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Oral health quality of life research: Linking theory, method and analysis

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Overview

- Theory
  - Theory-driven research
  - Conceptual clarity and consistency
- Method
  - Development of OHQoL measures
  - Contextual factors
  - Longitudinal designs
- Analysis
  - Bidirectional interrelationships

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Why theory-driven research?

Theory acts as a guiding framework to help:

- Derive hypotheses *a priori* about relationships between key variables
- Select appropriate method and measures
- Guide the statistical analyses and interpretation of results

and, in the longer term,

- Facilitate the design and evaluation of interventions (who, where and when?)

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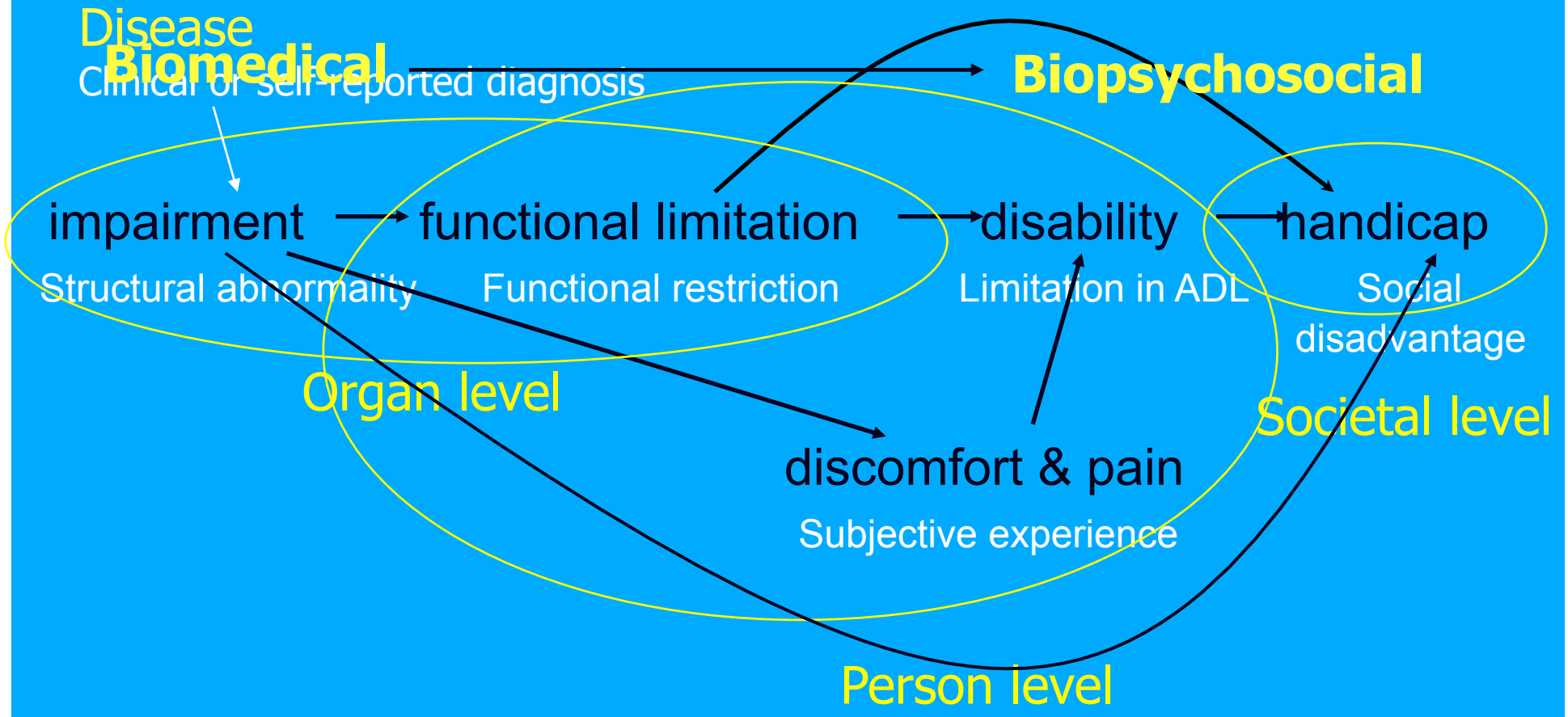
Conceptual framework of oral health (Locker, 1988)



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Testing a conceptual model of oral health

(Baker, SR. J Dent Res 86: 708-712, 2007)

To provide an empirical test of Locker's (1988) conceptual model of oral health

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Methods

- Secondary analysis of three datasets:
  - General adult population (Kelly et al., 2000)
    1998 UK Adult Dental Health Survey
    N = 5268
  - Edentulous elders (Pearson et al., 2006)
    RCT of a domiciliary denture service
    N = 133
  - Xerostomia patients (Robinson et al., 2005)
    RCT of an intervention device for xerostomia
    N = 85
- Oral Health Impact Profile 14 (Slade, 1997)
- Structural equation modelling (AMOS 6.0)

