

Case Study Observational Research: A Framework for Conducting Case Study Research Where Observation Data Are the Focus

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Abstract

Case study research is a comprehensive method that incorporates multiple sources of data to provide detailed accounts of complex research phenomena in real-life contexts. However, current models of case study research do not particularly distinguish the unique contribution observation data can make. Observation methods have the potential to reach beyond other methods that rely largely or solely on self-report. This article describes the distinctive characteristics of case study observational research, a modified form of Yin's 2014 model of case study research the authors used in a study exploring interprofessional collaboration in primary care. In this approach, observation data are positioned as the central component of the research design. Case study observational research offers a promising approach for researchers in a wide range of health care settings seeking more complete understandings of complex topics, where contextual influences are of primary concern. Future research is needed to refine and evaluate the approach.

Keywords

appreciative inquiry; case studies; case study observational research; health care; interprofessional collaboration; naturalistic inquiry; New Zealand; observation; primary health care; research design; qualitative

Direct observation has been described as the gold standard among qualitative data collection techniques (Murphy & Dingwall, 2007). Observing people in their natural environment not only avoids problems inherent in self-reported accounts (Mays & Pope, 1995), but can also reveal insights not accessible from other data collection methods, such as structures, processes, and behaviors the interviewed participants may well be unaware of themselves (Furlong, 2010). Yet, despite now well-documented advantages of observation over other forms of qualitative data collection, to date, observation methods have been underused (Mulhall, 2003; Walshe, Ewing, & Griffiths, 2012), and interviews remain the most common form of qualitative inquiry in health care research settings (Morse, 2003; Phillips, Dwan, Hepworth, Pearce, & Hall, 2014; Russell et al., 2012). Undertaking observation, particularly in-depth forms of observation such as traditional ethnography (Savage, 2000), is often time-consuming, costly, and practically challenging in health care settings (Curry, Nembhard, & Bradley, 2009; Morse, 2003; Savage, 2000; Walshe et al., 2012).

More pragmatic contemporary approaches to observational research suitable for health settings combine less

intensive observation data collection methods with other forms of data collection in a case study or other type of multiple-method design (Hjalmarson, Ahgren, & Kjölrsrud, 2013; Kislov, Walshe, & Harvey, 2012). Incorporating multiple qualitative methods generates the opportunity for more complete explanations. However, the unique value of observation methods in multiple-methods research has remained largely unexplored. All too often, such studies are in fact predominantly interview driven, failing to use observation data to their full potential or not reporting them distinctively (Morgan, Pullon, & McKinlay, 2015; O'Cathain, Murphy, & Nicholl, 2008).

The focus of this article is on an observationally driven approach to case study research the authors adopted

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during the Study of Interprofessional Practice in Primary Care (SIPP Study)—a multiple case study designed to explore interprofessional collaboration (IPC) in primary care teams in New Zealand. We have coined the term *case study observational research* (CSOR) to denote this as a distinct form of case study research (CSR). The approach incorporates both non-participant observation of practice activity and policy documents and the non-observation method of interviewing. However, CSOR gives priority and precedence to the collection and analysis of observation data, to better understand complex phenomena, such as IPC.

CSR examines “a contemporary phenomenon in depth and in its real-world context” (Yin, 2014, p. 237). Multiple methods are used to collect data for each “case” or subject of study, which is not the same as mixed-method research (Morse & Cheek, 2014; Yin, 2014). As a method, CSOR is specific to CSR design. To place our CSOR approach in its methodological context, we first provide an overview of the two key antecedents to the approach: CSR and observation methods. Second, we describe the informing philosophical approach and the research setting in which CSOR was developed and finally define the three distinctive features of the approach.

