# Holistic outcome-driven approach: How do patients and providers prioritise healthcare outcomes?

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## THE WORK IN CONTEXT

Healthcare systems are facing pressures to fulfil various needs from different stakeholders at different levels. Different stakeholders tend to prioritise different sets of healthcare outcomes. Consequently, how outcomes are valued or prioritised by different stakeholders needs to be understood in a holistic way to develop and improve new or existent systems. Human factors frameworks and approaches such as Systems Engineering Initiative for Patient Safety (SEIPS) and Cognitive Work Analysis (CWA) recognise the importance of outcomes, but fewer practical approaches for understanding and communicating outcomes as interrelated systems exist. This study applied network analysis as a practical approach to collect, aggregate and visualise interrelations among multiple outcomes. Also, this practical approach provides a mechanism for different stakeholders to communicate and negotiate priorities for holistic outcome-driven healthcare system development. We conducted graphic facilitation mapping interviews with ten patients with chronic conditions and eleven healthcare providers. Participants built outcome interrelationship maps following three steps:

1) Select and explain meaningful and ideal outcomes.

2) Make sense of outcomes by creating influence relationships and groups.

3) Select the most important outcome.

Two outcome-based visualisations emerged from the network analysis respectively for patients and healthcare providers. Agreements, disagreements and critical outcomes between patients and providers were identified from those analyses. Wellbeing was equally acknowledged by both groups. However, patients prioritised outcomes such as personal resilience and self-monitoring, while providers prioritised integrated working, (re)admissions and hospitalisations. Overall, this practical approach contributes to a holistic outcomes integration for healthcare systems developing. The mapping process supports interrelated outcomes collection, while the network analysis offers a novel visual communication strategy to identify critical outcomes. This practical approach may complement frameworks such as SEIPS and CWA. A further study could be conducted to explore how multiple stakeholders use this approach for collectively discussing and negotiating their outcome prioritisation.

## KEYWORDS

Healthcare outcomes, systems thinking, participatory design, systems visualisations

**A brief outline of the work carried out**

The study used a purposive sample to recruit participants. This sampling aimed to have a representativity with respect to age, chronic conditions and type of healthcare management roles. The participants were recruited from the East Midlands region in the UK. Twenty-one people were recruited for this study. Ten people living with chronic conditions such as diabetes, sarcoidosis and arthritis, among others, formed the patient group. The providers' group was created by (n=5) senior managers, (n=4) commissioners and (n=2) local authorities.

Graphic facilitation mapping interviews were conducted to build outcome interrelationship maps as follows:

1) Participants selected meaningful and ideal outcomes from the sixty-two facilitated. The meaning was clarified.

2) Participants made sense of outcomes by creating influence relationships and groups. Simultaneous verbalisation occurred.

3) Participants selected the most important outcome from their map.

Then, the individual outcome maps were synthesised using network analysis. The following criteria were established to prepare the database for the network analysis:

- Each outcome was a node.

- Each link was an undirected edge with a weight of two.

- Each arrow was a directed edge with a weight of two.

- Outcomes within a group were assigned an undirected edge with a weight of one.

**Findings/solutions (the outcome)**

Two outcome-based system visualisations (one per group) were generated. These visualisations communicate the rich understanding of the outcomes. Also, the visualisations have been useful to find agreements, disagreements and critical outcomes between patients and providers.

- Agreements: wellbeing and quality of life are meaningful outcomes for both groups. However, different relationships were created between outcomes, which suggest various perceptions.

- Disagreements: patients prioritise outcomes such as personal resilience and self-monitoring, while providers prioritise integrated working, (re)admissions and hospitalisations

- Critical outcomes: outcomes such as anxiety (prioritised by most of the patient participants) is not well connected with other outcomes. This finding may suggest that isolated outcomes are perceived by patients as weakly attended in a holistic way.

Therefore, the systems visualisations offer a comprehensive way to recognise the interdependencies and unintended consequences of outcomes to inform decision-making.

**Impact**

These findings strengthen the importance of understanding outcomes interrelations for healthcare systems development.

Overall, this practical approach contributes to a holistic outcomes integration for healthcare systems development. The mapping processes supports interrelated outcomes collection and negotiates

outcome trade-offs. The network analysis offers a novel visual communication strategy to identify critical outcomes for shared decision-making in healthcare systems development.

This approach may also complement other systems frameworks such as SEIPS 2.0 and CWA. These frameworks may find this approach useful to integrate a holistic outcome understanding to adapt healthcare systems.