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Structural equation modelling

Powerful statistical technique to examine complex (inter)relationships between variables based on a *a priori* theoretical model

- Variables analysed simultaneously
- Temporal ordering
- Direct and indirect effects
- Reciprocal effects
- Observed and latent variables
- Test relative size of pathways and overall model fit
- Specify revised models

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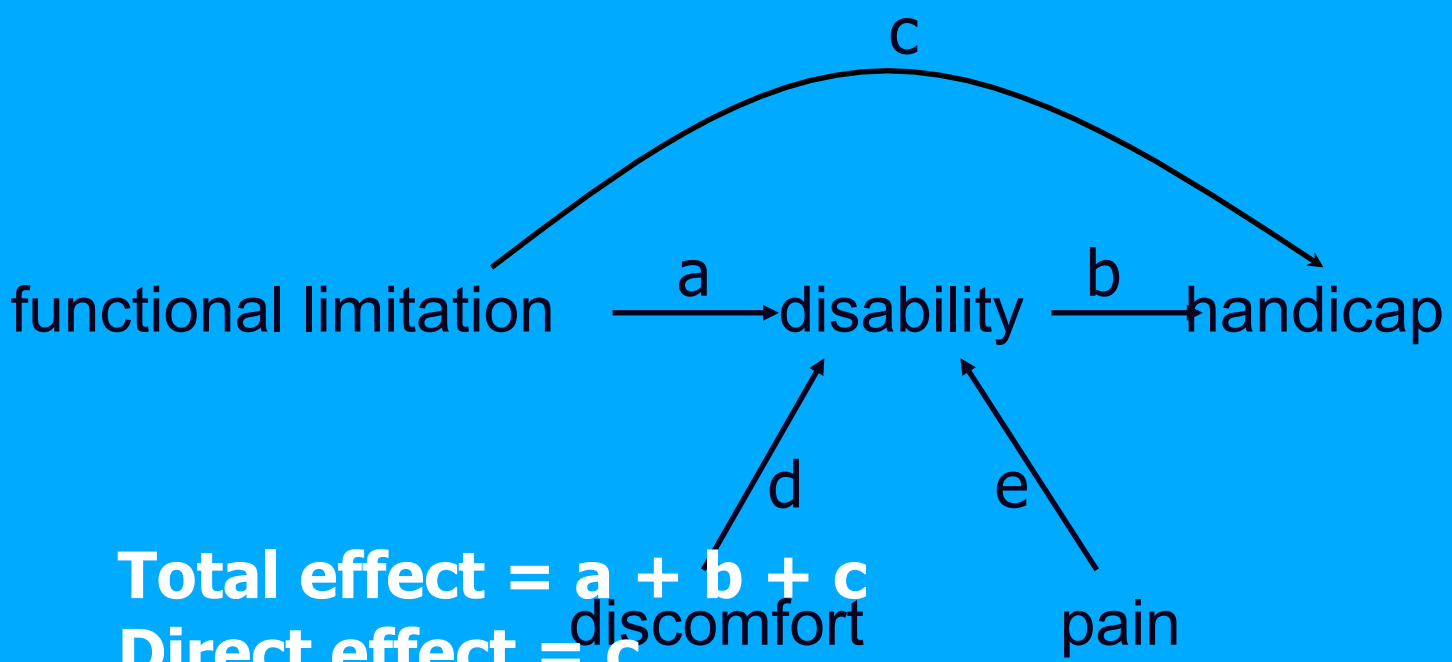
Hypothesised relationships



Total effect = a + b + c
Direct effect = c
Indirect effect = a x b

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Fit indices for the structural models

Model Criteria fitted	χ^2	p	RMSEA (90% CI)	CFI	NFI	
1.	0.156	**.212**	**.01**(.00-.04)	**1.00**	**1.00**	**4**
2.	0.873	**.350**	**.00**(.00-.22)	**1.00**	**1.00**	**4**
3.	0.914	**.339**	**.00**(.00-.28)	**1.00**	**1.00**	**4**

1. 5 factor Locker model; General population
2. 5 factor Locker model; Edentulous elders
3. 5 factor Locker model; Xerostomia patients