Overview: Case Study Research and Observation Method

CSR is a comprehensive method increasingly applied in health sciences research (Anthony & Jack, 2009; Boblin, Ireland, Kirkpatrick, & Robertson, 2013; Carolan, Forbat, & Smith, 2016) to investigate “how” or “why” qualitative research questions, “when the investigator has little control over events and when the focus is on a contemporary phenomenon within some real-life context” (Yin, 1994, p. 1). In this way, CSR differs from other research methods, such as experiments, which purposefully separate a phenomenon from its context. In CSR context is inextricably linked to the phenomena under investigation and, therefore, is crucial to understanding real-world cases (Yin, 2014).

Several models of CSR exist, each emphasizing different philosophical positions (Abma & Stake, 2014). Within the health care arena, Yin’s (1994) model is commonly described and used. Case studies can include either single- or multiple-case designs. Depending on the context, multiple cases can provide greater confidence in findings generated from the overall study (Yin, 2014). A characteristic feature of CSR, the collection of data using multiple sources for each case (Carolan et al., 2016), allows triangulation of evidence. Triangulation improves the accuracy and completeness of the case study, strengthening the credibility of the research findings (Cronin, 2014; Yin, 2014). Sources of data collected vary

depending on the research question. Commonly used methods include interviews, observation of archival records, and direct observation of study participants (Yin, 1994).

Either as part of CSR or as a stand-alone method, observation methods involve directly observing and recording how research participants behave within and relate to their physical and social environment as it unfolds (Mays & Pope, 1995; Mulhall, 2003). Observation provides “insight into interactions between dyads and groups; illustrates the whole picture; captures context/process; and informs about the influence of the physical environment” (Mulhall, 2003, p. 307). Approaches to observation vary according to the philosophical orientation of the research and the role researchers adopt along the continuum of observer to participant (Walshe et al., 2012). Observation methods may consist of non-participant observation, where the researcher has no other relationship with the group being observed (including shadowing; Quinlan, 2008) through to participant observation, where the researcher is also a member of the group being observed (Bloomer, Cross, Endacott, O’Connor, & Moss, 2012). Recording methods range from structured template recording to unstructured field noting (Walshe et al., 2012). More recently, video-recording techniques have proved a valuable way to capture observations (Carroll, Iedema, & Kerridge, 2008; Collier, Phillips, & Iedema, 2015; Cronin, 2014; Forsyth, Carroll, & Reitano, 2009; Iedema et al., 2009).

Compared with observation methods, non-observation (self-report) qualitative methods, such as interviews or focus groups, are typically less challenging to undertake but are subject to participant reporting problems (Curry et al., 2009; Morse, 2003; Walshe et al., 2012; see Table 1 for summarized strengths and challenges of observation vs. self-report methods). Thus, observation methods stand in a class of their own. Observation allows the researcher to actually see what people do rather than what they say they do (Caldwell & Atwal, 2005; Mulhall, 2003; Walshe et al., 2012). Systematically observing people in naturally occurring contexts can reveal much more information than individuals may recall, be aware of, choose to report, or decide is relevant than with other self-report data collection methods (Mays & Pope, 1995; Morse, 2003; Mulhall, 2003).

In a health care context, observation methods enable the exploration of elements of health care that are not possible by relying on self-report methods (Oandasan et al., 2009; Russell et al., 2012), providing insights into the complexity of clinical practice (Dowell, Macdonald, Stubbe, Plumridge, & Dew, 2007; Lingard, Reznick, Espin, Regehr, & De Vito, 2002). For instance, observation methods have been used to observe various aspects of the interaction between professionals and patients

Table 1. Observation Versus Self-Report Data Collection Methods: Strengths and Challenges.

Observation Methods		Self-Report Methods	
Strengths	Challenges	Strengths	Challenges
Allows direct examination of behavior/activity in real time	Time-consuming, expensive, and ethically challenging in some settings	Allows participants to describe their own perceptions and views about the topic of interest	Relies on the information participants are willing to talk about, aware of, or able to recall
Provides information about topics participants may be unwilling to talk about, unaware of, or unable to recall	Hawthorne effect—participants may change their behavior when they know they are being observed ^a	Relatively straightforward to undertake	Interview/focus group content is influenced by the perspective of the interviewer/other participants
Undertaken in naturally occurring contexts—allows examination of contextual factors	Field noted/video-recorded observations are influenced by what the observer chooses to record/analyze		Does not capture context

^aLandsberger (1958).

during medical consultations (Dowell et al., 2007; Morgan, 2013). They have also been found to be particularly useful for research involving vulnerable patients where the least intrusion or stress on participants is desired (Bloomer et al., 2012; Bloomer, Doman, & Endacott, 2013; Walshe et al., 2012).

