



The
University
Of
Sheffield.

Research Priorities in Dental Public Health

Peter G Robinson



Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- Epidemiology
- Theory
- Some examples
- Another kind of threat



Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- Epidemiology
- Theory
- Some examples
- Another kind of threat



Sick Individuals and Sick Populations

Rose G. *Int J Epidemiol* 1985;14:32-38

- My confession
- I thought this paper compared the high risk and whole population strategies



The ecological & individual fallacies

Ecological *fallacy* = effects seen in groups apply to individuals
Individual *fallacy* = effects seen in individuals apply to groups

The fundamental tenet of public health, the thing that distinguishes it from other disciplines is that:

The causes of disease in individuals are not the same as the causes of incidence in populations



Dental Public Health

The science and the art of preventing oral diseases, promoting oral health and improving the quality of life through the organised efforts of society

Different to individual patient care:

- Serves the community cf. individual patient
- Concerned with public whether as individuals or whole
- Applies research to community settings
- Administers group dental care programs



Collective action for sustained population wide health improvement

Beaglehole and Bonita

- Focus on action and intervention
- Collective, collaborative, organised
- Sustainability – requires political engagement
- Includes oversight of medical care
- Recognises social, economic & cultural determinants



What are we trying to achieve?

- Population oral health
- Reduced inequality

These are population effects, yet we continue to forget the individual fallacy



Why do so much work on individuals?

- Health services (Paulo Nadanovsky)
- Individual behaviour / CRFA / Lifestyle drift
- Behaviour often mediates rather than causes incidence
- Not thinking far enough up stream
- Evaluation at an individual level



Beaglehole's ecological scope for PH

- Many contemporary diseases arise as evolved biological need does not correspond to contemporary life
- Recognise sustainable human ecology as determinant of population health
- Eg transformed food & urban crowding



Beaglehole's ecological scope for PH

- Realise importance of ecological and individual fallacies
 - Individualised approaches ignore population health's dependence on ecological conditions
 - Health is a discrete public good that affects social function, community health & economic performance
- Must work beyond health sector:
identify general, social and economic determinants and
reduce via social policy



So must keep looking upstream

And our research priorities are:

- Oral health improvement at the population level
- Inequality in health



Objectives

- Critical review
- The definition and purpose of DPH
- **Evaluation**
- Epidemiology
- The need for theory
- Some examples
- Another kind of threat



Evaluation

- Central to DPH research

The science and the art of preventing oral diseases, promoting oral health and improving the quality of life through the organised efforts of society



Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- **Epidemiology**
- The need for theory
- Some examples
- Another kind of threat



The purpose of epidemiology

1. Find causes and determinants
 2. Help identify solutions to causes & determinants
 3. Help evaluate those solutions
- Are we *really*, in our heart of hearts, doing that?
 - How many of us *really* jump from finding causes to identifying solutions?



Is epidemiology *really* the science of DPH?

PH research is too limited to epidemiological and health systems research . . .

. . . repetitive and divorced from both practice and problem-solving . . .

The real challenge is the exploration of the interaction between the social, economic and environmental factors and disease

Beaglehole and Bonita 2004



Link epidemiology to users & agencies

- Epidemiology married to practice
- Brings relevance So what?
- Brings practicability

- Who are the agencies?
- Health services If embedded population perspective
 But not if not



Epidemiology is failing us

- Do what we should, not what we can
- Driven by the question rather than the method
- Conceptual clarity and definitions
- Take into account dynamic relationships, explain and understand rather than account for it



Epidemiology is empty

- Beautiful but empty
- The need for theory
E.g. What is SES, How does it translate into policy?
- Much to learn from social and behavioural science



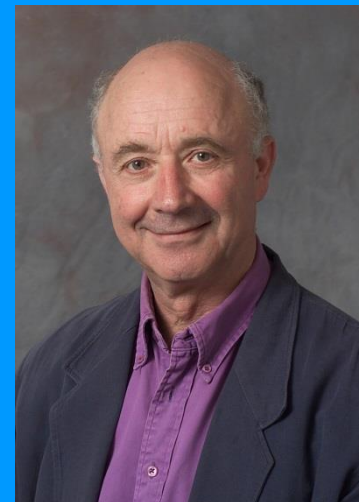
Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- Epidemiology
- The need for theory
- Some examples
- Another kind of threat



For example, W.T.F. is OHQoL?

