Realist Research, Design and Evaluation for Integrated Care Initiatives

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37.1 Introduction

There is increasing interest in realist-informed approaches to studying the health and social care needs of populations, systems of care and in the development and evaluation of appropriate interventions. Although the principles underpinning realist approaches are fundamental to many professional practices and fields including the medical and social welfare practices, these tenets are challenging to conceptualise. A classic example of the application of realist principles is the crime investigator Sherlock Holmes, in popular literature and television, who uses abductive reasoning to identify the best explanation of a complex crime from available visible [empirical] evidence. Physicians also apply realist principles by examining the patient's history (subjective), observing and measuring (objective), followed by the generation and appraisal (assessment) of theory to determine the best or most likely explanation.

A standout feature in the two examples above is that the investigator (crime investigator, clinician, social worker, etc.) draws conclusions or offers explanations based on observations that are obtained subjectively and objectively. Nevertheless, observing is only a piece of the puzzle. There is also the aspect of what happened

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(events) before the observations occur and what are the causal elements (usually hidden) driving the events. To this end, reality is considered to consist of the visible (observations and sometimes events) and the hidden (mechanisms), and to have multiple layers and domains that need to be examined to arrive at the best explanation of the observed events. When conducting an investigation in complex health and social systems, the realist approach is similar and must first consist of investigation of the observed and reported phenomena, followed by the generation of theories, and finally the appraisal of the theories to infer the best explanation (aka inference to best explanation). This is analogous to the development of a differential diagnosis in a medical investigation.

It is usually the purpose of the investigation, whether epidemiological, criminal, medical, or health and social system related, to apply an intervention that will alter the outcome of interest to a more favourable state. Thus having identified the most likely explanation (theory), the practitioner will use a combination of knowledge and logic to propose an intervention that will most likely result in the intended outcome sought. Following the prescription of a treatment, or design and implementation of another type of intervention, the practitioner evaluates whether the intervention worked (or not), how, for whom and why. The aim of this chapter is to introduce the tenets of critical realist methodology and its application to research, design and evaluation of complex health and social integrated care interventions.

37.2 The Nature of Reality (Ontology)

The critical realist's view of the form and nature of reality (ontology) is that a reality within and beyond our sense experiences exists and that it is possible to conceptualise and make theories that describe (aspects of) it. This view is in contrast to the empirical view that knowledge cannot extend beyond sense experiences and observations. What makes critical realism "critical" is the view that all knowledge and theoretical claims are fallible. Thus, critical realists argue that all knowledge claims should be continually critiqued, challenged and revised as both culture and practice of science shape the lens through which the world is viewed.

There are two dimensions to how realist researchers consider the nature of reality and the different entities and categories within that reality. The first dimension concerns the distinction between the empirical, actual and real, and the second concerns the stratification or layering of reality. The empirical domain comprises our experiences of what actually happens, and the actual is constituted by the things that happened independently of whether we observed them or not (i.e. events). The last ontological domain is the deepest level of reality and is constituted by structures with generative powers that under certain conditions activate mechanisms (Collier 1994). The *Real* domain of reality exists independently of our perception or knowledge of it and consists of both natural and social objects. Importantly at this level, at a point in time, these objects and their latent powers remain in stasis until a certain condition or

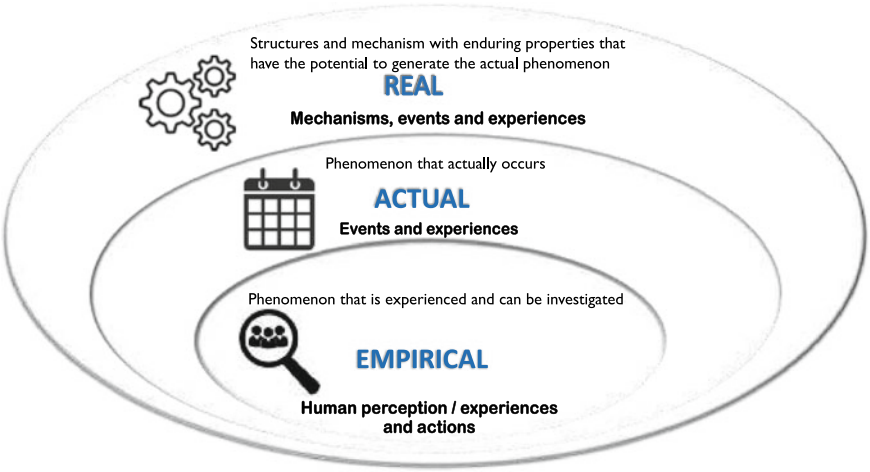

Fig. 37.1 Stratified ontology of critical realism (Bhaskar 1975; Mukumbang et al. 2019a)

intervention is introduced. Critical realism posits that this *Real* domain (reality) is stratified, and that it consists of structures and mechanisms (Fig. 37.1).

A second critical realist ontological dimension is that mechanisms in reality are stratified, where mechanisms at a lower level create conditions for the unfolding of mechanisms at a higher level. Mechanisms exist at each different stratum, with the stratification being variably described as including the: physical, chemical, biological, psychological, psychosocial, behavioural, social, cultural and economic layers (Sayer 2000; Bhaskar 1998; Danermark 2002; Danermark and Gellerstedt 2004; Layder 1993; McGuire 2006). The existence of a level's specific generative mechanisms is what constitutes or defines that level or stratum (Danermark 2002), and the ability of mechanisms to combine to create something new is called *emergence* (McGuire 2006; Danermark 2002; Bhaskar 1998). An implication of this stratification and emergence is that it is not possible to reduce the causes of what occurs on one level to those on another level (whether lower or higher) (Danermark 2002). Collier (1994) describes this stratification as a one-way hierarchy of inclusion. Sayer (2000) illustrates this idea by highlighting that "social phenomena are emergent from biological phenomena, which are in turn emergent from chemical and physical strata. Thus, the social practice of conversing is dependent on one's physiological state, including the signals sent and received around our brain cells, but conversing is not reducible to those physiological processes".

Table 37.1 from McGuire (2006) depicts the two realist ontological dimensions with examples across the body, the self and society.

Layder (1993) has also illustrated this layering of reality in his Research Map (Fig. 37.2) which importantly includes a historical element. In critical realism, structures exist in the domain of the real. In social reality, historical pre-existing structures and mechanisms are important aspects to be considered when

Table 37.1 Determinants of health and layers of reality (McGuire 2006)

	Body	Self	Society
Empirical (observable)	Biological determinants, diagnosis or illness, treatment	Individual determinants (e.g. lifestyle), experience and meaning of illness, coping	Social determinants (e.g. poverty), disruption of social participation, health and social costs
Actual (objects/events)	Normal and pathological processes, signs and symptoms	Cognition, emotion, development, behaviour	Political, economic, social welfare, health care systems, social behaviours, norms, relations
Real (mechanisms)	Biological, physical, chemical, genetic mechanisms	Psychological, emotional, cognitive, spiritual mechanisms	Social, cultural, political, economic, religious mechanisms