Some well-conducted studies have used observation methods to examine professional practice and communication between health professionals such as team functioning/communication in the operating room (Lingard et al., 2004), ward rounds (Carroll et al., 2008), rehabilitation settings (Sinclair, Lingard, & Mohabeer, 2009), and primary care settings (Oandasan et al., 2009; Russell et al., 2012). Nonetheless, in many health care research studies incorporating both observation and other forms of data collection, the observation data are only mentioned in passing and are therefore underexploited, often taking a “back seat” to interview data (Morgan et al., 2015). Thus, for the study next described, an approach to conducting CSR was required that would combine the strengths of different methods but specifically prioritize the observation data.

Development of the CSOR Framework: The SIPP Study

The SIPP Study conducted in 2012–2014 explored feasible methods of investigating elements of IPC in primary care practice (Pullon, Morgan, Macdonald, McKinlay, & Gray, 2016). CSR (Yin, 2014) was originally selected as an appropriate method, using a multiple case study design. IPC is challenging to investigate, and the essential elements of effective IPC remain obscure (Morgan et al., 2015). IPC has been described as “an active and ongoing partnership, often between people from diverse backgrounds, who work together to solve problems or provide services” (Barr et al., 2005, as cited in Ødegard,

2006, p. 2). It has been shown to improve patient satisfaction (Proudfoot et al., 2007) and health outcomes (Strasser et al., 2008), yet IPC is far from integral to everyday practice (Xyrichis & Lowton, 2008).

At the outset, the research approach drew on both naturalistic inquiry (Lincoln & Guba, 1985) and appreciative inquiry (Cooperrider & Srivastva, 1987). Naturalistic inquiry contends that “realities are wholes that cannot be understood in isolation from their contexts” (Lincoln & Guba, 1985, p. 39). Consistent with the interpretivist tradition of naturalistic inquiry (Lincoln & Guba, 1985), the aim of the research was to explore the observed nature of collaboration between practice team members in context from multiple perspectives. Appreciative inquiry examines what works well in an organization and acknowledges but does not focus on problems (Cooperrider & Srivastva, 1987). Informed by the principles of this approach, we sought to identify key elements influencing effective IPC. A secondary aim was to investigate whether well-established interprofessional competencies developed in Canada (Canadian Interprofessional Health Collaborative [CIHC], 2010) were evident in the everyday practice of primary care teams in a New Zealand context. To extend beyond elements of personal interprofessional relationships and intrinsic team factors that have been well captured by numerous interview-based studies, observation methods were incorporated from the outset in the design of the research. However, as conventional case study models, such as Yin (2014), do not distinguish observation data from other types of data collection in terms of their unique significance and potential, we modified Yin’s CSR method. This observationally driven, sequential approach to CSR explicitly positions the observation data as the central component of the research design, where observation data are both collected and analyzed prior to augmenting by other non-observation methods.

Study Participants and Data Collection

Three widely diverse general practices in a New Zealand region were approached to participate in the study and all agreed to take part, constituting the “cases” included in the study. The practices were purposively selected on the premise that they were already successfully engaged in some interprofessional activity, increasing the potential learnings from the cases (Cooperrider & Srivastva, 1987; Lincoln & Guba, 1985). Practices varied with respect to geographical location, size of enrolled patient population, business model, ownership/governance, and workforce composition. Data collection at each practice included non-participant unstructured observation (Mays & Pope, 1995) of informal practice activity (field notes), meetings (video-recorded), and policy document review (field notes). Observation-informed individual semi-structured interviews (audio-recorded) were undertaken only after other observation data collection was complete. Consent to participate in the study and have informal practice activity observed was obtained from the practice as a whole following presentation of the proposed study by the research team at a practice meeting. Staff then individually consented to the video-recorded meetings and interviews (Pullon et al., 2016).