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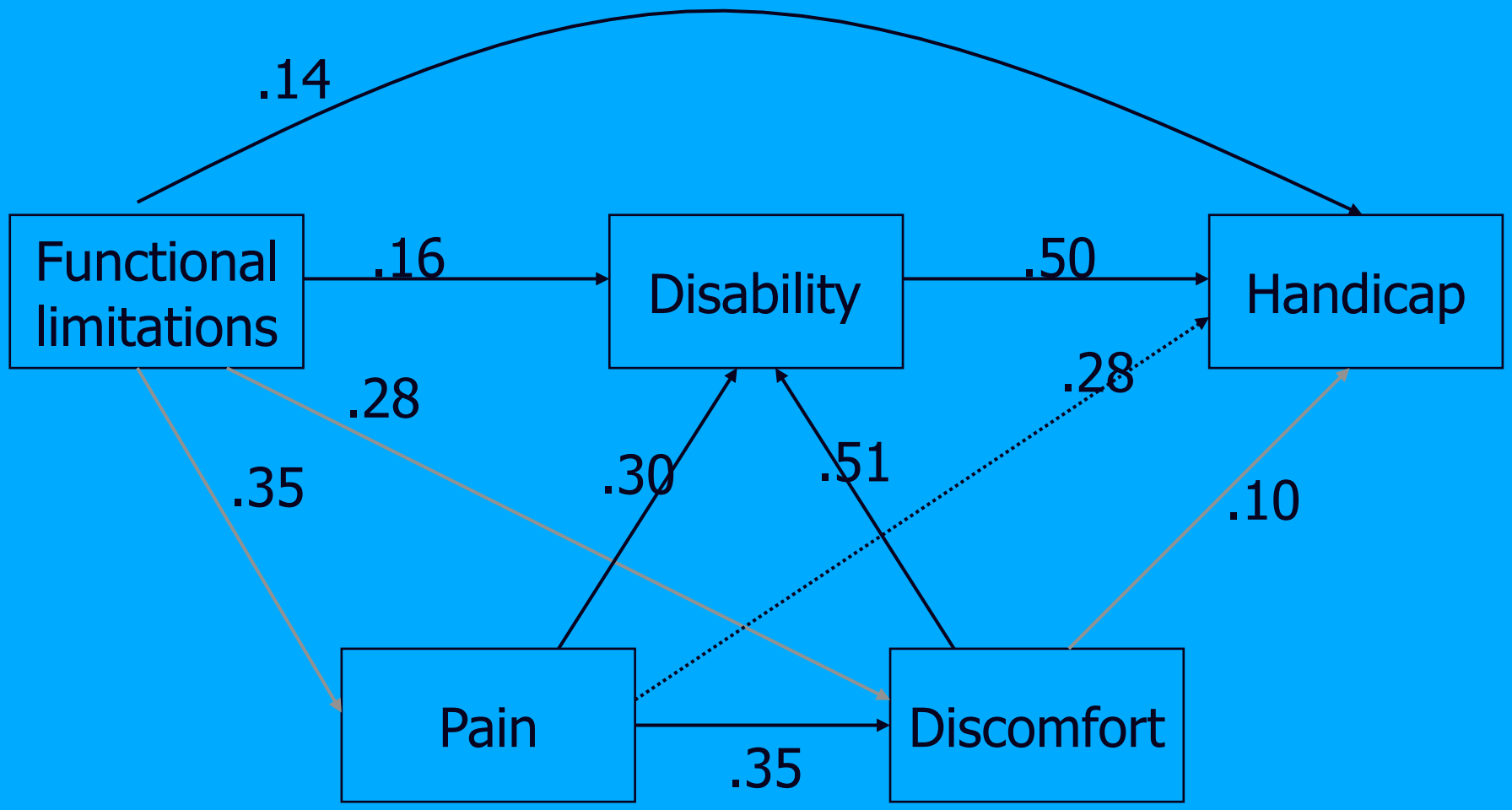
Standardised estimates for the general adult population sample