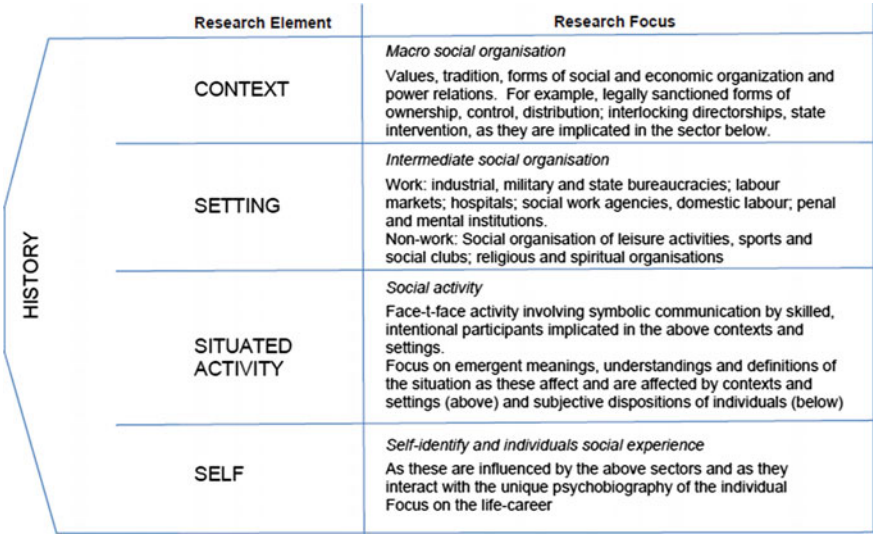

Fig. 37.2 Research Map (Layder 1993, p. 72)

undertaking the research, design and evaluation approaches described in this chapter. This is because structures and mechanisms have a conditioning effect on individuals and contribute to the socially conditioned nature of their reasoning and behaviour as they make decisions within social programmes. This framework was previously used for translation of causal theory arising from a critical realist theory building social epidemiology study (Eastwood et al. 2016), to the collaborative design of an integrated health and social care initiative for families experiencing adversity (Eastwood et al. 2019b).

37.2.1 Causal Inference

For realists, natural or social objects are, or form, a part of structures. A structure (e.g. water molecule), in turn, comprises related parts (hydrogen and oxygen atoms) with causal powers. When combined, the causal powers are said to be emergent from the components. In contrast to positivism, causation is not understood based on a model of regular succession or association of events (Sayer 2000). Rather, explanations depend on understanding the structure of natural and social objects, "identifying causal mechanisms and how they work, and discovering if they have been activated and under what conditions" (Sayer 2000, p. 14). Figure 37.3 provides a framework for understanding how causality is conceptualised in critical realism with structures having causal powers that activate causal mechanisms under certain conditions to produce events.

Related to the above is *tendency*. The structure and its generative mechanisms may produce an outcome or regularity, but its empirical manifestation is contingent upon certain conditions or context. Therefore, this empirical manifestation must be considered as tendencies of the structure rather than empirical regularities. Because of the potential modifying effect of contextual elements, critical realists consider any observed outcome as—"demi-regularities". Realist causal propositions are usually expressed in terms of mechanisms (M), context (C) and outcomes (O). For critical realist research, the MCO propositions are proposed by Danermark and colleagues (2002) (Fig. 37.4a), while for evaluation studies, Pawson and Tilley (1997) propose a CMO configuration as in Fig. 37.4b. For a more complete causal proposition, structure (S) may be added as CSMO (Bhaskar 2014).

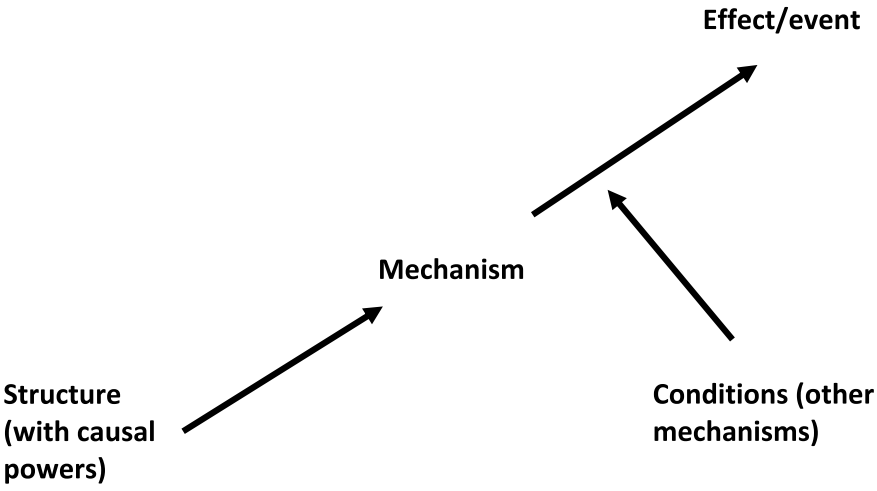

Fig. 37.3 Critical realist view of causation (Sayer 2000)

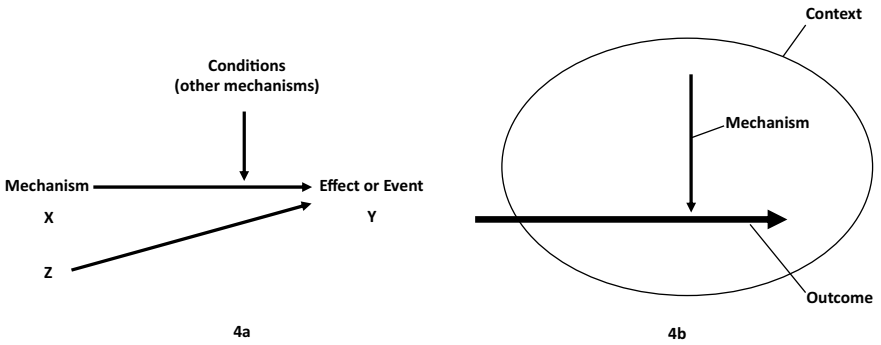

Fig. 37.4 CMO propositions: **a** Danermark et al. (2002); **b** Pawson and Tilley (1997)

37.2.2 Mechanisms

The concept of mechanisms is central to critical realist ontology. As previously stated, structures have causal powers with potential to produce events given certain conditions. In critical realism, the term mechanism is used when we talk about the effects that structures can potentially produce under certain conditions. Danermark et al. (2002, p. 55) describe a mechanism as "that which can cause something in the world to happen, and in this respect mechanisms can be of many different kinds". Mechanisms are typically not directly observable. Based on observed phenomenon, the task may be to mine the "underlying mechanisms" that produce the "phenomenon and to understand the interplay between them and how they shape the outcome". The task of critical realist research and evaluation is to make explicit the mechanisms orchestrating the observed phenomenon and to understand their interplay in a specified organisational/institutional/social structure. Some mechanisms may not produce empirically manifest expected outcomes because they may not have been activated, or their effects have been mitigated by other counteracting mechanisms (Danermark 2002).

The identification of generative mechanisms and counteracting mechanisms requires consideration of *context.* Under certain contextual conditions, the existing mechanisms can be activated to cause the observed outcome. The outcome resulting from activated mechanisms is therefore always dependent on context. Thus, *context* determines how a mechanism is empirically manifested (Danermark 2002). A mechanism does not always produce the same outcome in different contexts, a notion described by Smith (2010) as *contingent causality*, a feature of open systems. De Souza (2013), drawing on realist social theory, and Archer's proposition that the theory is amenable to being adopted for smaller-scaled human interactions and activities (Archer 1996), has conceptualised *context*, in a social programme, as consisting of aspects of structure, culture, agency and relations. Insofar as an integrated care setting is interested in modifying the organisation of its services, it is

possible to suggest that social programmes—introduced in public institutions as interventions—tend to implicate structural, cultural, agential and relational mechanisms (Table 37.2).

Critical realists tend to use the term "mechanism" in relation to effects and "powers" in relation to structures. Collier (1994, p 60) highlights this relationship by stating that "effects are ascribed to causal powers, causal powers to inner structure (and place in larger structures) of the causal agent".