Direct observation of informal staff interactions at each practice were made by a research nurse with a professional background who was both familiar with the routines and sensitivities of the clinical environment and had extensive experience collecting naturalistic observation data in primary care settings. The research nurse had no prior relationship with the selected practices. Her role and the purpose of the observations, including the appreciative nature of the research, were explained to participants during the initial meeting with the study team. Because we sought to examine how participants naturally interacted with each other, the research nurse situated herself unobtrusively in the practice and had limited interaction with participants. Observations were undertaken in as many of the “common” areas of the practice as possible, excluding consulting rooms. They were also undertaken at different times of the day and week. Consultations with patients were not observed. Observations recorded were governed by the research nurse’s interaction with and growing knowledge of the context. They were not guided by predefined tools or templates (Lincoln & Guba, 1985). Observations were recorded initially as handwritten detailed verbatim field notes with time markers. These notes were supplemented with post-observation summaries generated immediately following the observation period and incorporated the research nurse’s reflections on her own feelings, actions, and responses to the situations observed (Lincoln & Guba, 1985; Mays & Pope, 1995). These field notes and reflective summaries were

promptly circulated to the research team for review, who in turn added comments and observations, which were circulated to all members.

Following observations of informal staff interactions, practices chose which regular practice meeting would be video-recorded by the research nurse on two successive occasions. Different types of meetings were chosen at each practice (i.e., a small team of three to five members; a medium sized team of six to 14 members, and a large team of 15+ members) and included different discipline mixes. Assurance was given as to secure encrypted storage of video and other data. The research team met regularly to review and discuss the video-recorded meetings, and selected sequences were transcribed verbatim. Practice documents (e.g., policies, terms of reference, floor plans) were viewed and summarized as separate field notes. Finally, observation-informed interviews were undertaken with a range of practice staff and transcribed verbatim. Ethical approval was granted by the University of Otago Health Ethics Committee, CEN/11/EXP/038.

Data consisted of a total of 32 hours of field-noted observation of informal practice activity, 6 hours of video-recorded team meetings, 17 individual interviews (duration ranging from 24 to 48 minutes), and 43 reviewed documents. To support the process of analysis, all of these separate items of data, including videos, were imported into the software program NVivo 9 (Bazeley & Jackson, 2013). Preliminary case-specific findings were presented back to each participating practice, and the ensuing discussion further informed and strengthened the credibility of study findings (Boblin et al., 2013; Houghton, Casey, Shaw, & Murphy, 2013). Study results have been reported elsewhere (Pullon et al., 2016).

The remainder of this article focuses on the three features of the CSOR approach that differentiate it from conventional CSR: (a) Observation data are collected prior to and inform the subsequent collection of non-observation data, (b) observation data determine the analytic framework, and (c) observation data are explicitly referenced in the final results. Examples from the SIPP Study are used to illustrate how following this framework afforded precedence to the observation data.

Distinctive Features of the CSOR Framework

The three key characteristics of CSOR differentiate it from conventional CSR and allow the observation data to contribute uniquely to the case study findings. The first difference between traditional CSR and CSOR emerges when it comes to collecting the case study evidence.

Observation Data Collected Prior to (and Inform) the Subsequent Collection of Non-Observation Data

The collection of multiple sources of evidence is central to CSR (Yin, 2014). However, advocates such as Yin do not place any significance or importance on the order in which different sources of data are collected, and individual case studies appear to comprise independent data sets (e.g., interviews, observations, documents, and surveys) collected in no particular sequence.

