

Except . . .

- Generally the problem is not just an excess of information
- Rather the problem is one of signal/noise ratio. (In many fields there are few trials and indeed few evaluative studies)
- The information is of varying relevance or value to different stakeholders
- It can be difficult to sift, prioritise and integrate this and produce something relevant to decision-making, as opposed to academically satisfying

2. Single studies are rarely definitive

“...the conception of [researchers] work that held that “studies” are the basic, fundamental unit of a research program may be the single most counterproductive influence of all...this idea has done more to retard progress [in educational research] than any other single notion...”

Gene Glass, writing in 2000

Single studies are generally given much greater credence than they merit

- This is not to deny that single studies with dramatic and important results do exist; but most research can only be understood in context – and a key part of that context is the results of other studies which tested the same hypothesis, in similar populations

Except . . .

- There may be occasions when we prioritise the findings of a single, *relevant*, recent, study over a systematic review
- When the review is unsound; when it is unhelpful - includes studies with so little information on context or implementation that the meaning of the findings is unclear;
- When the set of studies is highly heterogeneous, and the studies derive from settings so different that the findings may not be transferrable

3. Transparency of methods

“Our reviews are more relevant to decision-making and of higher quality because we are so transparent”



Systematic reviewers
talking to non-
systematic reviewers in
excruciating detail
about their review
methods

Transparency of methods

What we say...

We carried out a comprehensive search of the literature, including Felonbase, Quackline, NERD alerts, etc

3. Transparency of methods

What we say...	What I suspect non-systematic reviewers are really thinking...
We carried out a comprehensive search of the literature, including Felonbase, Quackline, NERD alerts, etc	They searched the one or two databases where 95% of the literature is published, plus an unnecessarily large number of oddly-named databases that no-one has ever heard of

**What systematic reviewers
say...**

We aimed to identify good
evidence of the effectiveness of
x

What systematic reviewers say...	What I suspect non-systematic reviewers are really thinking...
We aimed to identify good evidence of the effectiveness of x	They searched for randomised controlled trials of x, although we knew there were none, and anyone could have told them there has never been one, and there never will be. And then they concluded that there is no evidence

**What systematic reviewers
say...**

We critically appraised each
study...

**What systematic reviewers
say...**

**What I suspect non-systematic
reviewers are really
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We critically appraised each
study...

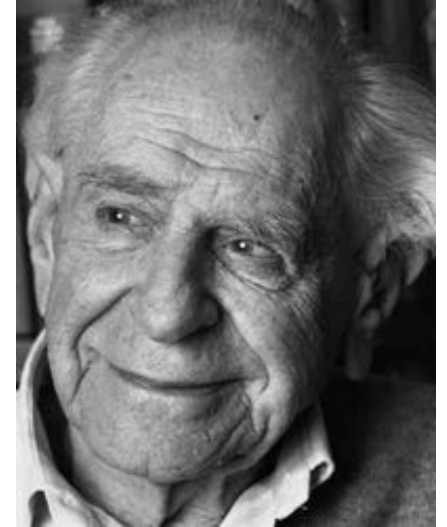
They picked out some of more
obvious methodological flaws,
without much consideration of
any positive messages the
study contains

What systematic reviewers say	What I suspect non-systematic reviewers are really thinking...
We found 1,000,000 studies, of which 1 nearly met the inclusion criteria, but not quite	
We concluded that more research is needed	

What systematic reviewers say	What I suspect non-systematic reviewers are really thinking...
We found 1,000,000 studies, of which 1 nearly met the inclusion criteria, but not quite	They excluded all the really useful stuff
We concluded that more research is needed	...and then they concluded that more money is needed

