Critical realism: An important theoretical perspective for midwifery research

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Background: there is a dearth of papers in midwifery journals exploring the philosophical underpinnings of various research methods. However, explaining and justifying particular ontological and epistemological positions gives coherence and credibility to chosen research methods.

Objectives: to explore and explain the philosophical underpinning of critical realism and argue for it to be more widely adopted by midwifery researchers, using the exemplar of dystocia research.

Discussion: critical realism as originally espoused by Bhaskar sees reality as layered (realist ontology) and seeks to explore causative mechanisms for what is experienced and observed. In this way it illuminates the complexity of health care, though recognising that knowledge of this complexity is filtered through an interpretive lens (constructionist epistemology). Critical realism encourages a holistic exploration of phenomena, premised on multiple research questions that utilise multiple research methods.

Implications for research: critical realism as a philosophical underpinning is therefore particularly apposite for researching midwifery issues and concerns.

Introduction

Midwifery research has grown exponentially over the past 20 years and has been widely disseminated in a range of midwifery and obstetric journals. Research methods that are utilised are increasingly eclectic and reflect the variety of research questions addressing different aspects of childbirth. However conspicuously absent in midwifery journals has been in-depth discussion and debate about the philosophical underpinning of different research methods, though these have taken place in midwifery research texts (Dykes, 2004) and other health professions' journals (Wainwright, 1997; McEvoy and Richards, 2006). The debate asks important questions about the nature of reality (ontology) and how we gain knowledge of it (epistemology). Such a focus is fundamental to research endeavour because unless the right questions are asked about the reality we are attempting to describe, explore or explain, then our knowledge of that reality will remain superficial and impoverished and is less likely to make a difference to childbirth practices and women's experience. In addition, it can result in research that is inadequately justified, lacks internal coherence and therefore lacks wider credibility (Clark et al., 2008).

An example of this is the current research into dystocia, a complication of labour that is the principal contributor to caesarean section in nulliparous women (Gregory, 2000). Most of the research has explored interventions to speed up labour – there are currently at least three relevant Cochrane reviews on the prevention (Wei et al., 2009) and treatment of dystocia (Bugg et al., 2011; Kenyon et al., 2013) – or on women's experience of dystocia (Nystedt et al., 2008). The methods utilised in these studies have been randomised controlled trials and phenomenology in the main. The former promises certainty in addressing the condition, based as they are on a positivist epistemology (knowledge that is always true and generalisable) and the latter on the contingency of how individual women interpret their experience of dystocia (knowledge that is context dependent and particular to the individual). However, the incidence of dystocia and its negative consequences for women continues to rise (Bragg et al., 2010). If researchers had grasped the limitations of their research methods by critiquing their ontological and epistemological underpinning, they might have asked different questions about the aetiology of dystocia, researched different interventions to manage it and ultimately had a greater impact on women's outcomes and experience.

Nine years ago, Anderson (2004) began asking different questions about the aetiology of dystocia, suggesting some new
categories – organisational dystocia (lack of continuity of care on labour wards), environmental dystocia (clinical, non-homely décor) and interpersonal dystocia (disagreements between labour ward midwives and obstetricians). Of course what she was hinting at were environmental, social and psychological effects that could impinge upon a woman’s ability to labour normally. Later, Downe and McCourt (2008) articulated the limitations of studying labour predominantly by using randomised controlled trials (RCT’s) because the theoretical foundations of trials reside in a positivist epistemology based on simplicity, linearity and certainty. However, labour does not unfold with a singular cause and effect physiology (oxytocin secretion therefore cervical dilatation) which then proceeds with regularity (cervix dilates in a constant trajectory) to end with birth at a relatively predictable point (average of 10 hours). It is a much more complex phenomenon which might more accurately be referred to as ‘orderly chaos’ (Winter and Duff, 2009). Clearly, experiences like labour are impacted on by multiple factors in the physiological, psychological and social domains. Simply applying quantitative research methods suited to the controlled confines of a laboratory are not going to capture the intricacies of the uncontrolled milieu of a labour ward.

As midwifery researchers, we need a theoretical underpinning that can accommodate this complexity and prompt us to examine phenomena more holistically, researching it from multiple perspectives. Bhaskar (1997), a British sociologist and philosopher, opened up this possibility in the 1970s by introducing Critical Realism as an ontological and epistemological position from which to research people in their social/health context. The remainder of this paper explores this position and why it is particularly apposite for midwifery research.

Stratified ontology of critical realism

Bhaskar argues for three level of ontology: the ‘empirical’, the ‘actual’ and the ‘real’. These are illustrated using the tree representation in Fig. 1.