However, what constitutes a mechanism has received much debate and critique, leading to various constructs of a mechanism when applied in realist review and evaluation practice. Westhorp (2018) has argued that different constructs of mechanisms are required if they align with the principles of critical realism and identified five constructs of mechanisms (Table 37.3) giving examples beyond social programmes.

Table 37.2 Context, mechanisms and outcomes, modified from (De Souza 2013)

Context	Mechanisms related to	Outcomes
Structure—institutional/organisational	Roles, practices, resources, processes	(T), (I) or (R) of institutional/organisational structure
Culture—institutional/organisational	Group ideas and propositional formulations about the institution/organisation	(T), (I) or (R) of institutional/organisational culture
Agency	Individual beliefs and reasons for actions or non-action	(T), (I) or (R) of individual agency within the institution/organisation
Relations	Maintaining, adjusting or redistributing power/duties/responsibilities	(T), (I) or (R) of institutional/organisational relations

Note Transformation (T), invariance (I) or reproduction (R)

Table 37.3 Five constructs of mechanism in critical realism (Westhorp 2018, p. 49)

Construct of mechanism	Material	Psychological/cognitive	Social—groups	Social—institutional
Powers and liabilities	Trees can grow, e.g. photosynthesis	Humans can learn, e.g. sensitisation; motivation	Groups can make agreements	States can make laws
Forces	Gravity	Love	Peer pressure	Laws, regulations
Interactions	Gun powder explosion	Reasoning and resources	Contracts	New technologies and market systems
Feedback or feedforward processes	Genetic inheritance	Developing attachment styles	Negotiation	Stock market crash
Reasoning and resources	Neurons firing: electrical signals	Logic-in-use; affective response	"Group link"	Cultural assumption

37.3 Understanding Reality (Epistemology)

As noted above, critical realists consider that reality exists independently of us and is not merely a social construction. Realists have been challenged to answer the question that "if the social world is socially constructed and significantly concept-dependent, how can it be treated as independent of the researchers' knowledge?" (Sayer 2000, p. 32). In response to this, Bhaskar (1975) drew the distinction between *intransitive* and *transitive* knowledge. Things that are studied such as physical and social phenomena form the intransitive dimension of science, while theories and discourse form part of a *transitive* dimension (Sayer 2000, p. 11).

Causal inference is the process of drawing conclusions regarding causation by applying forms of reasoning or logic. Danermark and colleagues (2002) define inference as "a way of reasoning towards an answer to questions such as: What does this mean? What follows from this? What must exist for this to be possible?" They distinguish between four modes of inference (deduction, induction, abduction and retroduction) which they define as follows:

Deduction: To derive logically valid conclusions from given premises. To derive knowledge of individual phenomena from universal laws.

Induction: From several observations to draw universally valid conclusion about a whole population. To see similarities in several observations and draw the conclusion that these similarities also apply to non-studied cases. From observed co-variates to draw conclusions about law-like relations.

Abduction: To interpret and recontexualised individual phenomena within a conceptual framework or a set of ideas. To be able to understand something in a new way by observing and interpreting this something in a new conceptual framework.

Retroduction: From a description and analysis of concrete phenomena to reconstruct the basic conditions for these phenomena to be what they are. By way of thought operations and counterfactual thinking to argue toward transfactual conditions.

Retrodiction is another form of reasoning used by realists. It is applied to construct in-case explanatory models; retrodiction is used to examine the similarities and differences between various cases.

A full discussion of these modes of reasoning is not possible here, but an understanding of abduction is essential to discover the "hidden" generative mechanisms in the domain of the real. Eco's typology of abduction includes over-coded, under-coded and creative types of abduction (Eco 1984 as cited by (Danermark et al. 2002, p 23). Over-coded abduction is a mode of inference consisting of spontaneous interpretations based on cultural and social prejudging. Thus, all observations involve some form of interpretive abductive process being a precondition for the observed phenomenon having any meaning at all. This interpretive abduction occurs naturally during realist interviews, initial coding of qualitative data and visualisation of quantitative data.

By contrast, under-coded abduction is where we choose between several possible frames of interpretation of theories. This process of abductive inference often occurs during the second phase of coding and during the quantitative interpretation of an exploratory factor analysis (EFA) or its variants (e.g. exploratory structural equation modelling ESEM). It is also the mode of reasoning used for medical differential diagnosis and epidemiological use of the Bradford Hill Criteria (Hill 1965).

The third type of abduction, creative abduction, is characterised by being unique and innovative and moving to a frame of interpretation that nobody has used before, or which "at least opposes conventional interpretations (i.e. the "eureka" moment).

37.4 Intensive and Extensive Methodology

The epistemological aim of critical realism is to explain the relationship between experiences, events and underlying mechanisms. The emphasis is on explaining the "how and why" of particular phenomenon. To undertake this task, it is necessary to use different kinds of reasoning: inductive, deductive, abductive and retroductive, with an emphasis on linking the abstract to the concrete. Sayer (1992) emphasises the importance of different methods of data collection and analysis. He proposes four types of research: intensive or concrete (empirical and theoretical analysis); generalisation (empirical), abstract (theoretical) and synthesis (interdisciplinary analysis).

Sayer (2000) further outlines two different kinds of research design relevant to this study. The "intensive research design" is used in research where we wish to obtain in-depth knowledge of a specific phenomenon for the purpose of causal explanation. "Intensive research design" mainly applies to qualitative methods. "Extensive research" typically uses more quantitative methods that seek to identify regularities and patterns. The "extensive" study typically identifies regularities and has limited explanatory power (i.e. of how and why).

Jeppesen (2005) identified the requirement to sometimes supplement the "intensive" and "extensive" designs described by Sayer (2000), with a third "explorative design" aimed at establishing an understanding of the area of investigation according to involved parties. This involvement of citizens, practitioners and other parties is central to the collaborative and person-centred approaches used in integrated care (Table 37.4).

Realist research, design and evaluation, could be qualitative, employ mixed methods or, to a lesser extent, entirely quantitative. Realists have argued that both may be used (Porpora 2005). Drawing on Haig (2005b), Eastwood (2014a) proposed their use for both phenomenon description and explanatory theory generation. It is important to note, however, that intensive research and extensive research can be both qualitative and quantitative. This possibility of intensive quantitative and extensive qualitative studies has not been fully examined.

Table 37.4 Intensive and extensive research (Sayer 2010)

	Intensive	Extensive
Research question	How does a process work in a particular or small number of cases? What produced a certain change? What did agents do?	What are regularities, common patterns, distinguishing features of a population? How widely are certain characteristics or processes distributed/represented?
Relations	Substantial relations of connection	Formal relations of similarity
Types of groups studied	Causal groups	Taxonomic groups
Type of account produced	Causal explanation of production of certain objects/events, though not representative ones	Descriptive "representative" generalisations, lacking explanatory penetration
Typical methods	Study of individual agents in their causal contexts, interactive interviews, ethnography Qualitative analysis	Large-scale survey of population or representative sample, formal questionnaires, standardised interviews Statistical analysis
Limitations	Actual concrete patterns and contingent relations are unlikely to be "representative", "average" or generalisable Necessary relations discovered will exist wherever their relata are present, e.g. causal powers of objects are generalisable to other contexts as they are necessary features of these objects	Although representative of a whole population, they are unlikely to be generalisable to other populations at different times and places Problem of ecological fallacy in making inferences about individuals Limited explanatory power
Appropriate tests	Corroboration	Replication

A full exploration of mixed-method designs is not possible here. Case study (Mukumbang et al. 2018b) grounded theory (Haig and Evers 2015) and multi-level concurrent triangulated (Eastwood et al. 2014a) mixed-method designs might be used. Mixed-method pragmatic realist randomised control trials (RCTs) have also been controversially proposed (Bonell et al. 2012). Other approaches might include mixed-method social network analysis (Domínguez and Hollstein 2014) and mixed-method structural equational modelling approaches (Ford et al. 2018).