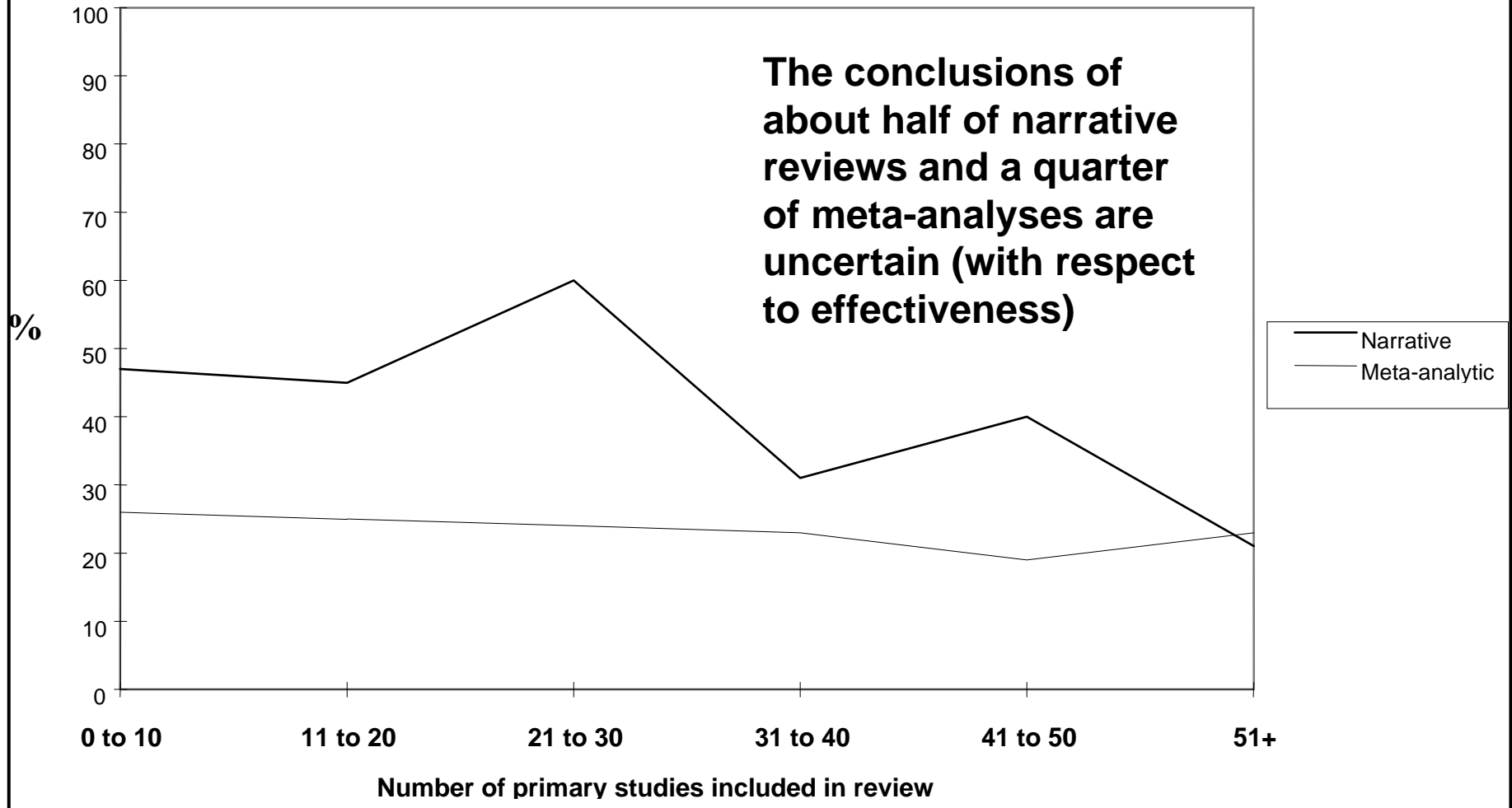
4. Testing hypotheses about “what works”

- Can be difficult where the research is weak, where a range of evidence is used to inform decision-making
- Integrating different studies of varying design, of different levels of rigour, outcomes, valued differently by different stakeholders, from different countries, can make it difficult to determine “what works”
- So unequivocal answers about what works can be difficult to obtain, and sometimes uncertainty is not resolved



*Karl Popper
(1902-94)*

% of reviews with uncertain conclusions



International Journal of Technology Assessment in Health Care 2000; 15(4)671-8.

- Pointing to the lack of evidence, documenting uncertainty and calling for more research is appropriate scientifically, but may be of limited use to policymakers
- In such situations it is also useful to show “direction of travel” – where interventions may be effective, subject to further outcome evaluation (how?)