- What is the point of OHQoL?
- We invented it
- Many translation studies and simple associations
- Not used in policy - nobody understands it!
- Must engage with agencies to get them to use it

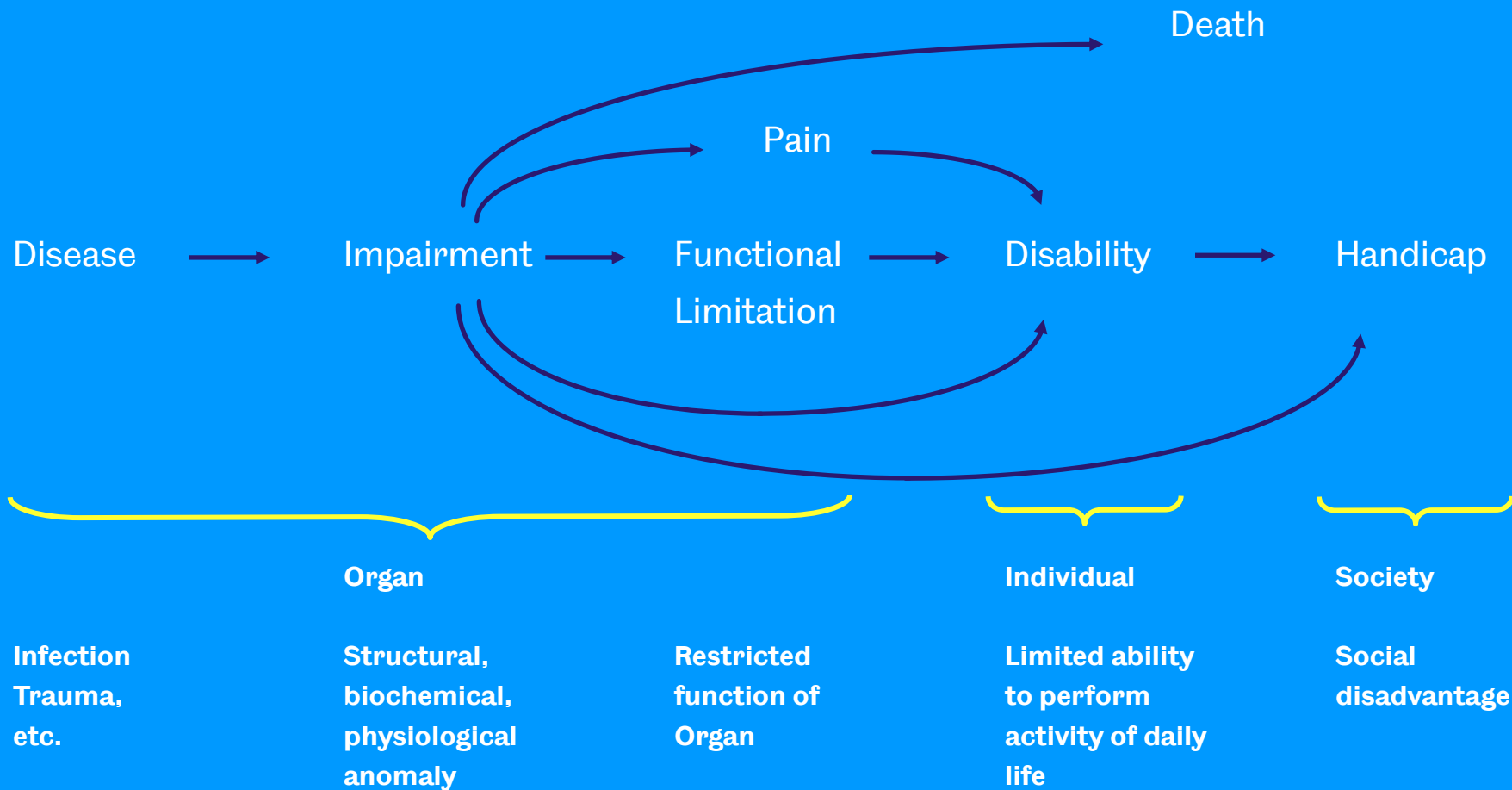


Using OHQoL to assess need

- Need = Capacity to benefit
- No point using OHQoL to assess need if we don't know what interventions bring benefits
- Does anybody know how to improve OHQoL at a population level?
- Need for what?



Anyone thought about relationship between the mouth and OHQoL?





Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- Epidemiology
- The need for theory
- **Some examples**
- Another kind of threat



Background

Clinical status is weakly related to OHQoL

- The Disability Paradox: People with severe disease report QoL as good as 'healthy' people
- Therefore treatment that changes clinical status will be even more weakly related



The need for theory

- Dentists are pragmatists at heart - 'Doers'
- Get on and do things without relating to theory

Theory

- Explains and assists understanding of situation
- Gives detailed & coherent basis for research
- Guides analysis of data (rather than fishing)
- Guides interpretation of data



Theory tells us that Disease & Health are conceptually discrete

Disease

Pathological entities e.g. caries or cancer

} Clinical

Health *WHO 1948*

A state of complete physical, mental and social well-being and not merely an absence of disease