37.5 Critical Realist Research, Design and Evaluation Cycles

We will consider here critical realist research, design and evaluation methods. A critical realist research approach looks at concrete phenomenon and events and asks "What structures are fundamental for this phenomenon to exist and be what it is?" (Danermark et al. 2002, p. 147). In doing so, explanatory models and causal

theories about the phenomenon are constructed and may subsequently be used to inform the design of an intervention. By contrast, the realist evaluation approach seeks to confirm and refine a programme theory about an intervention (Pawson and Tilley 1997). The intervention may have arisen from a realist design process (Eastwood et al. 2019c), but often, the researcher's first task is to determine the intended programme theory. Both approaches consist of similar elements albeit with a focus on theory building and theory testing, respectively (Fig. 37.5).

37.5.1 Realist Explanatory Research

The purpose of the realist research is primarily to *explain* an observed phenomenon and only secondarily prediction. There is no single approach to undertaking realist research, but several leaders in the field have provided guidance that incorporates elements of ethnography (Porter 1993; Porter and Ryan 1996), emergent and grounded theory (Oliver 2012), and comparative case studies (Mukumbang et al. 2018a, 2019b).

Bazeley (2013), who describes herself as a pragmatic critical realist with a transformative perspective, observes that realists argue that it is necessary to explain events, not just to document regularities in them—to identify the physical or mental mechanisms, processes, structures and other contextual forces that account for events or observed regularities. Bazeley (2013, p. 21) cites Miles and Huberman (1994, p. 11) who describe analysis as progressing naturally from telling a first story

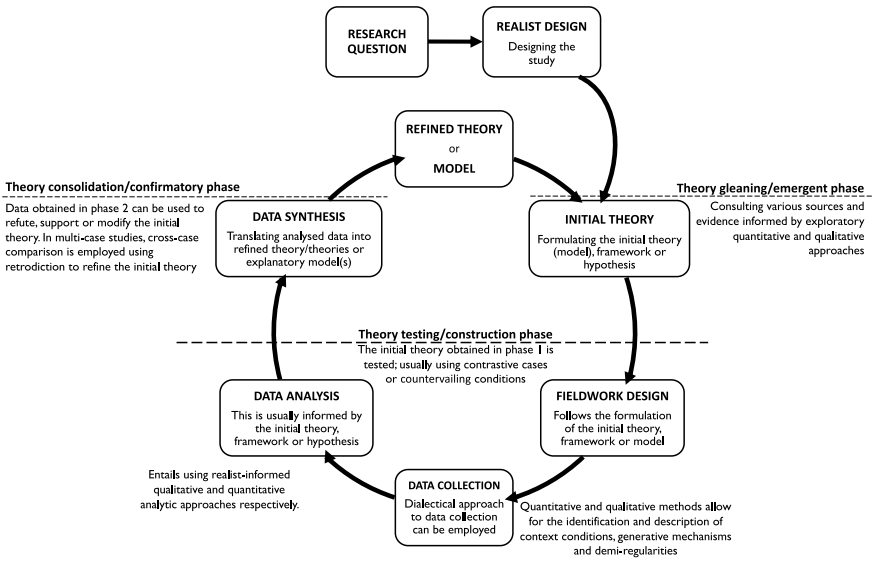

Fig. 37.5 Realist research cycles

about a specified situation (what happened, and then what happened), to constructing a map (formalising the elements of the story, locating key variables), to building a theory or model (how variables are connected how they influence each other). This emergent explanatory approach is also described by Bhaskar (2014) and Danermark (2002). Bhaskar describes such an approach to theoretical inquiry (DREIC) where:

1. D stands for the description of pattern of events or phenomenon;
2. R for retroduction of possible explanatory mechanisms or structures;
3. E for elimination of competing alternatives;
4. I for the identification of the causal generative mechanisms and
5. C for the iterative correction of earlier findings.

Maxwell (2012) advances a realist research design framework that explicitly rejects the idea of cyclical or linear sequencing of the research elements. He proposes an interconnected and flexible structure (Fig. 37.6) where the first three components (goals, conceptual framework and research questions) are real phenomenon that exist in the researcher's mind and represent the researcher's thoughts about the phenomena. The fourth component (methods) exists as actual behaviours as well as ideas, and the fifth component (validity) "concerns the relationship of the conclusions and inferences drawn from the study to the actual phenomena studied" (Maxwell 2012) (Fig. 37.7).

Drawing on the work of Haig (2005a) and Danermark et al. (2002), Eastwood and Colleagues (2014a) propose an *Explanatory Theory Building Method*

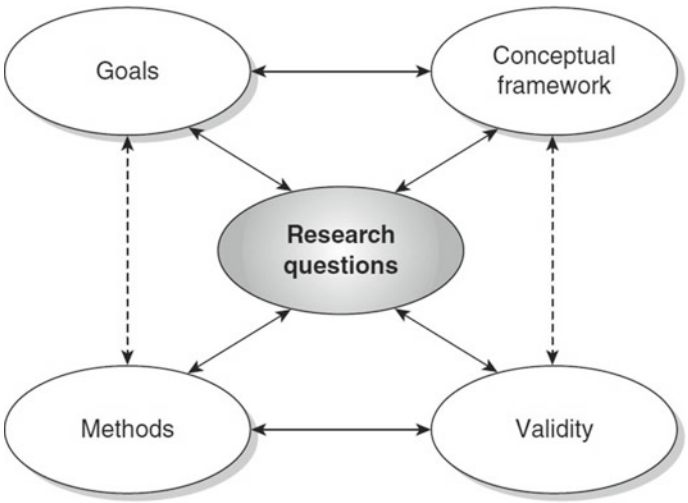

Fig. 37.6 An interactive model of research design. *Note* From qualitative research design: an interactive approach, by Maxwell (2005). Copyright by SAGE

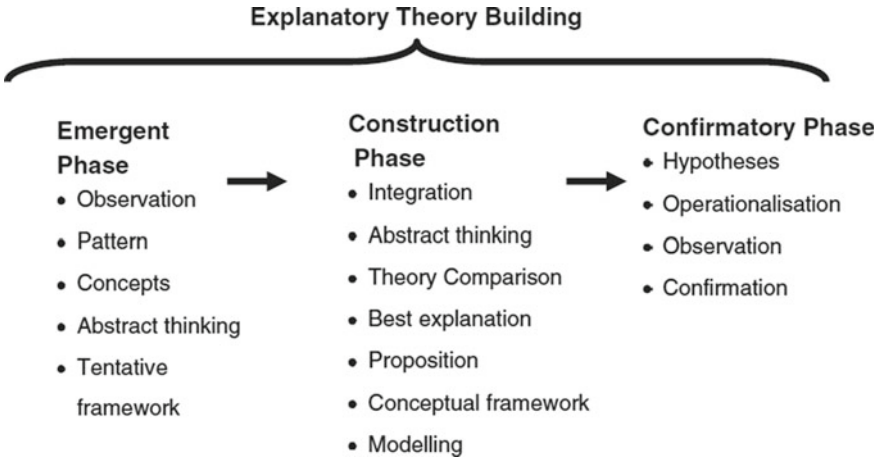

Fig. 37.7 Explanatory Theory Building Method (Eastwood et al. 2014a)

(Fig. 37.5) for their mixed-method study. The *Emergent Phase* uses methods such as factor analysis, regression, interviews, focus groups and grounded theory for both phenomena detection and theory generation (Fig. 37.8).