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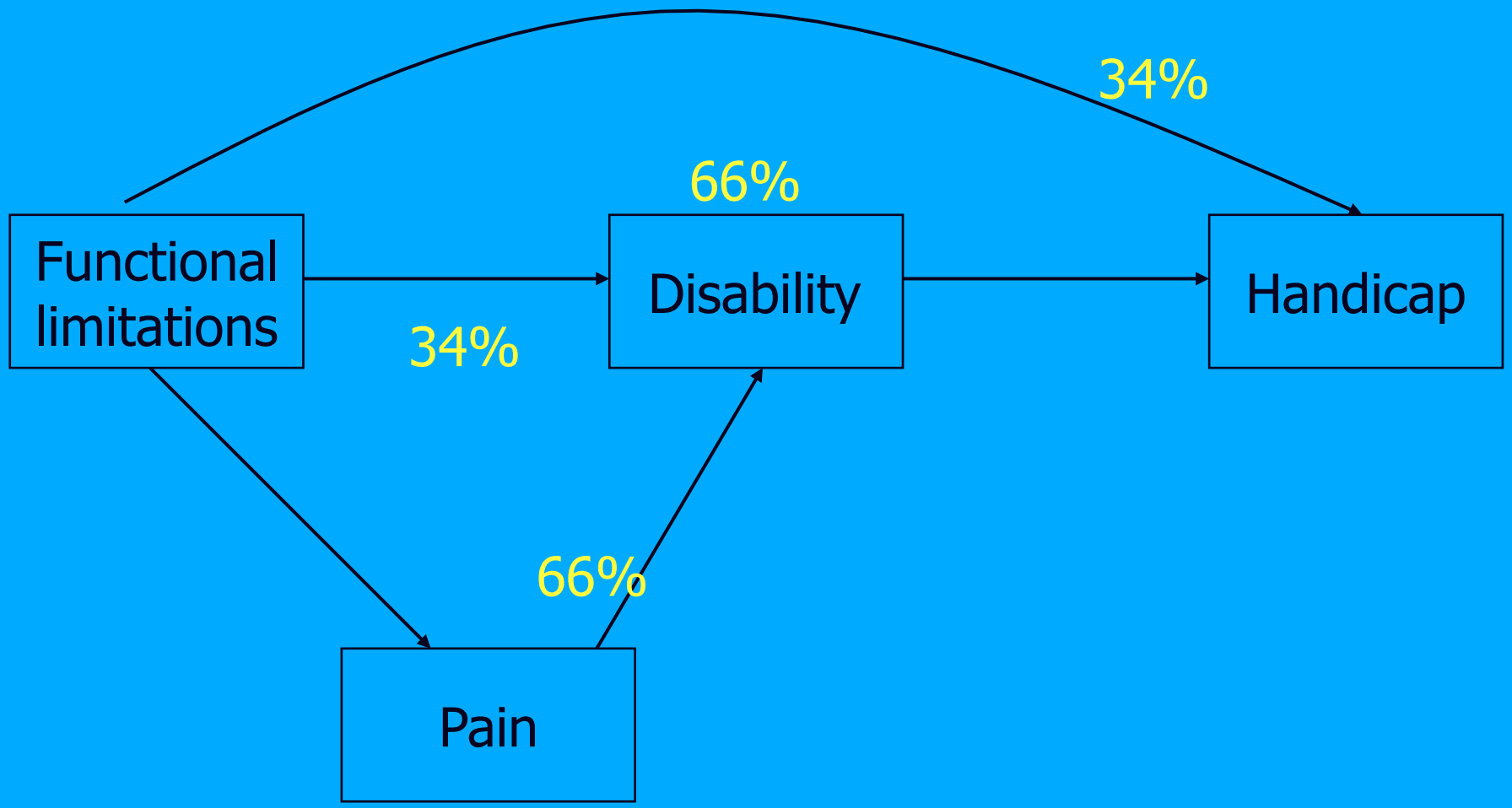
Indirect and direct effects



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Criteria for a conceptual framework? (Nagi, 1991)

1. Does the framework "fit the facts?"
   - Three diverse samples at individual, group and population levels
2. What does it do to advance scientific development and guide further action?
   - Highlights importance of testing complex interrelationships
   - Greater understanding of processes underpinning oral health impacts
   - Facilitate the conceptual development of OHQoL