- “What Works” is only part of the systematic review story
- Theory-building/testing
- Developing new research

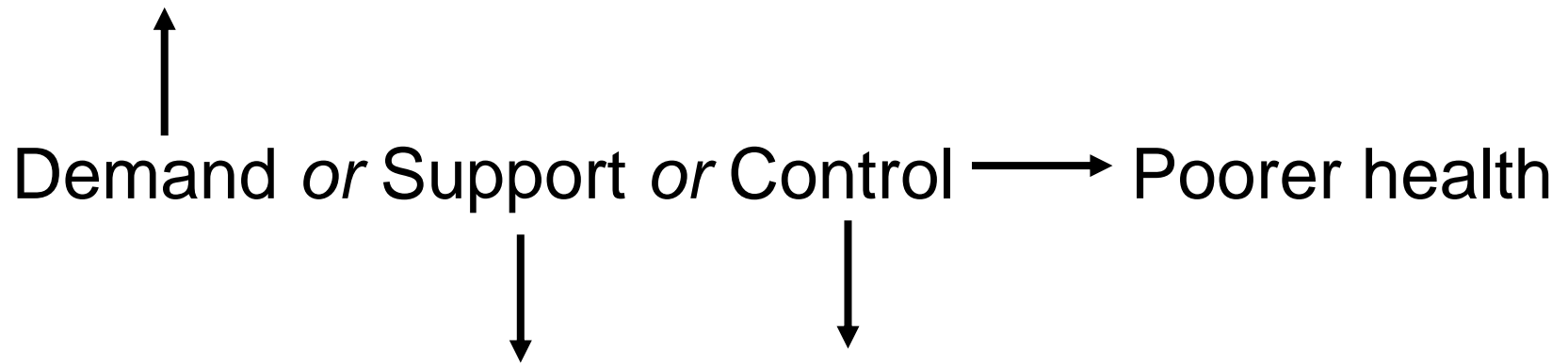
Exploring theory

- Addressing the extent to which research findings are consistent with existing theory
- “Considerable untapped potential” (Shadish 1996)
- An example:

Demand-Control-Support model

- The demand-control-support model of psychosocial workplace health has been influential amongst policy-makers interested in employee health and health inequalities
- It suggests that health is positively associated with employee's sense of control and social support, and negatively associated with workplace demands
- If this is true, interventions which modify these work characteristics appropriately may benefit employee health

- UK health policy documents have suggested that increasing employee control is a 'key task' for policy-makers
- The model:



Systematic review of studies of organisational changes (macro-level changes) which resulted in workers being given more control

Interventions: Participation in decision making committees, for reducing workplace stress, or sometimes budgeting or personnel responsibilities

Egan, Bambra et al, *J Epidemiol Community Health*, in press

- Where **demand** reduced, health improved – though in other studies where demand *increased*, health improved also
- Where **support** changed, the effects were less clear
- Where sense of **control** increased, measures of health also tended to improve fairly consistently

- Second systematic review of *micro-level* interventions (team working, increasing task variety, autonomous group working)
- Where the interventions increased demand and decreased control, in keeping with the demand-control (support) model, health outcomes were worse
- Support did not mediate this effect