The first and most superficial is the ‘empirical’ which is what can be observed or experienced (tree branches in Fig. 1). Underneath this empirical level is the ‘actual’: what is going on that may not be observed but which is regulating the empirical (tree trunk, obscured by wall in Fig. 1). Bhaskar posited that there was a final layer which he called the ‘real’ that underpins the ‘actual’ (tree roots in Fig. 1). These are ‘generative mechanisms’ that contribute to our understanding of the ‘actual’ but which are not fully explanatory. Rather, they are ‘tendencies’ or causative agents. It is this layer which marked out Bhaskar’s ontology as distinctive from all that had gone before. Critical realism views unobservable structures as real on the grounds that their effects can be experienced or observed (Bryman, 2001).

The application of Bhaskar’s ontological levels to labour would be thus (Fig. 2):

- At the ‘empirical level’, uterine contractions are experienced by the labouring woman and observed by an attendant who can also measure the dilatation of the cervix.
- Oxytocin causing the uterine myometrium to contract and the cervix to dilate, the occipito-anterior position of the fetal head placing even pressure on the cervix, and upright posture assisting the fetal head to descend represent the ‘actual level’. Childbirth professionals have come to understand this level through the analysis of maternal blood, dissection of uterine muscle and laws of physics (gravity).
- The deepest level is the ‘real’ where generative mechanisms operate to stimulate oxytocin release. Many factors contribute to this. Physiologically, adrenaline mediates oxytocin release (Rosenfeld et al., 1976) but adrenaline itself is highly sensitive to a number of other mechanisms. These include environmental stimuli. Water immersion or being in a home-like setting reduce adrenaline levels and increase oxytocin levels (Church, 1989; Buckley, 2010). In addition, interpersonal/relational factors like verbal encouragement and empathic responses from birth companions can increase oxytocin and reduce adrenaline (Uvnas-Moberg, 2003). Then there are psychological dimensions like a woman’s cognitive and affective dispositions that can influence her response to threat (Dunn et al., 2012). Of recent years, evolutionary biology has contributed to our understanding of the role of compassion in neuro-hormonal responses in reducing stress in humans (Gilbert, 2010). Thus, there are a series of generative and overlapping mechanisms operating at the ‘real’ level that ultimately impact on uterine contractions at the ‘empirical’ level.

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**Fig. 1.** Tree diagram of three ontological levels: empirical, actual, real. (Adapted from Dyson and Brown (2005).)
Fig. 2 illustrates how macro level phenomena, such as organisational structures, the built environment, social relations and individual psychology influence micro level phenomena such as physiological, anatomical and cellular activities but are not reducible to them. Bhaskar (1997) refers to this as the concept of emergence – how surface phenomena are influenced by and rooted in sub structures but are not completely explained by them. The value of this stratified ontology is that explanations for changes at the empirical level can be searched for from many sources. Conventional approaches to labour dystocia have prioritised quite superficial engagement at the level of the ‘empirical’ and ‘actual’ in the quest for effective treatments. Hence artificial rupture of membranes and infusion of synthetic oxytocin contribute to anatomical and physiological alterations at these levels without an examination of the ‘real’ generative mechanisms at all. In fact, these treatments may have negative repercussions on generative mechanisms. This begins to explain why the incidence of dystocia in current practice remains high. It is probable that its real aetiology is not being addressed. This conclusion is supported by the corollary that water immersion (Cluett and Burns, 2009), continuous support in labour (Hodnett et al., 2012a, 2012b) and home-like environment (Hodnett et al., 2012a, 2012b) all shorten labour length. Critical realism thus holds that individuals and social practices cannot be studied in isolation.

Bhaskar argued that applying laboratory-distilled cause and effect relationships outside of the laboratory involved moving from a closed system, where empirical regularities can be studied through manipulation and repetition of experiments, to open systems where generative mechanisms become more contingent and indeterminate (Clark et al., 2008). This is because of the complexity of open systems, requiring us to look more expansively and exhaustively in the search for causative agents.

Childbirth is replete with examples of complexity impacting in ways that are not well understood and which are resistant to randomised controlled trials’ attempts to uncover a discrete causation. Non-institutional birth (Brocklehurst et al., 2011), midwife-led care (Hatem et al., 2008) and continuous support in labour (Hodnett et al., 2012a, 2012b) are all examples of complex interventions that show better outcomes for low risk women, but for which we have only tentative explanations. For example, Walsh and Devane (2012) meta-synthesised all the qualitative research on midwife-led care in an effort to explain its advantage, suggesting it was related to enhanced autonomy of women and midwives in this context. Fahy and Parratt (2006) developed a theory (birth environment and midwifery guardianship) from qualitative interviews with women and midwives that describes... the relationships between the environment of the individual birth room, issues of power and control, and the way the woman experiences labour physiologically and emotionally” (p. 4). Their interest was related to the advantages of birth centres as an alternative to institutional birth. Arguably, if these and other elements contributing to better outcomes could be teased out from these complex interventions, then their application might start to make a difference in conventional labour wards where most women continue to birth.