} OHQoL

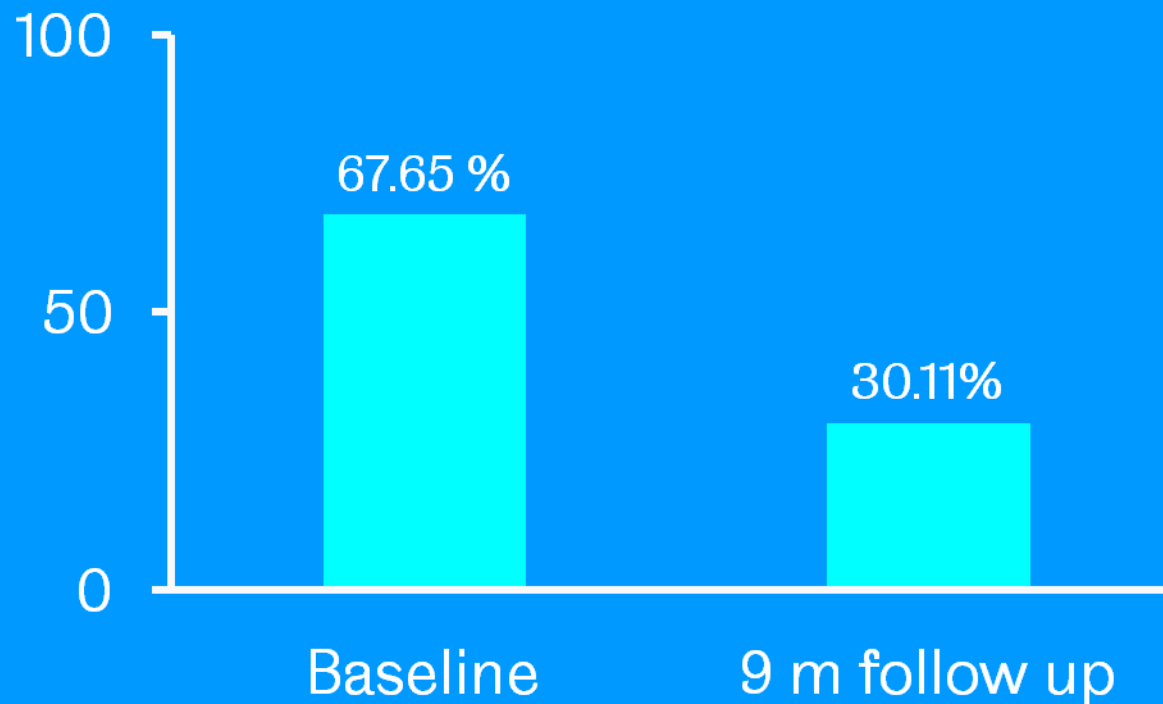
Illness

Subjective response of an individual to an event
How the person feels