A similar approach is described below for mixed-method data analysis and synthesis with abstraction of conceptual themes during data analysis followed by the development and testing of theories and models in the data synthesis stage.

Haig and Evers (2015, p. 96) argue that exploratory factor analysis (EFA) is most fundamentally an abductive method of theory generation. The results of an EFA postulate the existence of latent variables but say little about their nature and function. The analyst, using abductive reasoning, may offer the beginning of a theory about a phenomenon. Eastwood and colleagues (2012b), in their concurrent triangulated mixed-method multi-level study, report on the use of nonlinear principal component analysis, regression and multi-level exploratory spatial data analysis to generate theory of postnatal depression and neighbourhood context.

Case study designs (Yin 2014) are also suitable for realist explanatory research. The case study approach is appropriate for teasing out structural entities, contextual conditions and mechanisms that interact to generate a given set of (Løkke and Sørensen 2014). It also allows for the use of multiple methods of data collection (Westhorp 2014) and is usually accommodating of mixed quantitative and qualitative methods. Danermark et al. (2002) argue that the "closeness" offered by the cases enhances the ability of the realist researchers to use hermeneutic methods to generate theories.

The realist approach to interviewing is explored by Smith and Elgar (2014)who argue that the "critical realism approach suggests theories should be developed "in process" during data collection as this allows for the development of theoretically informed data and is less likely create divisions and disconnect between the

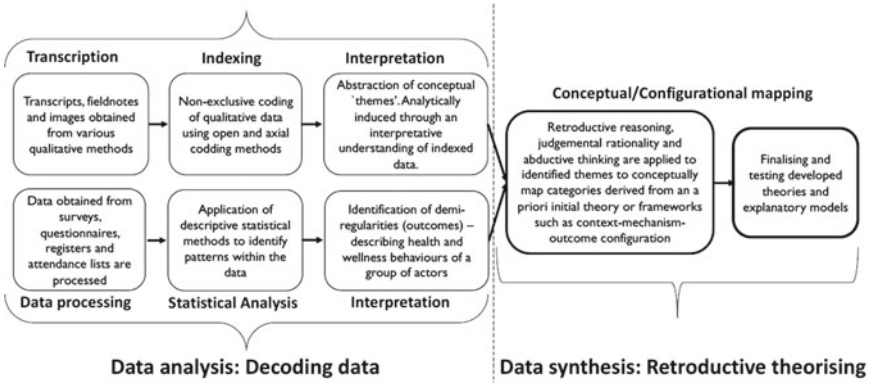

Fig. 37.8 Realist-informed mixed-method data analysis and synthesis

empirical data and later theoretical analysis". In a similar way, emergent and grounded theory should use abductive reasoning in the search for the best explanation of the studied phenomenon (Haig and Evers 2015, pp. 71–92).

The purpose of the *Theory Construction Phase* is to undertake abductive triangulation of findings from the *Emergent Phase* to construct a conceptual framework, theory and model as proposed by Miles and Huberman (1994). The methods used in the *Theory Construction Phase* include: (1) defining stratified levels; (2) analytic resolution; (3) abductive reasoning; (4) comparative analysis (triangulation); (5) retroduction; (6) postulate and proposition development; (7) comparison and assessment of theories; and 8) conceptual frameworks and model development (Eastwood et al. 2014a, 2016).

The Emergent and Theory Construction approaches described above can also be used where there is a prior conceptual framework (Miles and Huberman 1994). As discussed later, they can also be used to evaluate both causal and programme theory. Drawing on the work of Bygstad and Munkvold (2011), an abductive reasoning approach with five iterative steps for theory building and evaluation is described at Fig. 37.9. The approach begins with a suitable analytical framework and proceeds as follows (Bhaskar and Danermark 2006; Danermark et al. 2002): (1) identifying a suitable analytic framework; (2) identification of candidate mechanisms; (3) linking of key components; (4) judgemental rationality; and (5) theoretical abstraction—retrodiction.

Box 1: Realist Research Case Study of Neighbourhood Context and Postnatal Depression (Sydney)

Eastwood and colleagues undertook a critical realist mixed-method study that aimed to build a theory of neighbourhood context and postnatal depression. The study used a critical realist Explanatory Theory Building Method comprising of an: (1) emergent phase, (2) construction phase and (3) confirmatory

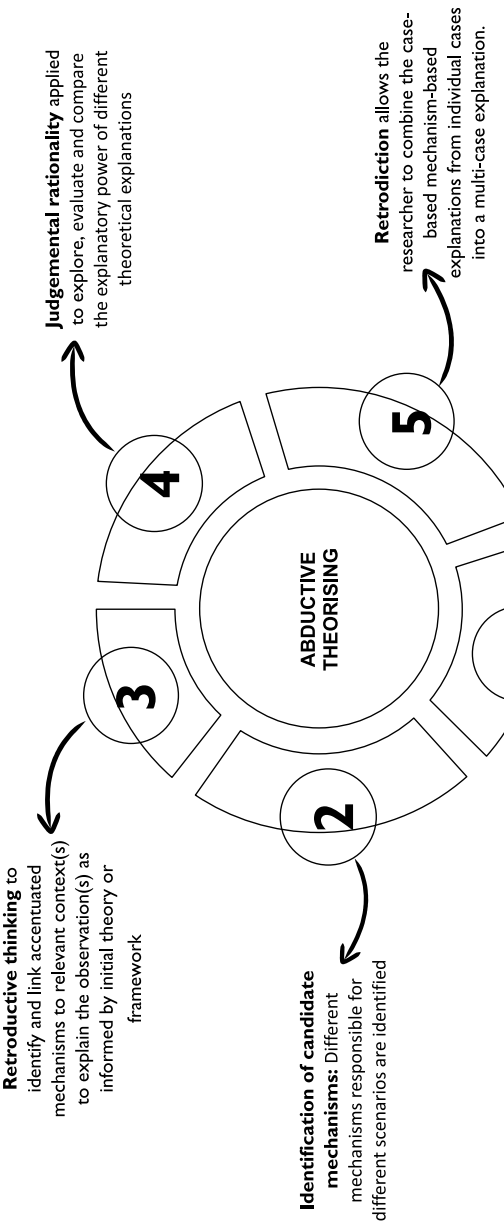

Fig. 37.9 Iterative processes involved in abductive theorising

phase. A concurrent triangulated mixed-method multi-level cross-sectional study design was used. Emergent Phase used a constant comparative analysis of the qualitative (intensive) and quantitative (extensive) arms of the study. The methods used to detect and describe the phenomena included: interviews, focus groups, exploratory data analysis, exploratory factor analysis, regression and exploratory ecological and multi-level spatial data analysis (Eastwood et al. 2012a, 2013, 2014b; b).

Theory generation was undertaken in both the qualitative and quantitative arms of the Emergent Phase, to develop tentative conceptual frameworks. This analysis used: categorical principal component analysis, exploratory factor analysis, exploratory confirmatory factor analysis, coding of concepts and categories, constant comparative analysis, drawing of conceptual networks, and situational analysis, to move from the "concrete to the abstract" (Danermark al. 2002, p. 109) (Fig. 37.10).