Constructionist epistemology of critical realism

The above examples also illustrate that knowledge of these stratified layers of reality is always partial, incomplete and revisable in the light of new research. This is not just because generative mechanisms are never fully explanatory but also because our interpretive lens filters information as we receive and respond to them (Easton, 2010). Knowledge is literally constructed by us as we discover and uncover the complexity of phenomena. An interpretive lens operates at an individual and social level. This explains why people have or observe the same experience but relate it in contrasting ways. For example, midwives and labouring women can share in the same birth but have quite different interpretations of childbirth pain (McCrea et al., 1998). Childbirth is understood in contrasting ways across cultures (Callister et al., 2003) and the same midwife can make different decisions with the same client group depending on where the birth occurs (Crabtree, 2008). These are all examples of the contingent nature of knowledge derived from very similar ontological events.

Though critical realism endorses a constructionist epistemology which has traditionally struggled for legitimacy as a way of knowing alongside positivism’s perceived objectivity and generalisability, it can have significant explanatory power beyond the local setting of the research (DeForge and Shaw, 2012). This is because it attempts to explore and elucidate foundational tendencies that underpin surface phenomena – the generative mechanisms explained earlier. Sociologists, feminists, economists and others have utilised this intent to explore the impact of racism (Porter, 1993) patriarchy (Al-Hindi, 1997) and globalisation (Lloyd, 2003) in their respective fields. From an ontological perspective, neither racism, patriarchy nor globalisation are ‘real’ in the sense of possessing materiality but are ‘real’ in their power to shape experience at the empirical level. The ‘constructed’ knowledge gained from the analysis of generative mechanisms operating in the social sphere have enabled individuals and groups to see for the first time the causal agents of their oppression, helping them to confront discrimination and injustice. Writers like Edwards, Kirkham and Murphy-Lawless, reflecting on their childbirth research have empowered birthing women and midwives to expose and challenge the loss of autonomy (Edwards, 2005), lack of choice (Kirkham, 2004) and professional hegemony (Murphy-Lawless, 1998) that they experience in the maternity service. Thus critical realism contributes to our understanding of knowledge as power, arguably more effectively than positivist or interpretivist approaches.

Inclusive and holistic intent of critical realism

One of the benefits but also challenges of looking more broadly for generative mechanisms, are that it encourages researchers to look beyond their intra-disciplinary and inter-disciplinary fields. By acknowledging complexity, collaborations with tangential and seemingly unrelated fields of enquiry become much more common. In recent years, anthropologists (McCourt et al., 2012), sociologists (Reiger and Lane, 2012) psychologists (Bradley et al., 2008), geographers (Bourgeault et al., 2012), historians (Borsay and Hunter, 2012) and architects (Lepori et al., 2008) have collaborated with midwives in researching childbirth. Arguably this approach has increased our understanding of the multiple
dimensions of childbirth and has challenged unitary disciplines to study more broadly and inclusively. This is reflected in pre-registration midwifery curricula with the incorporation of sociology, psychology, and philosophy content and in university structures where midwifery departments can be found in social science rather than medicine faculties.

It marks a definitive move away from an exclusive focus on biomedical research within childbirth and health care more generally. Biomedical research has tended to look narrowly at clinical problems. For example, biomedically-led research on intra-uterine growth restriction (IUGR) has examined in depth the role of obstetric ultrasound in diagnosing the condition and ascertaining the optimum time to induce labour in women with IUGR (De Reu et al., 2008). However, it has been slow to enquire into possible psycho-social aetiology or to engage social support interventions, despite emerging evidence that tailoring these interventions to at-risk groups may reduce IUGR’s incidence (Norbeck et al., 1996). These therefore illustrate a reality that social support interventions appear to increase well-being and self-efficacy, reducing the impact of long term stress. Laboratory research has already established that chronic maternal stress inhibits fetal head circumference growth (Mulder et al., 2002). Latendresse’s (2009) overview of the aetiology of preterm labour suggests a link with chronic maternal stress and social support interventions have begun to address this through programmes like group antenatal care that have shown a reduction in preterm birth (Ickovics et al., 2007). It illustrates again how causation can operate in a number of interrelated domains—social, psychological and physical. Thus a critical realist approach challenges researchers to vacate their professional silos and collaborate across disciplines to holistically examine clinical phenomena.