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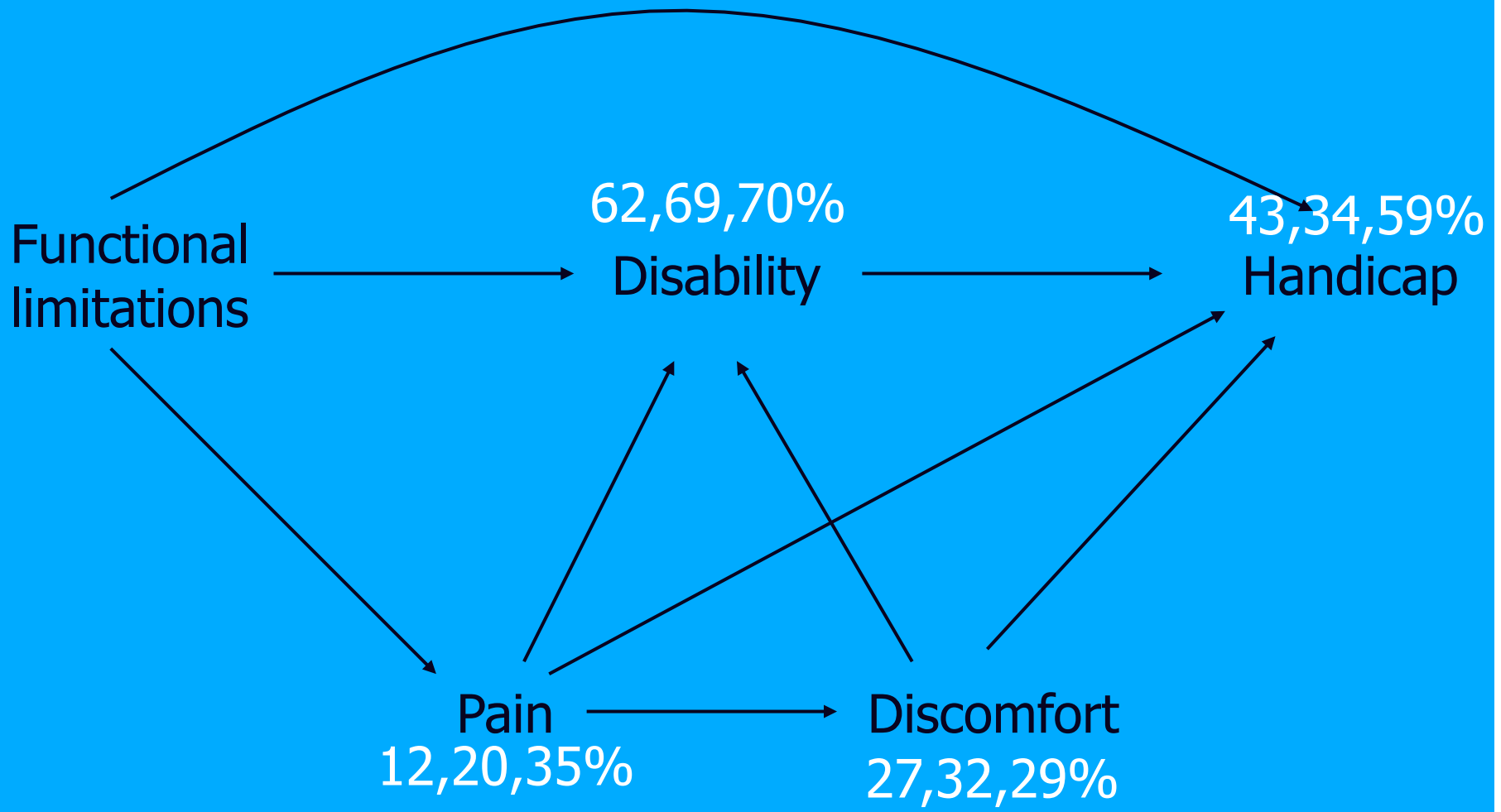
Percentage of variance explained



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What are contextual factors?

