

## CASFM Methods Briefs

# Using critical realism in primary care research: an overview of methods

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## Introduction

Primary care research seeks to answer a wide variety of complex questions: how do we most effectively manage patients with multiple illnesses? When is the practice nurse the best-placed health professional to provide patient support? What is the likelihood that medicines found to be effective in randomized trials will benefit my patient?

To answer primary care research questions, we need diverse research methods that are responsive to the context and nested complexities of patients, their settings and the broader health system (1). Primary care occurs within a social reality—that is—it is embedded in how people, and their actions, influence the multiple interconnected parts of a social system (2). No patient, part of the health care system or community exists in isolation: each is made up of and influenced by the actions of people (3). These actions produce a social reality. This paper explores one approach to research methods that seek to understand the complexity of how and why things work (or do not work) in primary care settings whilst incorporating the perspective of social reality.

Although ‘complexity’ and ‘complex’ are everyday words, we use them here with a specific meaning. Complex processes have so many inputs that the outcome is unpredictable and past experience does not reflect what might happen in the future. As such, a set recipe for how to generate a particular outcome is not possible. This is in contrast to complicated processes that have outcomes that are reliably predictable if the ‘recipe’ is followed (4).

There are limitless research questions about primary care and different methodological tools are available to enhance our understanding of how the case works. Critical realism is not a method in itself but is an approach that can be used to inform how methods are applied (5). Questions about how and why things are effective, or ineffective, are well placed to be answered by methods guided by critical realism.

## What is critical realism?

Critical realism is a philosophy that grew from a critique of positivism from philosopher Roy Bhaskar—particularly the assumption that humans are able to fully and infallibly know and measure

reality (6). Instead, critical realism states that the evidence we observe can come close to reality but is always a fallible, social and subjective account of reality. Yet, in contrast to constructivism, critical realism also challenges the assumption that equates human perceptions of reality with reality itself (7). Instead, critical realism posits that reality is mind independent (6). While human perspectives are important, these are always ‘accounts of reality’. For example, a person who smokes can believe that smoking tobacco does not harm their lungs but the objective biological state of their lungs is not determined by the person’s beliefs. Reality remains mind independent.

Critical realism also claims that the mind-independent nature of reality applies not only to physical dimensions (such as the chair beneath you or car driving towards you) but also to social and cultural aspects (8). The mind-independent nature of culture means that human perceptions of cultures remain that and cannot be equated with the cultures themselves. This respects that people can have beliefs and personal understandings, but that this also does not change the state of that *independent* reality.

Critical realism can be used for research methods to explain outcomes and events in natural settings—pertaining to questions about how and why events or phenomena occur. From this approach, critical realism recognizes that interventions and systems consist of ‘emergent mechanisms’ (9) that can explain the outcomes. Emergence describes the synergism that occurs between components of a complex process so that the outcome is ‘more than the sum of the parts’ and that different components can combine across multiple layers of a system (9). Emergence is a big contributor to the unpredictability of outcomes in a complex system.

These features of critical realism fit in well with the ontology of complexity that recognizes the synergistic nature of context and mechanisms where the addition of multiple elements results in more than the sum of the parts involved (1). This understanding is aligned with the complexities of primary care where we work with patients who have multiple, interconnected conditions, living in communities that influence outcomes. A critical realist approach can help us to answer research questions about how and why interventions and programs work within the complexities of primary care.

## The contribution of critical realism

Critical realism is not a research method *per se* but a set of philosophical tenets that can inform a wide variety of quantitative, qualitative or mixed-methods designs, which seek to understand different phenomena. It is particularly useful for understanding how and why things happen, as well as unpacking the influence of context on the outcomes of a program.

For example, to better the influence that context has on intervention outcomes, consider Mr. Tickle—the infamous Mister Men children’s character (10)—who spreads happiness and joy by tickling his friends in Tickle town. From his many successes, one could conclude that a ‘program’ that involves wiggling one’s digits in the armpits of another can lead to happiness and joy as it has appeared to cause considerable mirth in Tickle town. Inspired by this positive outcome, you could visit your local bus station to ‘scale-up’ this successful happiness intervention by unexpectedly tickling those waiting for a bus. This translation of the successful Mr Tickle ‘program’ is unlikely to lead to replication of the mirth seen in the original Mister Men situation and, indeed, is very likely to result in shocked locals and a custodial sentence.

In recounting this example at numerous workshops, participants consistently recognize the palpable ridiculousness of expecting a positive outcome to arise from replicating Mr. Tickle’s intervention. Yet, similar assumptions about the intrinsic ‘power’ of a program to bring positive outcomes are common with implementation discussions predominantly focussed on ‘what programs work’ (4). Research exploring health care programs predominantly neglects the crucial role context plays in moderating effectiveness. Critical realism can be used to overcome this weakness in understanding program effectiveness by bringing context back in.

## Using a critical realist approach in primary care research

Guided by these concepts from critical realism, it is possible to apply research methods that acknowledge, seek and explore the real-world complexities of primary care. Here, we highlight some specific methods using a critical realist lens.