**Axiology (value base) and critical realism**

Axiology (MacDonald, 2004) refers to values or moral positioning that underpin research endeavour, and, like ontological and epistemological positions, these inevitably shape decision-making during the research process. Though positivism explicitly claims to be value free, associating values with bias, research under this umbrella is often premised on the moral good of more effective treatments to relieve human suffering. Some qualitative research methodologies make a value or moral position their raison d’etre, for example feminist methodology which seeks to unmask and challenge gender inequality (Letherby, 2003). Bhaskar’s conception of critical realism sought to enhance human freedom and flourishing, aligning it explicitly with this value base (Maxwell, 2012). This can be illustrated in social research by how critical realists address the long-standing tension between structure and agency. The question here is whether it is social structure or individual agency that governs social behaviours (Giddens, 2009). Critical realism’s focus on exposing generative mechanisms (social structures) may reveal these to be oppressive or controlling of individuals and groups. This new knowledge raises consciousness and awareness in those affected so that previous unrecognised needs and wants e.g. self-expression, self-determination, autonomy, become desirable and sought after. The balance shifts from structure to agency and the powerless become empowered. It illustrates how the ‘critical’ component of critical realism links with the philosophical tradition of critical theory, a connection explicit in Bhaskar’s writing (Benton and Craig, 2010).

Applications of this to midwifery have already been mentioned regarding research by Kirkham and others whose writing is often infused with feminist values and who explicitly promote a woman-centred ethos. Though they have not described the theoretical underpinning of their research as critical realism, the focus on identifying deeper, often oppressive structures at work in maternity care that shapes the experience of care suggests the stratified ontology of critical realism.

**Mixed methods research and critical realism**

In researching childbirth within this paradigm it follows that research questions can proliferate and require multiple methods to address them. The growth in mixed methods research in the past ten years serves to illustrate increasing engagement with complexity in health care and the realisation that no one method is likely to definitively provide an answer to the focus of enquiry. Using an analogy from art, it is akin to a canvas being sketched in outline with the detail gradually filled in over time. Mixed methods are utilised for this purpose.

Critical realism is one of two philosophical underpinnings widely referenced in mixed method research (Creswell and Plano Clark, 2011). The other is Pragmatism which is focused from the start on the practicalities of ‘what works’ (Scott and Briggs, 2009). It is less concerned with achieving epistemological and ontological congruence, though for many researchers, these questions remain on the horizons as all research endeavour implicitly, if not explicitly, endorses a way of being and seeing.

Other research methodologies that lend themselves to the theoretical backdrop of critical realism are action research (Houston, 2010) and case study research (Easton, 2010). Action research with its focus on change inevitably explores the complexity of achieving this in the practice or organisational context. Through multiple methods of data collection, it tries to elucidate the key factors that cause resistance to change and, in the process, will identify generative mechanisms that have to be addressed for change to be sustained. In addition, action research’s axiology is often emancipatory. Case study method commonly explores the depth and breadth of the case or cases to explain or theorise why, how, when and where questions. These will often have to uncover generative mechanisms and explain how they influence the case if the end research product is to maximise transferability to other settings.

Both action research and case study methods reinforce the potential that critical realism offers regarding its explanatory power beyond the immediate context of the research. This is because the uncovering of causative agents facilitates theoretical generalisation (Yardley, 2008).

**Critique of critical realism**

It is important to mention that critical realism has itself been subjected to critique from both positivists and interpretivists. Positivists argue that critical realists are open to the charge of bias in their utilisation of values of human emancipation and flourishing in the research endeavour, because the application of values in any given situation is a judgement call (Hammersley, 2009). Critical realists respond by saying that these values underpin all research endeavours whether acknowledged or not and therefore the judgement call needs to be as informed as possible – hence the importance of ascertaining generative mechanisms.

Interpretivists challenge how a layered ontology can be identified with any certainty as any reality is provisional and contestable and, in any case, our knowledge of it is partial and subjective (DeForge and Shaw, 2012). Critical realists would say the deeper layers of ontology are real because their effects are real and it is therefore incumbent on researchers to seek them out as comprehensively as possible, whilst acknowledging that they remain generative, rather definitive mechanisms. Only then can change in effects at the empirical level be addressed effectively.
Both of these critiques are evident in the nursing academic literature where the exploration and examination of a critical realist perspective on不好读性。


Reiger, K., Lane, K., 2012. “How can we go on caring when nobody here cares about us?” Australian public maternity units as contested care sites. Women & Birth 26, 133–137.