In contrast to conventional CSR, within the CSOR framework, observation data are analyzed ahead of the subsequent collection of non-observation data. In this way, the collection of non-observation data is informed by the observation data and allows corroboration and further exploration of significant observations (Figure 1). For instance, in the SIPP Study, collecting observations of health professional interactions prior to undertaking individual interviews allowed us to consider actual examples of notable practice team decisions, to explore and confirm with participants during interviews.

Observation Data Determine the Analytic Framework

The analysis of case study data is the most difficult and least developed or described aspect of conventional CSR (Carolan et al., 2016; Cronin, 2014; Yin, 1994). At a broad level, consistent with conventional CSR, our CSOR approach to exploring collaboration in practice teams involved combining multiple sources of evidence to form case study conclusions (Yin, 2014). However, in contrast to conventional approaches, where independently collected sources of data either generate separate findings or integrate simultaneously in the analysis phase to form overall case findings (Yin, 2014), CSOR involves an explicitly sequential approach to analysis (see Figure 1).

A recurring part of the problem with previously published research involving multiple methods is that the interview data governs the framework for the analysis (Morgan et al., 2015). In contrast, in the SIPP Study, as recommended by Morse (2010), each of the different sources of data was initially analyzed and reported separately prior to the result-integration phase. However, the initial analysis stemmed from the observation data as a stand-alone data set, which then informed interview question areas probed during subsequent interviews with individual practice team members. The CIHC (2010) competency framework (including interprofessional communication, patient-centered care, team functioning, role clarification, and conflict resolution) was the starting point that informed the preliminary iterative analysis. Using an overall inductive process (Lincoln & Guba,

1985), the CIHC framework along with de novo categories emerging from the observation data (most relating to contextual influences on IPC) was used to establish the analytic framework contained within each of the descriptive case reports. Interview transcripts were then examined to confirm, supplement, and expand on the observation data in each report.

The descriptive case reports provided a clear chain of evidence linking the detailed case study findings back to the different forms of raw data (Yin, 2014). They also identified similarities as well as potentially important differences between data sources. In a second level of analysis, a general thematic analysis of descriptive case reports (Braun & Clarke, 2006) was undertaken, integrating the observation and non-observation data to generate the case-specific themes. Similarities and differences among the case-specific themes were examined, and overarching cross-case themes were produced. In the course of this inductive analytic process, the CIHC framework did not emerge as key explanatory themes. Using the observation data as the foundation for the analysis in the SIPP Study revealed new understandings about key factors influencing effective IPC that may not have emerged otherwise. Most notably, this included the importance of contextual/organizational elements (the built environment, practice location, and business models), which fostered opportunities for frequent, shared informal communication (Pullon et al., 2016).

Observation Data Explicitly Referenced in Final Results

In the final stage of CSR, adequately reporting the complexity of case findings can be difficult (Baxter & Jack, 2008; Yin, 2014), particularly within the space constraints of health care journals. As with any qualitative study, publications ought to reference specific data examples. This provides readers with the opportunity to examine the detail and evaluate the chain of evidence to determine how conclusions have been reached (Rowley, 2002; Yin, 2014). Yet, in most previous research examining IPC in primary care, referenced examples from observation data are rare, either not mentioned beyond the methods description or referred to ambiguously, embedded within descriptions of the study findings (Morgan et al., 2015). In contrast, in the reported results of the SIPP Study, examples have been included from each of the different data sources and clearly referenced back to the original field notes or other sources (Pullon et al., 2016). Ensuring reported findings are explicitly referenced to data sources in published articles improves the rigor of the research by not only making the chain of evidence transparent but also further increasing the likelihood that the reported findings are not disproportionately represented by self-reported interview data.