} OHQoL

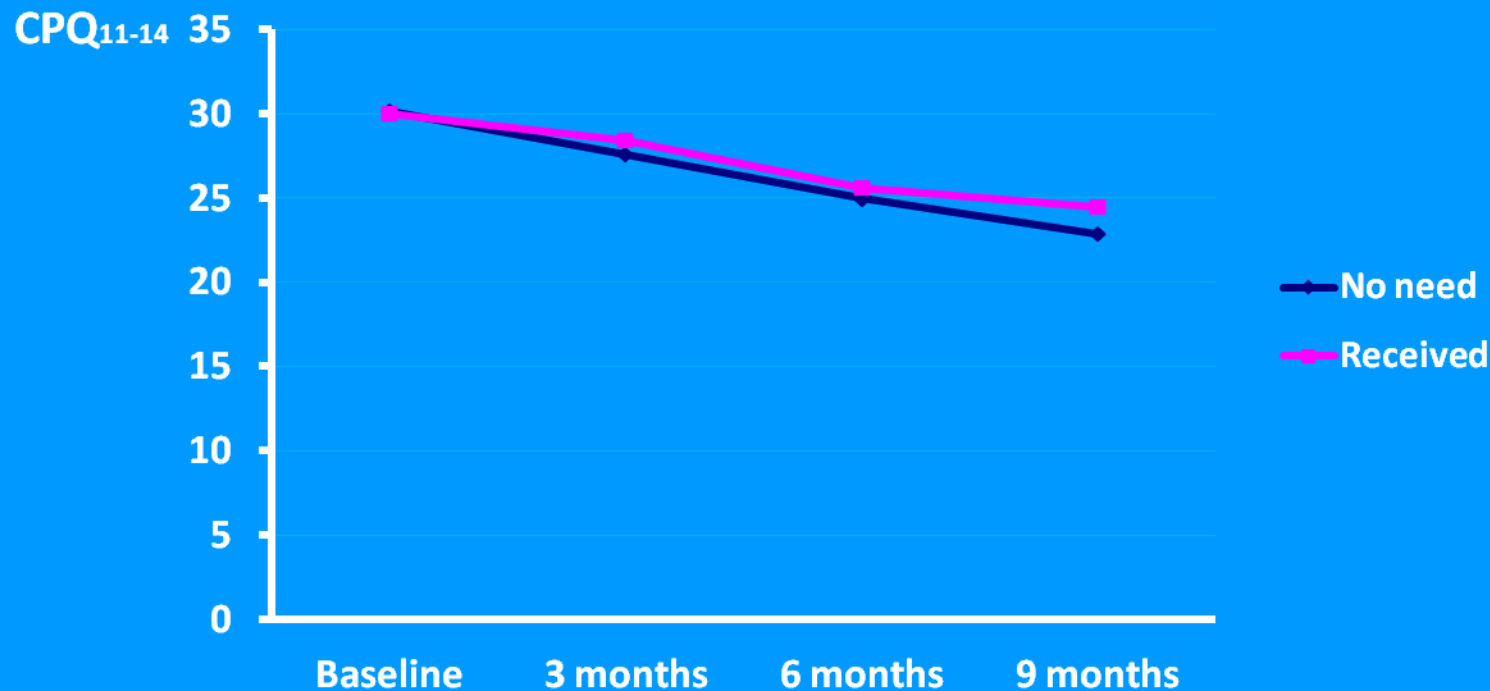


Effect of Thai school dental screening programme on caries prevalence