Sense of coherence

Personality

Gender

Ethnicity

Negative affectivity

Age

Number of dependents

Income

Illness beliefs

Employment status

Marital status

Social class

Health behaviours

Optimism

Social support

Emotional states

Coping strategies

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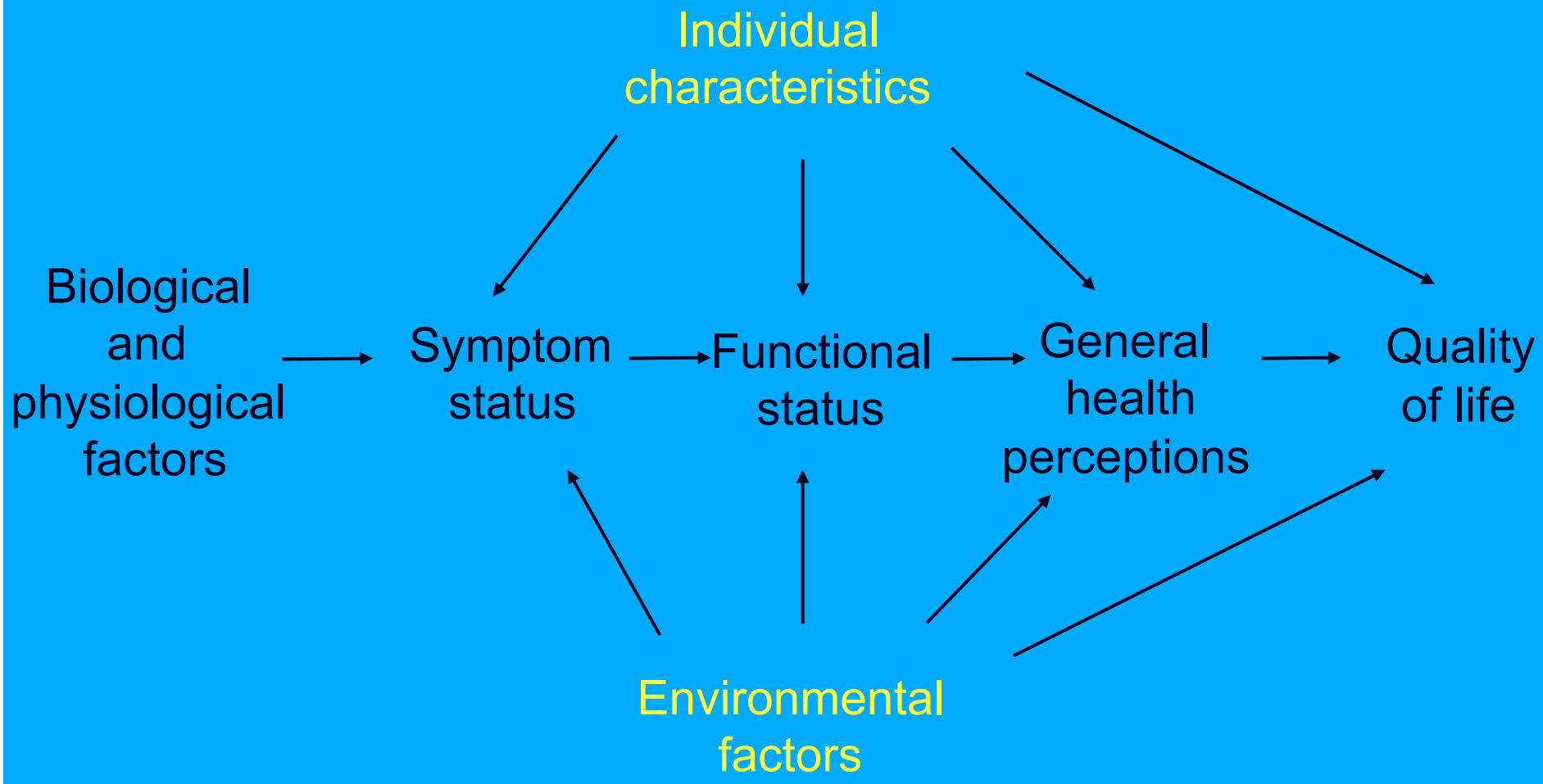
Linking clinical variables with patient outcomes (Wilson & Cleary, 1995)



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Determinants of children's oral health quality of life

(Mat A, Baker SR, Robinson PG)

- Test relationships between clinical and non-clinical variables hypothesised within Wilson and Cleary's model of patient outcomes
- To examine whether individual characteristics and environmental factors influence children's OHQoL and relationships identified within the model

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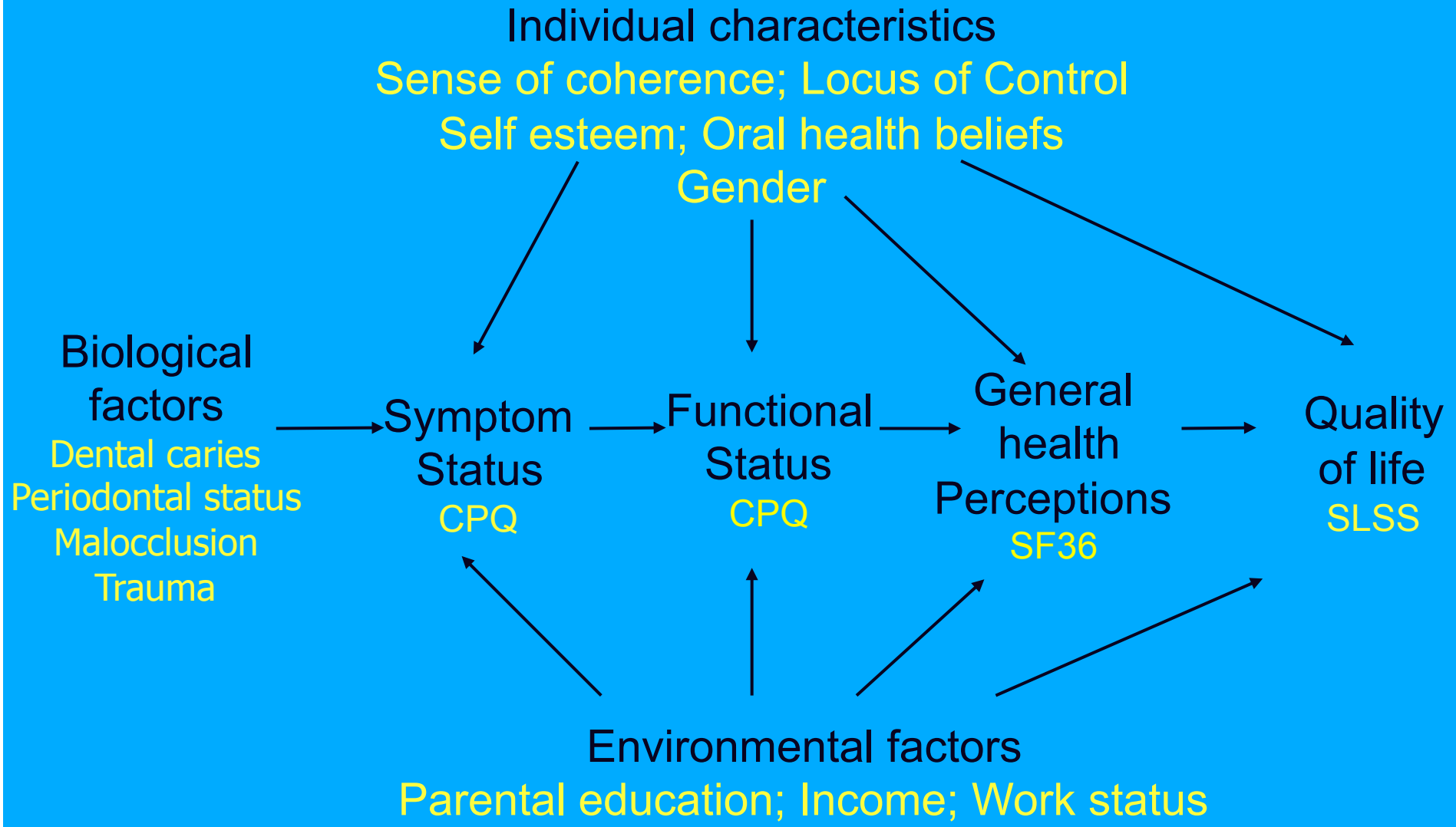
Measures