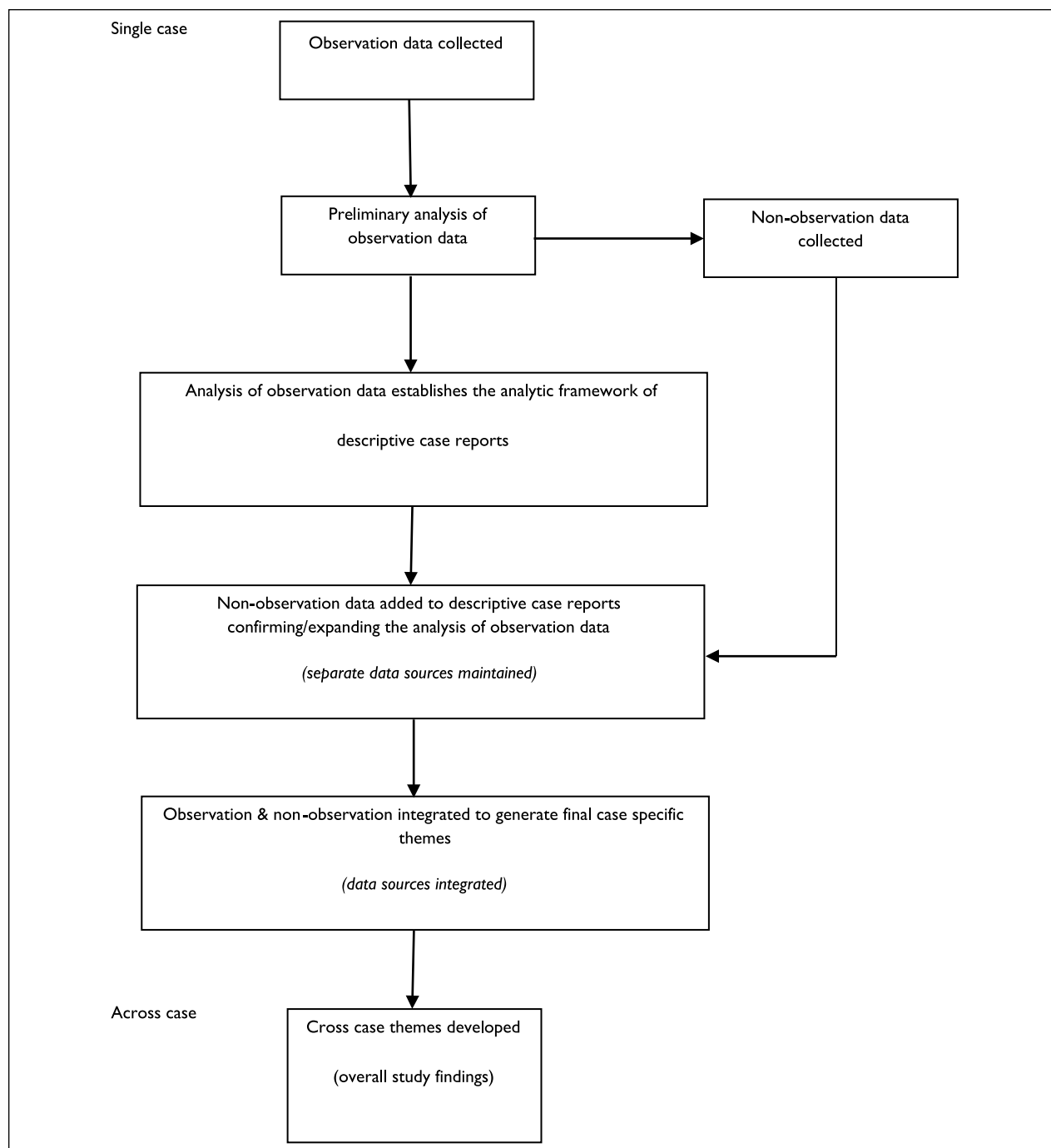


Figure 1. Case study observational research: Sequence of data collection and analysis.

Discussion

This article has proposed a new framework, CSOR, for conducting observationally driven CSR in health care settings. Because of the potential for observation data to contribute uniquely to research findings, CSOR positions observation data at the center of the research design:

Observation data are collected prior to and inform the subsequent collection of non-observation data, and determine the analytic framework and are explicitly referenced in the final results. The fundamental assumption of the approach is that observation is an optimal method for investigating health care phenomena, which are known to be difficult to measure, such as IPC, and where the focus

of the research involves examining how people go about an activity of research interest in a particular naturally occurring context. The knowledge that observation provides significant advantages over self-reported forms of data is not new. However, there is a lack of guiding frameworks available to inform researchers wishing to use observation methods in multiple-method studies, in a way that gives precedence to the observation data.