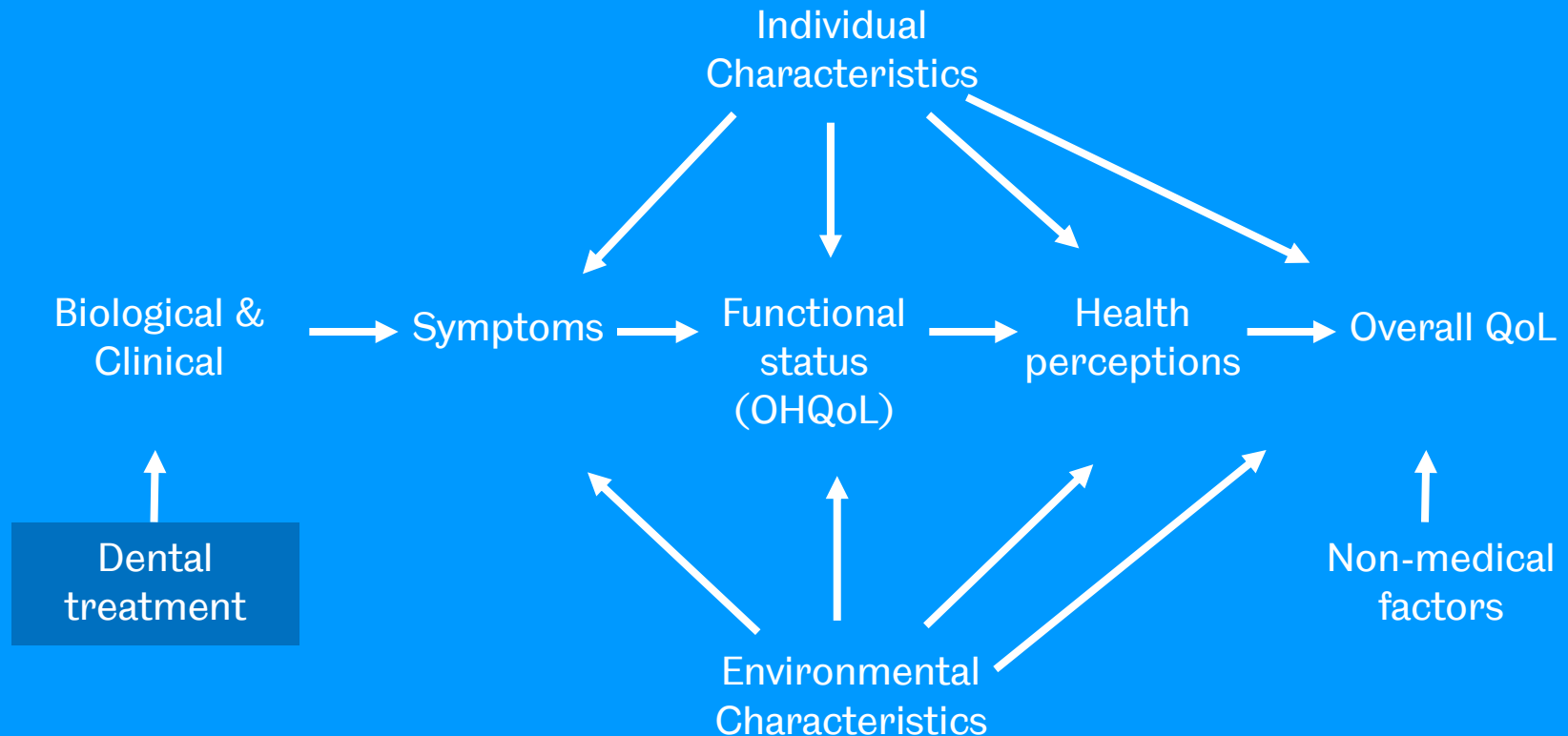
OHQoL in children who received Rx vs those who did not need Rx