The construction phase undertook abductive and retroductive triangulation of the reported empirical findings and emergent theory development (Eastwood et al. 2016). Global, economic, social and cultural mechanisms were identified that explain maternal stress and depression within family and neighbourhood contexts. Critical realist causal propositions were proposed to explain the complex intertwining of historical, spatial, cultural, material and relational elements that contribute to the experiences of loss and nurturing. Emerging was the centrality of social isolation and "expectation lost" as possible triggers of stress and depression not only for mothers but possibly also for others who have their dreams shattered during life's transitions (Eastwood et al. 2018).

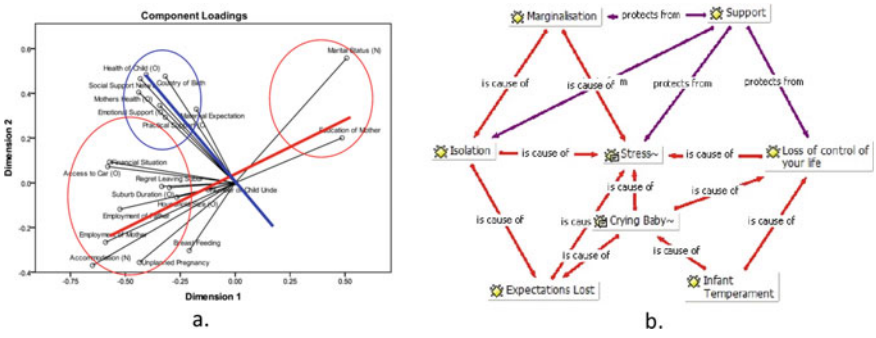

Fig. 37.10 Theory generation—**a** principal component analysis, **b** conceptual networks

37.5.2 Realist Design

The process of designing a programme intervention using critical realist causal and programme theory is not well explicated. Keller and Colleagues (2010) present a realist design evaluation framework that combines design theory and realist evaluation. Jeppesen (2005) argues that consumers and partner agencies should be included in the design process. Muntaner (1999) also argued for the use of a realist methodology that seeks to generate social interventions in partnership with the affected populations, thus moving from the study of causal mechanisms (i.e. realist causal theory) towards the applied development of implementation and programme theories.

As part of the design process, it is usual to review available and relevant causal and programme-related theory. For this purpose, a realist synthesis may be undertaken to review the available evidence on potential interventions. The review purpose is to explain explicitly how an intervention works, for whom, in which setting and why. In doing so, it helps make sense of the circumstances of interest and the interventions intended for implementation (Pawson et al. 2005). Five stages are undertaken in conducting a realist synthesis (Pawson et al. 2004, 2005). An additional sixth stage involving stakeholder engagement for theory refinement is included by some reviews (Power et al. 2019). The six stages are nonlinear and can be carried out in an iterative fashion with theory refinement occurring throughout (Fig. 37.11).

Blamey and Mackenzie (2007) propose that the Theory of Change (Connell et al. 1995; Fulbright-Anderson et al. 1998) approach can be used as a means of explicating implementation (intervention) theory for the purpose of programme planning, improvement and the development of robust monitoring systems at a whole programme level, while realist evaluation approaches can be used to examine, in detail, aspects of the most promising programme (mechanism) theories. Those programme theories describe mechanisms that reside in the "Real Domain" (Fig. 37.12).

The design process considers the historical and current context of the situation, literature on what has worked in similar situation and why, and the views of consumers and stakeholders. Consequently, a critical realist collaborative design approach might include the following five elements:

1. A historical analysis of the context to theorise the pre-existing social structures and mechanisms (De Souza 2013);
2. The proposed design elements of an intervention, stemming from inputs from consultation forums, realist syntheses, systematic reviews, consumer and key informant interviews;
3. The development of a programme theory hypothesising the pre-existing situational conditions and causal mechanisms, and specifying how the proposed intervention would trigger desired psychological, motivational and behavioural responses to bring about change (Blamey and Mackenzie 2007);

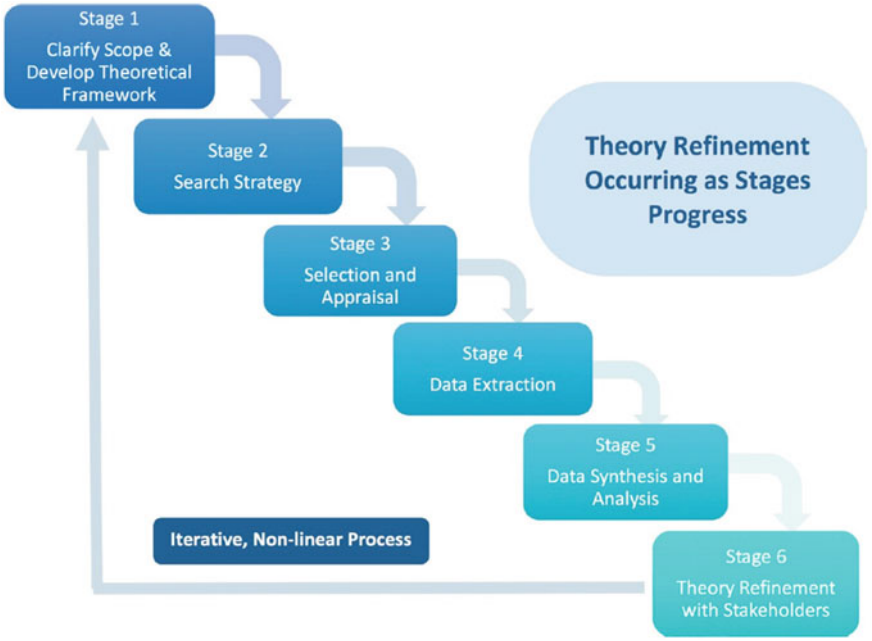

Fig. 37.11 Overview of stages of the realist review (Power et al. 2019)

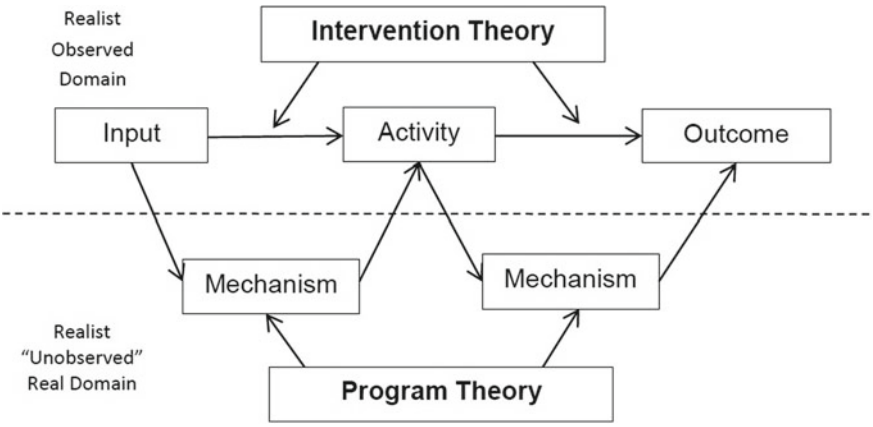

Fig. 37.12 Intervention and programme theory (Eastwood et. al. 2019d)

4. The construction of a Theory of Change (ToC) logic model explicating a proposed implementation theory (Blamey and Mackenzie 2007).

Integrated care interventions are usually "targeted" at different layers, dimensions or structures within a complex system. Consequently, it is appropriate to define hypothesised causal, intervention and programme theory for each layer (Table 37.5).

