

PROTOCOL

Understanding context in knowledge translation: a concept analysis study protocol

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Abstract

Aim. To conduct a concept analysis of clinical practice contexts (work environments) that facilitate or militate against the uptake of research evidence by healthcare professionals in clinical practice. This will involve developing a clear definition of context by describing its features, domains and defining characteristics.

Background. The context where clinical care is delivered influences that care. While research shows that context is important to knowledge translation (implementation), we lack conceptual clarity on what is context, which contextual factors probably modify the effect of knowledge translation interventions (and hence should be considered when designing interventions) and which contextual factors themselves could be targeted as part of a knowledge translation intervention (context modification).

Design. Concept analysis.

Methods. The Walker and Avant concept analysis method, comprised of eight systematic steps, will be used: (1) concept selection; (2) determination of aims; (3) identification of uses of context; (4) determination of defining attributes of context; (5) identification/construction of a model case of context; (6) identification/construction of additional cases of context; (7) identification/construction of antecedents and consequences of context; and (8) definition of empirical referents of context. This study is funded by the Canadian Institutes of Health Research (January 2014).

Discussion. This study will result in a much needed framework of context for knowledge translation, which identifies specific elements that, if assessed and used to tailor knowledge translation activities, will result in increased research use by nurses and other healthcare professionals in clinical practice, ultimately leading to better patient care.

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Why this study is needed?

- Healthcare professionals' research use in clinical settings is suboptimal despite increased awareness of and accessibility to research evidence. Context is argued to be one factor contributing to this suboptimal use of research.
- We lack conceptual clarity about what actually comprises context; it is unclear what is meant by 'context' or even if authors are referring to the same concept when they refer to context. This is seriously hindering progress in improving healthcare professionals' use of research in clinical practice.
- This concept analysis will result in a much needed mapping of the context domains and their features that influence healthcare professionals' research use in clinical settings. This knowledge is necessary to develop common assessment tools to measure context to: (i) tailor the design and delivery of knowledge translation interventions to improve healthcare professionals' use of research, (ii) to better interpret the effects of knowledge translation interventions and (iii) to pragmatically guide knowledge users in their implementation efforts.

Introduction

Nursing practice that is based on robust research evidence is necessary to ensure that patients receive the best possible care and achieve better health outcomes (Rafael 2000, DiCenso 2003). For over a decade, governments around the world have encouraged evidence-based practice (UK Department of Health 1999). In Canada, the National Health Forum declared that 'a key objective for the health sector should be to move rapidly toward the development of an evidence-based health system, where decisions are made by healthcare providers, administrators, policy-makers, patients and the public on the basis of appropriate, balanced and high quality evidence' (National Forum on Health 1997). Despite such calls, a consistent finding is that research use by nurses and other healthcare professionals in clinical practice is suboptimal despite increased awareness of and accessibility to research findings (McGlynn *et al.* 2003, Schuster *et al.* 2003, Lang *et al.* 2007, Lauer & Skarlatos 2010).

Our understanding of how to improve research use by healthcare professionals is incomplete. Knowledge translation, also known as implementation science or knowledge/research utilization, 'is a human enterprise that can be studied to understand and improve knowledge translation approaches' to increasing healthcare professionals' use of research (Lapaige 2010). Knowledge translation science can further be described as 'the study of the determinants, processes and outcomes of knowledge translation' (Lapaige 2010). It is a relatively new interdisciplinary field focused on establishing a generalizable theoretical and empirical basis to optimize interventions to increase research use in clinical practice. The influence of 'context' (broadly known as