Linking clinical status to quality of life

Wilson & Cleary, 1995



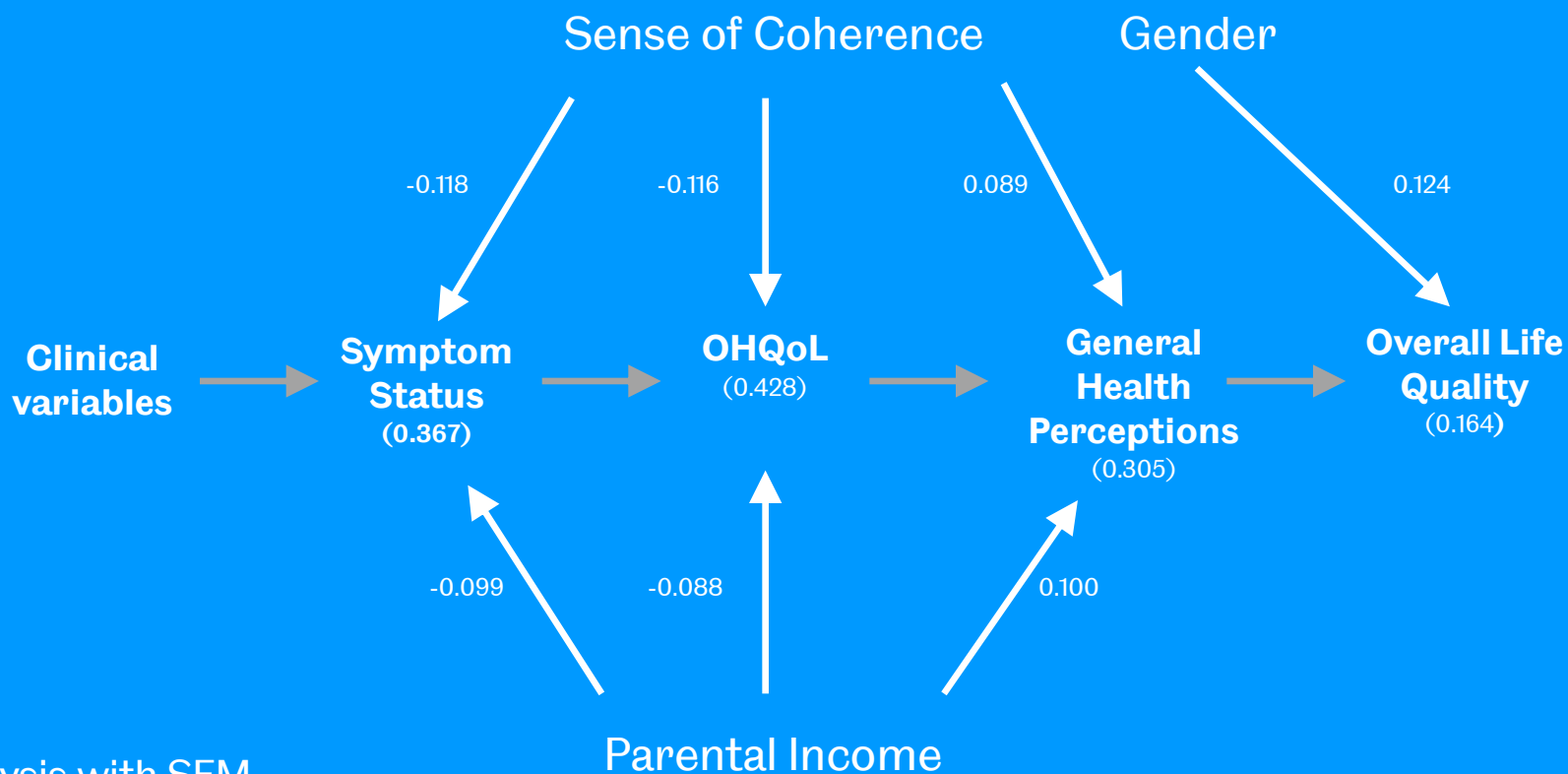


Although the theory looks complex . . .