Table 37.5 CIMO propositions

Theorised contextual conditions (Fig. 37.2) [C]	Present contextual mechanisms activated [C_M]	Proposed intervention Design elements (Table 37.1) [I]	Postulated intervention Programme mechanisms (Table 37.1) [M_P]	Postulated psychological, motivational and behavioural outcomes [O]
Self—self-identity and individuals experience				
Lack of partner and family support, distrust of services, limited treatment access	Stress mechanism activated causing anxiety and depression	Friendship and family support, professional support, medication, treatment	Activate mediating mechanisms of family, peer and professional support to strengthen and build trusting relationships with peers, family and clinicians through SHV and FCISD design components	Decreased depression and anxiety
Lifetime trauma, loss, being alone, Isolation	Stress mechanism activated arising from mismatched expectations and loneliness	Family and peer support, home visiting, telephone support		Increased perceived support
Situated activity—face-to-face activity				
Services unavailable or poor access, services not trusted, services not skilled	Absence of trusted professional support mechanism	"Wrap around" services, family conferences, workforce training	Activate services mechanisms that are client, peer and neighbourhood focused, and trauma and evidence informed through FCISD and IS design components	Improved perceived access to skilled and trusted services
Community distrust, low social capital and cohesion, crime, unemployment	Absence of trusted neighbourhood and community support mechanism	"Wrap around" services, Family conferences, public health, social work services		Improved perceived support from neighbours and community
Intermediate-level social and service organisation				
Unhelpful intake and referral practices, lack of service,	Absence of specialist service support mechanism for	Strengthened pathways and design	Activate mechanisms related to trust and confidence	Improved perceived access to services that are

(continued)

Table 37.5 (continued)

knowledge and trust	front-line professionals	collocation of services	with service network, increased local social capital, community trust and community safety Activate mechanisms relating to improved coordination and access to services and information through FCISD and IS design components	"wrapped" around front-line workers
Weak social networks, community trust, community safety, available social services, access to information	Social-level stress mechanisms relating to class, position, racism, segregation, crime and neighbourhood decay are activated tending to increase psychological stress	Population and community-level interventions in neighbourhoods and communities		Decrease in psychological stress of individuals and families
Macro-level social and service organisation				
Migration, mega-malls pull service activity away from neighbourhoods, urban development1	Activation of social-level stress mechanisms tend to hinder the activation of social-level buffer mechanisms	Population and community-level interventions in neighbourhoods and communities	Activate mechanisms related to increased social-level activities in deprived neighbourhoods Activate mechanisms related to increased migrant-related social activities among ethnic populations through FCISD and IS design components	Increase in perceived social-level buffers
Immigration policy, racism, media policy, global market, settlement patterns, Ethnic bonding networks, access to services	Migrant-related social-level mechanisms including acculturation, cultural practices and integration tend to decrease social-level stress	Ethnic and cultural specific community and population-level interventions		Increase in perceived migrant social-level buffers

37.5.3 Realist Explanatory Evaluation

A critical realist evaluation of an integrated care intervention or programme seeks to explain, what works, for whom and under what circumstances (Pawson and Tilley 1997). The three principal phases for conducting a critical realist explanatory evaluation study are: (1) development or eliciting the initial programme theory (IPT) for the intervention under study; (2) testing the initial programme theory

using empirical data and 3) building a more refined programme theory based on the empirical findings.

The approach is theory-driven, but in most other respects is similar to that undertaken with other modes of critical realist research. The main difference is that the focus is on programme theory rather than causal inference. For both purposes, theorised contextual conditions and contextual mechanisms are important, including the historical and layered context as illustrated by Layder (1993, p. 72) in his Research Map (Fig. 37.2). As noted earlier, programme theory is illustrated using context, mechanism and outcome (CMO) configurations (Fig. 4b). That diagram is expanded below (Fig. 37.13) to also illustrate:

1. The importance of the macro-context (K) (including historical context);
2. That a new mechanism is introduced (M2) or the original mechanisms (M1) is subverted by the intervention;
3. That the outcome (O) is a change demi-regularity R1 to R2; and
4. That there has been an alteration in context C1 to C2 which has led to an alteration in the balance of mechanisms triggering, or modifying, the demi-regularity.

Integrated care policy, programme and practice interventions are designed to impact on a layered set of mechanisms (Westhorp 2018; De Souza 2013). Interventions (I) may influence institutional and social structural (S) mechanisms, or the reasoning (mechanism) of targeted actors or agents (A). The inclusion of these elements into the formulation of critical realist theories can be conceptualised as: intervention-context-actor-mechanism-outcome (ICAMO) (Mukumbang et al. 2018b); context-structure-mechanism-outcome (CSMO) (Bhaskar 2014); or context-intervention-mechanism-outcome (CIMO) (Eastwood et al. 2019c) configurations.

As noted above, critical realist empirical data can be both quantitative and qualitative and with both an intensive and extensive focus. The study designs used are many but usually are mixed methods in nature.

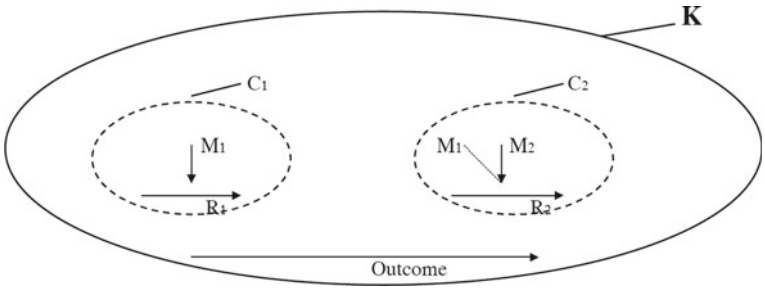

Fig. 37.13 Programme theory of change in demi-regulatory within context (Tilley 2000)

Box 2: Case Study of Realist Evaluation of an Integrated Care Network (Singapore)

Nurjono and colleagues (2018) describe a protocol for a proposed evaluation of an integrated care network, the National University Health System (NUHS) Regional Health System (RHS), Singapore, consisting of acute hospitals, step-down care, primary care providers, social services and community partners using a theory-driven realist evaluation approach. This study aims to examine how and for whom the NUHSRHS works to improve healthcare utilisations, outcomes, care experiences and reduce healthcare costs. IPT was elicited and developed through reviews of programme documents, informal discussions and in-depth interviews with relevant stakeholders. A convergent parallel mixed-method study was proposed using both quantitative and qualitative data with both data sources given equal weight (Fig. 37.14).