the work setting or environment) on research use is receiving increased attention. Interventions to improve healthcare professionals' use of research in clinical practice are typically complex, involving multiple components targeting individual behaviours, team factors, organizational processes and modes of delivery, each of which can act independently or interactively (May *et al.* 2007, Craig *et al.* 2008). May and colleagues argue that the effectiveness of such interventions in clinical settings depends on 'contextual' factors that: (1) cause and sustain the problem the intervention is designed to overcome; (2) influence the susceptibility of the problem to the intervention; and (3) determine how the intervention can work (May *et al.* 2007). Context can also differ between settings and change over time. This makes understanding the context where KT interventions are delivered essential to: (1) designing and implementing knowledge translation interventions that are likely to have larger effects; and (2) determining whether a knowledge translation intervention that is effective in one setting might be transferrable to other settings (May *et al.* 2007). Whilst there is growing recognition that 'context' can modify the effects of knowledge translation interventions that aim to increase nurses' and other healthcare professionals' use of research in clinical practice, we lack conceptual clarity about what actually comprises context, which is seriously hindering progress in the advancement of evidence-based practice in health care.

Background

Healthcare professionals' use of research evidence in clinical practice is suboptimal. A seminal study conducted in the USA showed that patients, on average, received just 55% of care recommended by research evidence and that the quality of this care varied vastly by medical condition, from 11% (for alcohol dependence)–79% (for senile cataracts) (McGlynn *et al.* 2003). Similar findings are reported globally (Grol 2001) resulting in considerable interest in healthcare professionals' research use in clinical practice. In several studies, researchers have identified the need to assess the context where implementation is to occur to improve research use in clinical practice (Glaser *et al.* 1983, Backer 1991, Rich & Oh 1994, Landry *et al.* 2001, Greenhalgh *et al.* 2004, Mitton *et al.* 2007, Kimberley & Cook 2008, Doherty *et al.* 2010, Squires *et al.* 2011a,b,c).

While consensus exists on the importance of context, there is lack of agreement on what comprises context. It is unclear what is meant by 'context' or even if authors are referring to the same concept when they refer to con-

text. For example, Ovretveit (2011) defines context broadly as all factors that are not part of the intervention. May *et al.* (2007) adopt a more specific definition: 'the physical, organizational, institutional and legislative structures that enable and constrain and resource and realize, people and procedures'. French (2005) define context as 'the organizational environment of healthcare, composed of physical, social, political and economic influences on the practical reasoning and choices of practitioners about how clinical issues are addressed' (p. 174), while Rycroft-Malone (2004) defines it as 'the environment or setting in which the proposed change is to be implemented' (p.299).

In addition to multiple definitions, context has been examined in knowledge translation research from a variety of perspectives including syntheses on the determinants of innovation adoption (Fleuren *et al.* 2004, Greenhalgh *et al.* 2004, Berta *et al.* 2005), the role of context in quality improvement (Kaplan *et al.* 2010), context features associated with research utilization (Estabrooks 2003, Meijers *et al.* 2006, Hutchinson *et al.* 2010); as well as its role in knowledge translation frameworks (e.g. Kitson *et al.* 1998, Damschroder *et al.* 2009, Kitson *et al.* 2008, Ward *et al.* 2012) and in the development of instruments to measure context (e.g. (French *et al.* 2009, Estabrooks *et al.* 2009, McCormack *et al.* 2009, Helfrich *et al.* 2009, Brennan *et al.* 2012). While each of these reports suggests that context probably influences healthcare professionals' use of research and there is some agreement across them with respect to some domains of context, there is also considerable disagreement across them on what context is (i.e. a definition) and what domains and features of context are important to assess in studies that aim to increase healthcare professionals' research use in clinical practice. Context will often vary by setting; however, a core set of domains of context that is important to nurses' and other healthcare professionals' use of research in clinical practice may exist. While each domain may be more or less important in different settings and professional groups, they should, at minimum, be assessed prior to designing and implementing knowledge translation activities to determine their potential for influencing healthcare professionals' use of research in that clinical setting. This first requires that we be able to define context and determine what this core set of domains of context (and their features) might be.