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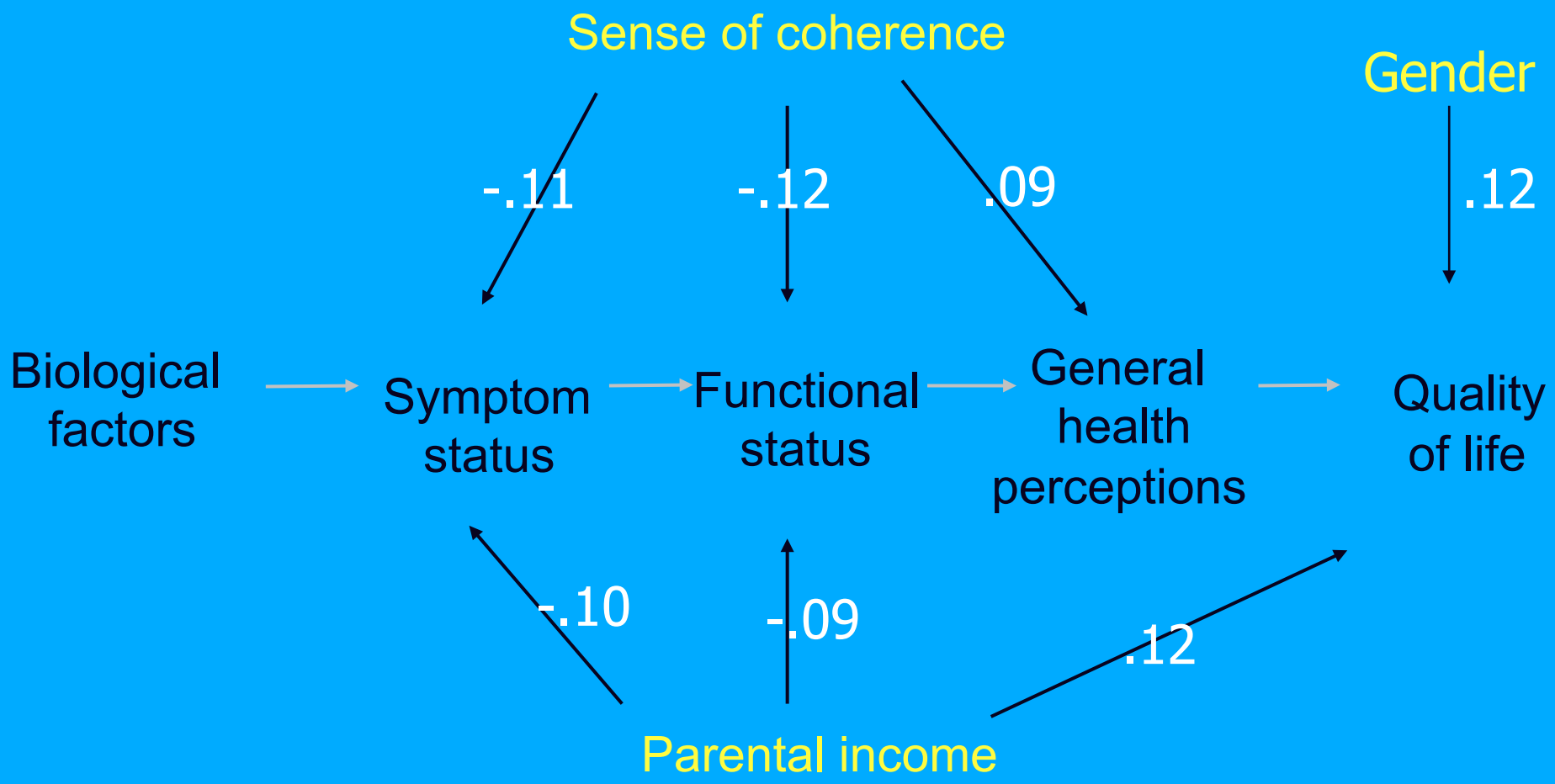
Results