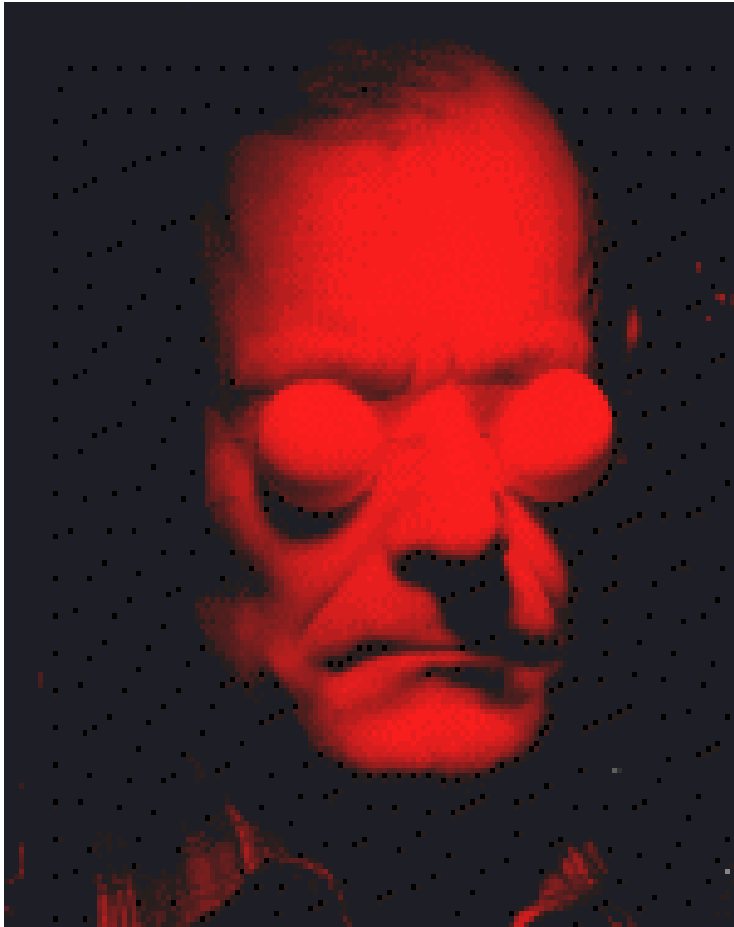
- Reviewing the intervention literature supported this influential model in at least some aspects
- Corroborated the observational aetiological evidence linking perceived control to health outcomes
- Provides a support for the policy emphasis on employee control— and a good rationale for the development and evaluation of future interventions

- High quality, relevant research is not just about sifting interventions for effectiveness
- But also about contributing to building theory, and producing a sound empirical basis for the next generation of new, better, more relevant, primary studies



Why systematic reviewers are like goats

Experiments on Extra Sensory Perception (ESP)



It has been found that studies done by researchers who believe in ESP are more likely to produce positive findings;

Conversely, studies done by researchers who don't believe in ESP have negative findings

Similarly participants who believed ESP was possible ("sheep") perform better at ESP tasks than subjects who did not believe ESP possible ("goats").



Hence, the sheep/goat effect, describing the effect of researcher expectancy on study outcomes: those with positive attitudes ("sheep") produce statistically significant findings, and those with negative, skeptical, attitudes ("goats") non-significant findings