Box 3: Realist Evaluation Case study of an Antiretroviral Treatment (ART) Intervention (South Africa)

Mukumbang and Colleagues (2018b) describe a realist evaluation study of an antiretroviral treatment (ART) intervention in South Africa. The intervention was an adherence club designed to enhance the retention in care of patients on ART and their adherence to medication. The study design was a cross-case explanatory analysis of three contrastive sites. First, we selected three contrastive cases. (1) Typical case—the most representative of the phenomenon

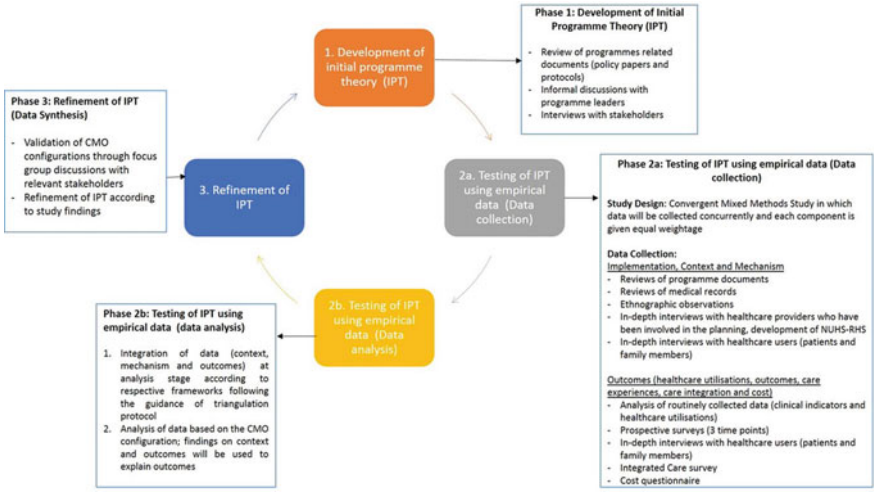

Fig. 37.14 Realist evaluation processes and research phases (Nurjono et al. 2019)

being explored; (2) deviant case—most likely case to be negative regarding the phenomenon under consideration and; (3) crucial case—a case that is critical in understanding the phenomenon. The three phases were (1) eliciting the initial programme theory; (2) testing the initial programme theory in contrastive sites; and (3) building a more refined programme theory based on the findings from the contrastive case studies Fig. 37.15.

The study initially explored a typical case, a well-performing facility as representing an ideal implementation and outcome of the intervention. The first case was used to refine the initial programme theory (Mukumbang et al. 2019c). The study then assessed a deviant case, an underperforming facility regarding the implementation of the intervention and formulated ICAMO-based theories based on the initial programme theory (Mukumbang et al. 2018a). The third case studied was an average performing facility (a crucial case) as it offered an alternative context to further refine the developing programme theory (Mukumbang et al. 2019c). Cross-case analysis was achieved by placing different within-case theories in a juxtaposition allowing for the differences and similarities to become apparent. Finally, the researchers searched for variation in the contexts accounting for the

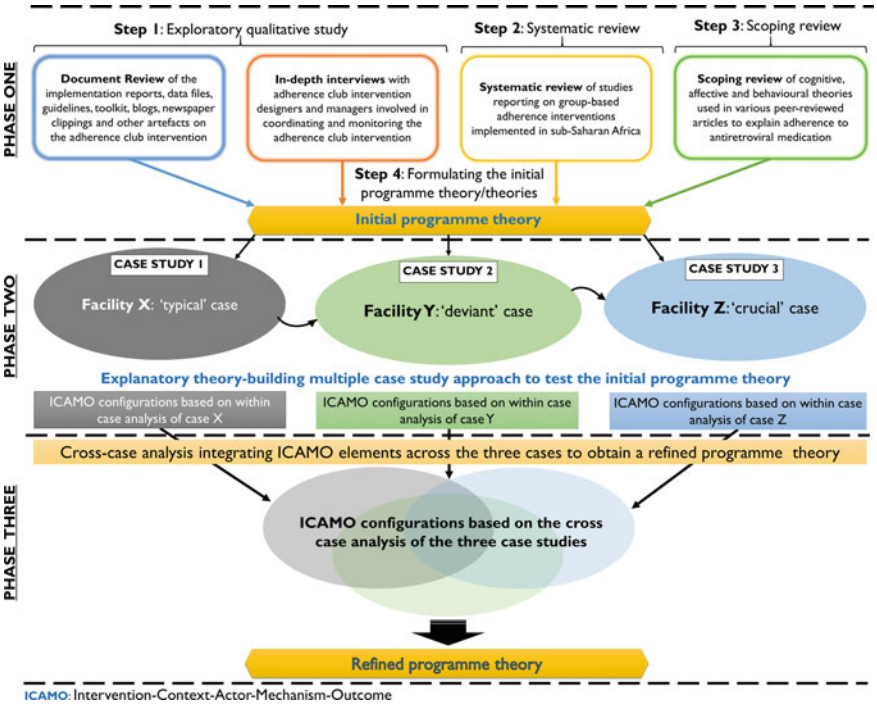

Fig. 37.15 Three phases of realist enquiry (Mukumbang et al. 2018b)

differences (if any) to generalise across cases and assessing how the most important outcomes might have been achieved.

37.6 Realist Evaluation of Complex Interventions

Campbell and colleagues described the original UK Medical Research Council (MRC) framework for evaluating complex interventions, which included sequential phases of development, feasibility testing and evaluation followed by estimation of effect size using a randomised control trial and finally full implementation (Campbell et al. 2000). The 2008 MRC guidance placed greater emphasis on the use of evaluation to build theory and understand causal mechanisms. The guidance proposed a four-phase, cyclical framework of development, feasibility/piloting, evaluation and implementation (Craig et al. 2008b). The double arrows are intentional and denote the iterative nature of the development, testing, evaluation and implementation cycle. The integration of realist principles into those MRC frameworks was described by (Fletcher et al. 2016), and realist methods are included a 2019 revision.

Box 4: Realist Evaluation Case study for a Vulnerable Families Integrated Care Initiative (Sydney)

Drawing on earlier critical realist research, Eastwood and colleagues used realist causal and programme theory to inform the collaborative design of a complex integrated care initiative for vulnerable families (Eastwood et al. 2019b). The design elements included: identification of vulnerable family cohorts; care coordination; evidence-informed intervention(s); general practice engagement and support; family health improvement; placed-based neighbourhood initiatives; interagency system change and collaborative planning; monitoring of individual and family outcomes; and evaluation.

The 2008 MRC framework for evaluating complex interventions was used to inform the realist evaluation (Fig. 37.16) (Eastwood et al. 2019a; d).

37.7 Conclusion

This chapter provides a synopsis of the empirical inquiries guided by the critical realist research paradigm. It reflects on how research designs and methods are influenced by the critical realist ontological and epistemological stance. The material presented here is meant to introduce the reader to other possible research

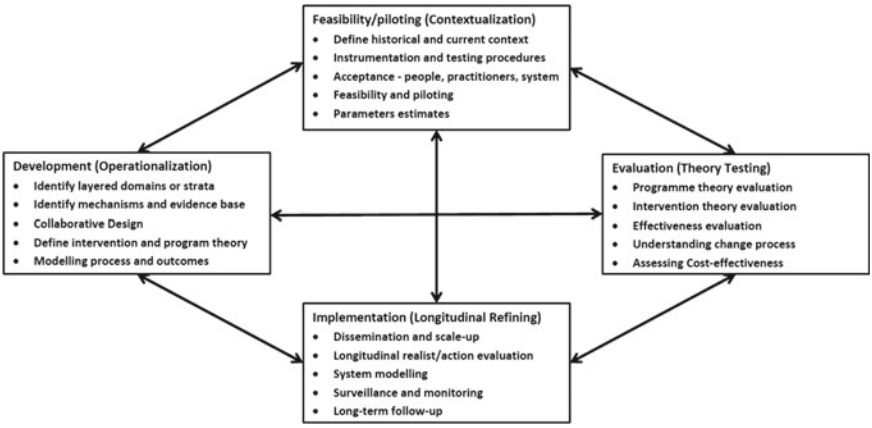

Fig. 37.16 Key elements of the development and evaluation process, adapted from (Craig et al. 2008a)

methods and what can be achieved by employing these research methods. The material is presented as a supplement to what they already know, with an aim to extend their knowledge of alternative, if not more appropriate, approaches to achieve their research and practice goals. This chapter has introduced the basic concepts governing realist-informed inquiries and practice, and we have provided references, throughout the chapter, that readers can use to inform a deeper understanding of different aspects of realist inquiries.

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