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Longitudinal designs

Prospective longitudinal designs take place over the forward passage of time with more than one data collection point:

- Temporal precedence Vs temporal ordering
- Cause and effect relationships
- Assessing effects of interventions
- Trends in behaviour, OHQoL, well-being
- Identify people who do Vs don't change
- Bidirectional or reciprocal effects

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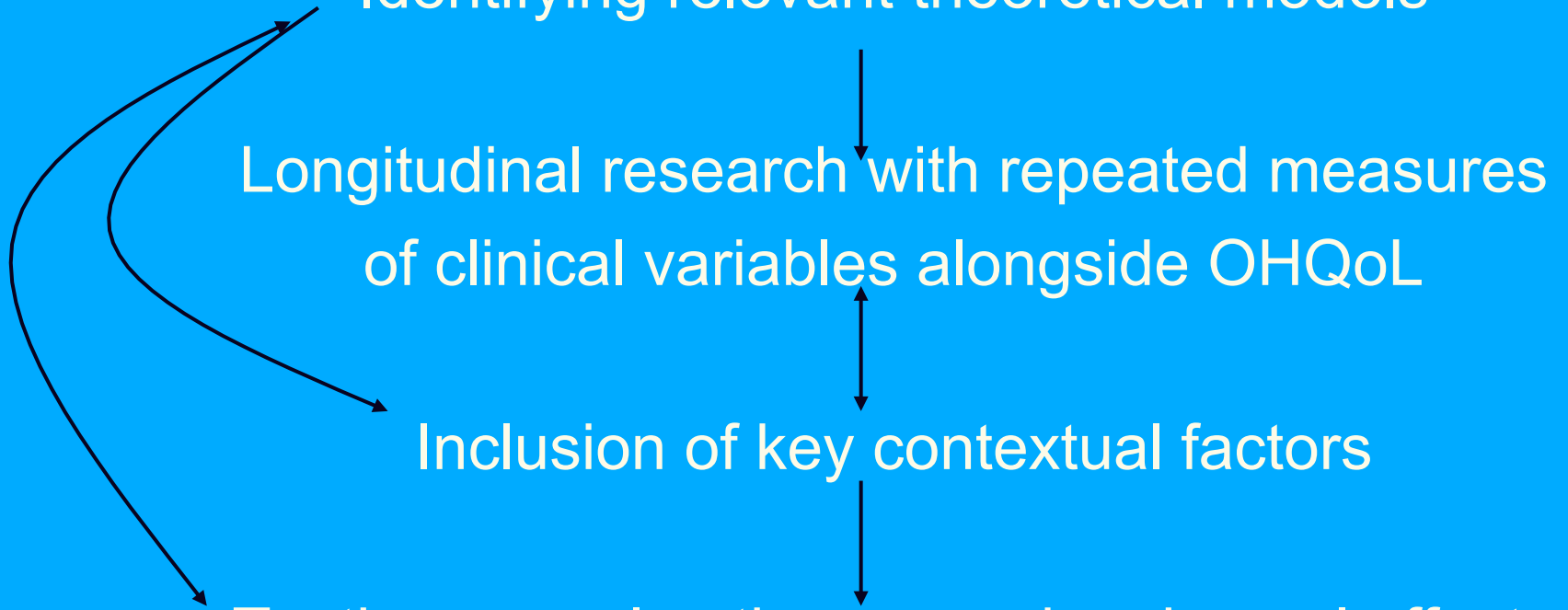
Conclusions

Further development of OHQoL research is dependent on:



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Future goal

Design and evaluate effective interventions to prevent disorders and facilitate recovery or well-being:

- Who to target (e.g. “high risk” or population level)
- Where to target (e.g. illness beliefs, symptom perception, daily functioning, emotional distress)
- When to target