Robert Rosenthal *Psych Bull* 1964

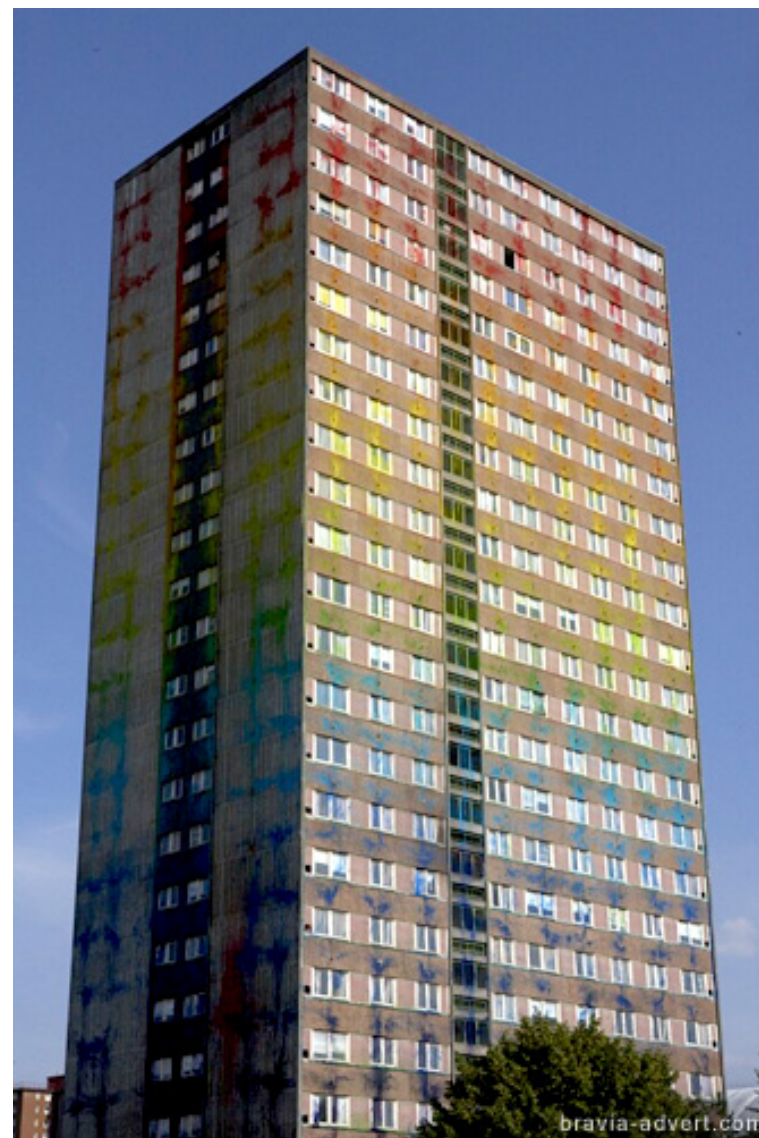


- Researchers are probably in general, goatish (with a tendency to “accentuate the negative”*) – unwilling to go far beyond the evidence and a tendency toward drawing negative conclusions.
- As scientists, the quality of the evidence is just never quite good enough.
- They can also be quite “sheepish” too also – overly positive about the importance of favoured interventions
- Policymakers and practitioners...?

Producing “better” evidence

- Collecting high quality more relevant evidence may be facilitated by improving methodologies, and maintaining and emphasis on rigour and study quality. This is of course appropriate.
- But it also requires a better understanding how, and why evaluation is conducted in different sectors
- And an understanding that different sectors are at different stages in the development of the evidence base; in some, observational and other forms of evidence predominate (c.f. Peter Neyroud’s Presentation)

- In housing and other areas of research, non-experimental methods including case studies and cross-sectional surveys predominate
- The level of evidence required to justify action differs
- In the case of demolition and rebuilding poor, damp social housing, the primary outcome is provision of new housing - not health improvement
- So there are relatively few experiments



- The evidence base is becoming slowly more experimental; there are now three RCTs
- So, relevance means making best use of the evidence that is available, taking account of its weaknesses – to suggest new plausible, but properly-evaluated interventions

- Alternatively, we can dismiss most of the evidence base as “methodologically weak”, and wait until more RCTs are published. About 10 (about 10 trials of about 200 participants each should do it)
- At a rate of 1 RCT every 20 years - the current rate of publication – unfortunately we’ll have to wait until the year 2208 to have enough for a useful meta-analysis
- By which time we’ll have been drowned by melting icecaps



Pic: Dan Crosby 2004

What public health policymakers say they don't like:

- “Policy-free evidence” - research that does not answer clear, or policy relevant questions
- “Researcher naïveté” of the policy environment (which militates against knowledge transfer between science and policy)
- Evidence from far down the causal chain, (often concerned with health behaviours and clinical issues, not with broader social determinants of health)

- “Researchers are overly concerned with critically appraising internal validity (bias)”
- “Not concerned enough with assessing whether research evidence is generalisable”

Methodological rigorists



“...despite the ingenuity of their recipes, the exponents of over-sophisticated ...methods of social research remind me of the old films with Laurel and Hardy or Charlie Chaplin, where you would see boxers flexing their muscles, making energetic knee-bends, fierce faces and menacing gestures, and then waving their arms in the air without ever coming to blows.”



The proof of the pudding is, after all, in the eating; and the methodological rigorists are like cooks who would show us all their shiny stoves, mixers, liquidizers and what not, without ever making anything worth eating”

Stanislav Andreski (1974)

What researchers say

- “The earlier you bring policy-makers into the evaluation process, the better the outcome... The quality of the brief and the outcome is better when both policy-makers and researchers work together at the earliest possible stage.”
- “However, people commissioning research do not always make clear what information they want, why they want it and how they intend to use it. Policy-makers need to be more transparent about the aims and objectives.”

Summary

- Making research relevant and accessible to policymakers and practitioners, needs:
- Not just an ability to translate and sell our research better, but an understanding of how it is perceived, and where it fails to deliver
- ...a better understanding of the types of evidence used to justify action in different sectors, and why, and ultimately
- ...better evaluation from within those sectors

Quality, credibility, utility...

- “Relevance” needs answering meaningful questions; flexible approaches to information retrieval, developing inclusion criteria, and quality assessment; efforts to appraise and synthesise diverse research findings; clarity about what reviews can and cannot do; and sustained engagement with users

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