



Seminar series

Complexity in health, development,
evaluation and research

Institute of Tropical Medicine, Antwerp



Report

Causation and the case-based approach

25th November 2016

Institute of Tropical Medicine, Antwerp



Report written by Ariadna Nebot and Bruno Marchal, ITM, 2 December 2016

The seminar series is organised by the Department of Public Health, Institute of Tropical Medicine (ITM), in collaboration with the Health Department of the Belgian Development Agency (BTC), the Institut de recherche santé et société (Université Catholique de Louvain) and Be-cause health

Introduction

This report provides an overview of the presentations and discussions of the seminar *Complex causation and the case-based approach*, organised on 25th November 2016 at the Institute of Tropical Medicine, Antwerp.

This was the second seminar of the seminar series *Complexity in health, development, evaluation and research*, organised by the Department of Public Health, Institute of Tropical Medicine (ITM), with support of the Health Department of the Belgian Development Agency (BTC), the Institut de recherche santé et société (Université Catholique de Louvain), and Be-cause health.

Background

Since a few years, *complexity* is rising on the agenda. The interest for new or better methods to deal with programmes that intervene in complex situations is growing in circles of health, international aid and development, as well as in the field of health policy and systems research. However, the uptake of complex systems thinking in actual practice has been slow. Sound applications of complex systems thinking to development and health remain scarce, both in the fields of planning, implementing, monitoring and evaluation of international aid programmes and in the field of research.

This slow uptake is arguably due to two reasons. First, there is still some conceptual confusion regarding the definition of 'complexity' and its key elements - for instance, what makes a problem or an intervention complex? Similar problems affect discussions on what constitutes good designs for evaluation or research of interventions in complex systems. Second, complexity theories present a major challenge to the linear paradigms (and the related preference for a sense of control and prediction) that are still dominant in medicine, public health and development.

Objectives

With this series of seminars on complexity, we aim at contributing to the debate on how to better take on board complex systems thinking and to help shift the paradigm in the field of research and evaluation in health and development.

The start point for this second seminar is a statement of Byrne and Uprichard, who argue that cases are complex if causation works through interactive effects that in essence are based on interactions between people. In such cases, causal explanations require analysing interventions from a systems perspective with a case-based (i.e. configurational) and not with a variable-based orientation. In this seminar, [David Byrne](#), the eminent complexity thinker from Durham University, tackled the issue of complexity and causation, and how research can effectively deal with the challenges through adopting a case-based approach. [Benoit Rihoux](#) (UCL) presented how Qualitative Comparative Analysis can be used to make sense of complex causal configurations. Both speakers used about an hour to explain their ideas and engaged the participants in questions and discussion.

Programme

| 25 th November 2016 | | |
|--------------------------------|---|-----------------------------|
| 9h00 | Registration Main entrance of ITM, Nationalestraat 155, Antwerp | |
| 09h30-09h45 | Welcome & Opening <ul style="list-style-type: none"> Bruno Marchal (ITM): Opening of workshop, Introduction, objectives and programme | |
| 09h30-11h00 | Session 1 – Complex causation and the case based approach <ul style="list-style-type: none"> Speaker: David Byrne, Em. Prof. School of Applied Social Sciences, Durham University Discussion | Moderator: Bruno Marchal |
| 11h00-11h30 | Break | Foyer |
| 11h30-13h00 | Session 2 - Qualitative Comparative Analysis <ul style="list-style-type: none"> Speaker: Benoit Rihoux, Ecole des Sciences politiques et sociales / Louvain School of Political and Social Sciences (PSAD) Discussion | Moderator: Bruno Marchal |
| 13h00 | Lunch | Foyer |

Participants

More than 45 participants registered and were present during the seminar, including staff of BTC, staff and students of academic institutions (ITM, UA and IOB), Be-cause Health members, and NGOs (see annex).

Summary of the presentations and discussions

Opening and introduction

Prof. Bruno Marchal, head of the Health Services Organisation Unit welcomed everybody in the room and presented the background and the general aim of organizing a seminar series in complexity.

Session 1 – Complex causation and the case based approach

David Byrne introduced the session explaining that we see and perceive reality through our empirical senses and that reality, for us, is just what we can see and not necessarily what is really happening. He introduced the case-based approach to research, stating that what counts is to find a way to capture interactions between agents, co-evolution, constellations and time-dependence, the key features of complexity. He stressed the need to always think in terms of relations between people and interaction between cases.

Referring to causality, as the relationship between intervention and output, Byrne reminded us of non-linearity that exist in a complex system and introduced the term of equifinality as the condition of achieving one objective/output in more than one way. He argued that different configurations of factors can generate the same outcome and that to understand causality, comparing cases is a very useful strategy. He gave some key ideas for comparing cases such as: cases have to be “near neighbors” in the possibility space; we have to classify them and count on both a quantitative and qualitative narrative. Byrne’s key message was that, by comparing similar cases, we can better understand causality and, therefore, we can better identify mechanisms of change, and thus transfer an intervention from one context to another. He introduced briefly the Qualitative Comparative Analysis method.

During the discussion, the selection of cases was raised. Byrne answered that we usually may have a limited number of cases (small N studies) and therefore would include all the cases. There was also a discussion about the risk of selecting an ‘incomplete’ model or framework when using QCA, and about the risk of bias when selecting cases or factors to be included in the truth table. Byrne answered that by definition, any model is incomplete, and that one must just need to identify in which sense it is incomplete. Byrne’s final remark was that, depending on how stable the concept under study is, one should attempt to compare cases that are similar yet different enough.

Session 2 - Qualitative Comparative Analysis

Benoit Rihoux introduced Qualitative Comparative Analysis (QCA) as a family of techniques and as a research (case-based oriented) approach. *QCA requires of a paradigm shift, where we don't look at variables anymore, we look at cases and the differences between them.* He stressed that QCA involves a dialogue between theory and cases, requiring an intimate knowledge of each case and that it combines inductive and deductive analysis.

Rihoux gave the following some QCA general characteristics:

- QCA combines case studies in a formalized analysis that acknowledges complexity in causation (using fuzzy set logics)
- In QCA, each configuration of factors and each case counts – it is a case-based approach to analysis, and not a variable-driven approach
- QCA allows identifying necessary and sufficient conditions that explain the observed outcome

He presented the *QCA family*, explaining the most recent variants (crisp set QCA, fuzzy set QCA, mvQCA, tQCA) and introduced briefly concepts such as the truth table, replicability and case-sensitivity. Rihoux highlighted that *QCA takes into account key elements of complexity* such as the conjectural causation, equifinality and asymmetric causation. One can use QCA depending on the

nature of the research question to identify the necessary and sufficient conditions, to identify “causes of effects” and to examine complex causal patterns.

In a second phase, Rihoux presented an example of a QCA study using the Tosmana software to demonstrate the basic steps and visualise the possibilities of the software.

In the discussion part, some specific questions regarding the example were raised and some general reflections were made about QCA as a tool.

Closing remarks

A word of thanks was given by Bruno Marchal to the speakers, the audience and the funders of this seminar (DGD, Be-cause health and the ITM).

Annex - List of registered participants

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