1. It helps to explain the problem
2. It tells us where to look



Testing the model: 6m cohort 500 children



Lagged analysis with SEM

→ Predicted but not significant

→ Predicted & significant



Although the theory looks complex . . .

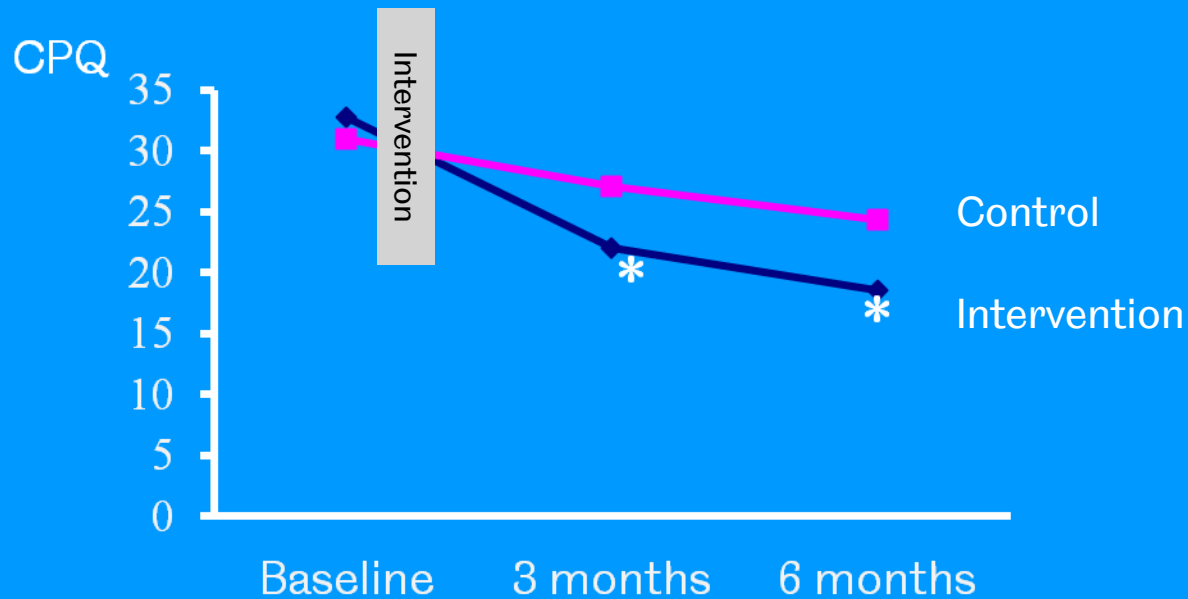
1. It helps to explain the problem
2. It tells us where to look
3. It tells us what to do

Improving OHQoL via Sense of Coherence

- School-based activities
- Help children understand and manage their world
- 7 activities over 7 weeks
 - Learn about oral health
 - Label photographs
 - Games
 - Make masks
 - Healthy school
- Cluster randomised trial with 3 month follow up



RCT: intervention to enhance SOC on OHQoL



* $P < 0.05$, ANCOVA



Another value of models

- Research considers effects distant from the outcome (eg. Dental treatment to improve OHQoL)
- Models suggest interim outcomes
- Mechanistic reasoning Howick *et al.*, 2010
- Also force us to test assumptions about relationships between interim outcomes & OHQoL
- ie. Considering the outcomes of care