The key advantage of utilizing a CSOR approach is that through combining observation with other forms of data collection in a CSR design that prioritizes the observation data, a richer understanding of the phenomena of interest can be achieved. Previous research undertaken in health care settings has underutilized observation data, resulting in a predominance of interview-based findings, which appear to underrepresent wider contextual influences (Morgan et al., 2015). In our study, using the CSOR framework revealed important contextual elements influencing effective IPC in primary care teams that had not previously been identified from interview-dominated studies.

Collecting and analyzing observation data prior to collecting interview data is a clear strength of the CSOR approach. This sequential design enabled the research nurse to focus on enabling the context to “speak for itself.” It also provided the opportunity to undertake observation-informed context-specific interviews, revealing important information that may otherwise have been missed. Yet, this sequential design is not without limitations. An important potential risk of using observational findings to inform interviews is that the interviews may raise ethical issues for participants. However, this did not appear to be the case in our study where the selection of observation material discussed during interviews was enriched by the appreciative inquiry approach. In addition, as reported by others using similar qualitative methods in natural settings (Wiles, Coffey, Robison, & Prosser, 2013), ethical safety in our study was further improved by developing relationships of mutual trust with the research participants.

The strength of the sequential design was augmented by the non-participant observer role adopted, allowing the research nurse to unobtrusively observe practice teams from a quasi-“neutral” perspective without any insider knowledge of how each of the particular teams functioned. Participant observation, where the researcher is also an active member of the team, has the advantage of increasing the likelihood participants will behave naturally as the presence of an outsider can influence behavior. However, through the feedback from the practice teams involved and subsequent interviews, we did not find any evidence of participant discomfort with the observations undertaken in our study. Our research nurse’s independent role, along with the appreciative inquiry approach used, is likely to have facilitated her being readily accepted into the practices by the research participants. Importantly, with either type of observer role used, the resulting field

notes must be interpreted as reported accounts of what the observer chooses to observe and record (Caldwell & Atwal, 2005), and reflect a mutual influence between the observer and the observed (Lincoln & Guba, 1985).

CSOR provides an alternative to more complex observational approaches such as traditional ethnography. Whereas traditional ethnographers typically enter the field for sustained periods of time without any formally specified research questions (Cohen & Court, 2003; Roper & Shapira, 2000), CSOR aims to better understand specific complex naturally occurring phenomena through the examination of selected cases. However, the unstructured observation component of the CSOR approach was still a time-intensive aspect in our study. Other limitations of the CSOR framework in its current form are recognized in that it is an exploratory approach, developed iteratively in the course of a study investigating IPC in primary care. More research is needed to further explore and verify the approach. Nonetheless, CSOR will be of interest to researchers working in a wide range of health care settings. CSOR is a modified approach to one form of multiple-method research, CSR. Future research could explore how to extend the principles of the approach to other multiple-method research designs.

Conclusion

Health care research incorporating multiple methods would benefit from more effectively utilizing observation data because of the potential for direct observation techniques to contribute unique knowledge and understanding. The CSOR framework presented in this article is an adapted form of CSR and is in early stages of development. The CSOR framework has been referenced by a study investigating IPC in primary care teams and provides a distinctive approach to CSR that explicitly prioritizes the observation data throughout all stages of the research. The approach was well received by study participants and proved its value, revealing important contextual factors influencing effective IPC that had not previously been identified from interview-based studies.

Case study observational research developed out of a study undertaken in a primary care context; however, the principles of this approach are applicable to researchers working in a wide range of health care settings. In particular, CSOR appears a promising framework for exploring complex research topics where contextual issues are of primary concern.

Declaration of Conflicting Interests

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