### The interview informed by a critical realist approach

An alternative approach to an interview is the ‘teacher–learner’ style, where the interviewee is cast as the expert or ‘teacher’ and the interviewer, as the learner, asks questions to progressively deepen, refine and re-formulate their understandings of how and why interventions are effective (11). The researchers develop different theories about how and why an intervention might work and present these to the interviewee. Most often, this occurs through a series of ‘why’ questions related to the experience of the interviewee. The interviewee is asked to comment on the researchers’ theory based on their own real-world experience and teach the interviewer about their own theories about the subject (12,13). This is a very different approach to other interview studies (e.g. grounded theory) as the interviewer is very open about their own ideas and seeks to learn from the experience of the participant.

### Process evaluation—understanding how context influences intervention outcomes

A critical realist approach can help to unpack the influence of context on intervention effectiveness. Rather than assuming that interventions hold the power in and of themselves to effect change, a

realist approach recognizes the intertwining between context (the elements that make up the setting of an intervention), mechanisms (the unseen forces that trigger change) and the outcomes of an intervention (4).

Simply picking up a program and dumping it in another setting may have unintended outcomes. For example, in a feasibility trial of a weight management program in primary care, a quantitative tool was to measure the doctor–patient alliance and a trend was seen between the strength of the alliance and clinical outcomes (14). In another, qualitative data was used to explore the effectiveness of heart failure programs after myocardial infarction and social mechanisms were found to be essential to outcomes (12). This approach to evaluation gives a better understanding of the factors needed for the intended outcomes to occur.

Process evaluation, using qualitative and/or quantitative data, can be used to understand the factors influencing outcomes. While a large and heterogeneous literature has existed for 30 years around such approaches (15), the Medical Research Council (MRC) have provided a comprehensive and readily applicable overview of the approach for complex interventions, which is currently under revision and will include specific reference to realist methods (16).

## The surprising outlier in randomized controlled trials

Among the realist evaluation community, there is heated debate about whether randomized controlled trials (RCTs) are a credible method for understanding complex interventions (17). While we do not seek to replicate this debate here, we acknowledge the possibility of using a critical realist approach to understand the outcomes of an RCT in primary care. RCTs report an average effect size across groups (18). Typically, in each arm of the trial, there will be cases that are ‘surprising outliers’ as either intervention success or failure. These outliers are a rich source of understanding when using a critical realist lens: why do interventions for some people have no or even the opposite of the expected effects? This approach is also useful for epidemiological data as was seen in this study exploring the low prevalence of childhood obesity in disadvantaged areas (19).

Rather than merely measuring outcomes, realist methods provide an important means to understand outcomes better—and to learn both from what appears to work and from what does not. For example, a case study approach could be used to explore a surprisingly successful case using in-depth interviews with both the participant and provider to understand how and why the person was able to effect change.

### Realist evaluation and synthesis

A realist evaluation can be used to understand how and why complex interventions are effective or ineffective (20). The archetypal question of the realist evaluation is:

‘What works for whom, when and why?’

The latest draft of the MRC’s guidelines for the development of complex interventions suggests realist evaluation for questions related to how context influences interventions and what ‘unseen mechanisms’ are involved in making an intervention work (21). Usefully, reporting standards have now been published that present an account of how to maintain rigor and quality in such work (22).

For example, a review of primary care for people with long-term mental illness used qualitative data from participants and providers to discover that team-based working was essential for success but

often did not result in appropriate follow-up (23). Another example explored physical activity for children with disability using qualitative data and found that relational aspects of the programs were important (24).

A realist evaluation provides an account of how aspects of and combinations of context and mechanisms interact to influence outcomes. This can be in a narrative form or expressed as ‘CMO’ equations, which describe the Context and Mechanisms that can lead to wanted Outcomes. As these evaluations often explore complex programs within complex systems, the CMO equation should not be viewed as a mathematical formula but as a description of patterned occurrences.

A critical realist lens can also be applied to synthesize multiple studies about a particular topic (25). For example, a secondary review of a Cochrane systematic review of school lunch programs (26) was able to give policymakers more insight into the effectiveness of the programs to ensure that local implementation was effective. This method of synthesis is attractive for the in-depth understanding it can provide, although if primary studies are not reported with enough detail or attention to contextual factors, the synthesis can be difficult (27).

## Conclusion

Both qualitative and quantitative data describe situations and events that have already occurred. However, these descriptions may or may not predict future outcomes for patients and populations. We can learn from other disciplines like economics, which uses the most advanced descriptive methods but, even then, economists failed to predict the global financial crisis (28). Alternatively, a critical realist lens seeks to understand the process and, therefore, what is more or less likely to be feasible.

Our most challenging health problems are not simple, linear processes and we need research methods that can explore complexity to improve our understanding of primary care. Primary care processes are transformative, dynamic and ever-changing and understanding the process can help to better translate and implement effective interventions.

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