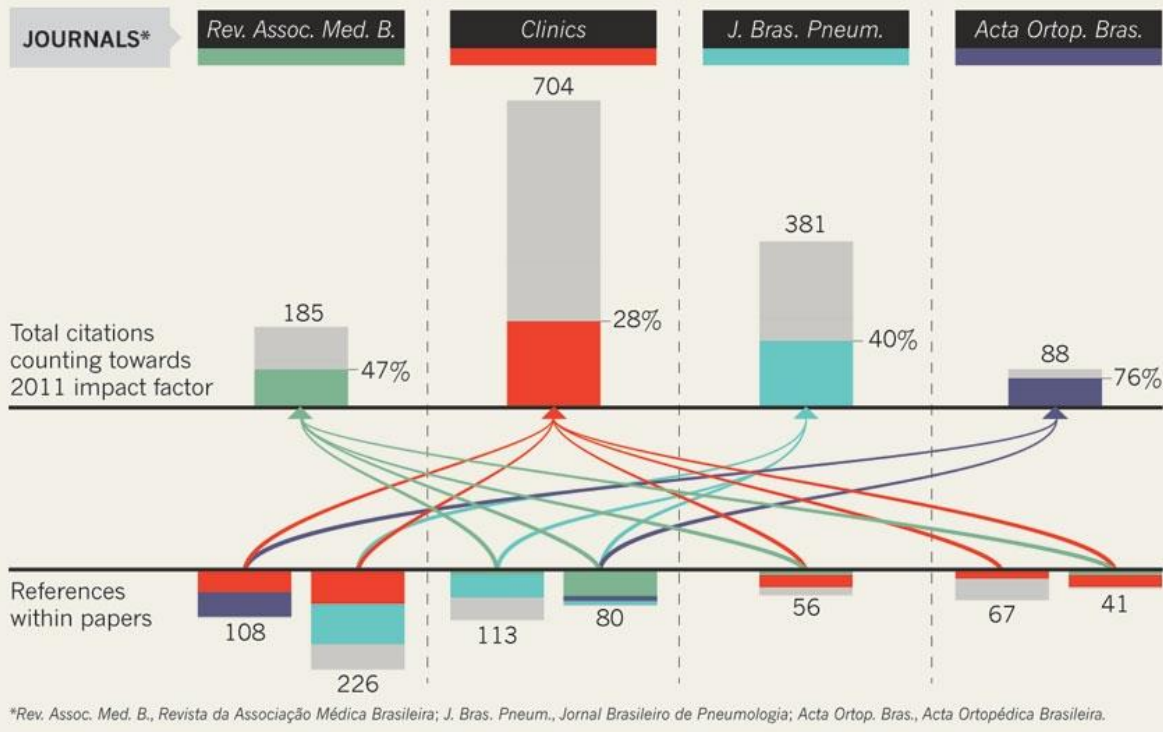
Objectives

- Critical review
- The definition and purpose of DPH
- Evaluation
- Epidemiology
- The need for theory
- Some examples
- Another kind of threat



CITATION STACKING

In 2011, four Brazilian journals published seven review papers with hundreds of references to previous research (2009–10) in each others' journals. This raised their 2011 impact factors.



Use of unmoderated bibliometrics (IF etc)

- Evaluate graduate programmes
- Career progression
- Arbitrarily penalises those in small disciplines
- Prevents local journals improving.



Integrity

- A universal problem
- Publish or perish
- Diminishes ethics and quality
- Examples
 - People as guinea pigs
 - Salami slicing
 - Plagiarism – In error / Active
- Our role as leaders



In conclusion, DPH research priorities

- Ambition
- Theory
- Multidisciplinary
 - Social and behavioural science
 - Policy research
 - Health economics
 - Agencies
- Evaluation
- Integrity

Acknowledgments

- Staff & PGRs from Unit of DPH, Sheffield

Dr Barry Gibson

Dr Sarah Baker

Dr Zoe Marshman

Orachad Gururatana

Amdah Mat

Orawan Namontri

Thank you!