It is also unclear from the literature whether authors are identifying conceptually distinct constructs of context or similar constructs but using different terms. As a result, a concept analysis of what comprises context is needed. For example, Greenhalgh *et al.* (2004) in a review of innova-

tions in service organizations (including clinical practice settings such as hospitals) identified structural (organizational size, functional differentiation, slack resources, specialization) and non-structural (culture, climate, leadership, power balances, social relations, attitudes to risk taking) aspects of organizations as important context features. More recently, two systematic reviews examined context features associated with nurses' and all healthcare professionals' use of research in clinical practice. Hutchinson *et al.* (2010), in a synthesis of 89 publications across multiple health professionals, identified four groups of context factors: cultural, structural, physical and social. Meijers *et al.* (2006), in a synthesis of 10 studies in nursing, identified six context features: role, access to resources, organizational climate, support, education and time to participate in research. Some of these 'context' features (e.g. role, education) are also identified as individual (not context) features important to knowledge translation in other nursing reviews (Estabrooks *et al.* 2003, Squires *et al.* 2011c). Thus, while there is considerable agreement that context has an important influence on the use of research evidence by healthcare professionals in clinical practice, there is little agreement as to: (i) what comprises context or an accepted definition of it; (ii) the domains of context and the features that play a role in facilitating or hindering research use by healthcare professionals and thus; (iii) the domains of context and the features that should be assessed prior to developing and implementing activities to improve healthcare professionals' use of research evidence in clinical practice.

The study

Aim

The aim of this study is to conduct a concept analysis of clinical practice contexts (work environments) that facilitate or militate against the uptake of research evidence by healthcare professionals in clinical practice. This will involve developing a clear definition of context by describing its features, domains and defining characteristics.

Design

We will conduct a concept analysis. 'Concept analysis is a formal, rigorous process by which a concept is explored, clarified, validated, defined and differentiated from similar concepts to inform theory development' (Xyrichis & Ream 2008, p. 233). We will use the Walker and Avant (2005) concept analysis method, which is based on the Wilsonian original concept analysis method (Wilson 1963, Avant

2000). The Walker and Avant method was chosen because it has been successfully used to explore a variety of concepts in nursing and other healthcare professional disciplines (e.g. Holmstrom & Roing 2010, Hansen 2006, Cianelli *et al.* 2003, Ream & Richardson 1996, Wiseman 1996, Montes-Sandoval 1999, Dennis 2003). It is also regarded as the most influential concept analysis model in nursing science (Nuopponen 2010).

For Walker and Avant, concept analysis is a concept development method that is a critical element in theory development. Concept analysis for them is 'a process of determining the likeness and unlikeness between concepts' and its 'basic purpose is to distinguish between the defining attributes of a concept and its irrelevant attributes' (Walker & Avant 2005). The eight steps of the Walker and Avant concept analysis method are described next.

The Walker and Avant concept analysis method

Step 1: select a concept

The model starts with selecting a concept to be analysed. The concept selected for this study is 'context'; our focus will be contextual factors that might influence knowledge translation.

Step 2: determine the purpose of the analysis

This step is to answer the vital question 'Why am I doing this analysis?' (Nuopponen 2010). Our goal in doing this concept analysis is to develop a framework of context that identifies the domains of context and their features that influence healthcare professionals' use of research evidence in clinical practice. Our specific aims are to: (1) clarify the meaning of context; (2) identify key domains of context and their features that influence healthcare professionals' use of research evidence in clinical practice; and (3) develop a theoretical definition of context.

Step 3: identify all uses of the concept

Definitions of context will be sought from a variety of sources including dictionaries, thesauruses and websites in addition to the published literature. This will enhance identification of the defining attributes of context in an effort to reduce the semantic space the concept shares with similar concepts. We will use tests of sufficiency and necessity in this phase of the concept analysis. 'Sufficiency refers to elements related to the true meaning of the concept; that is, assessment of the relevance, completeness and amount of information attributed to the concept. Necessity refers to the examination of attributes of the concept to see if they apply to dissimilar concepts, in which case, they may not

be defining attributes of context.’ (Mashele 2009, p. 31). We will keep a systematic record of the different ways context was used and described in the literature (Knafl & Deatrick 2000).

Step 4: determine the defining attributes

This is a critical step in the concept analysis method. According to Walker and Avant (Walker & Avant 2005), defining attributes refer to characteristics commonly linked to a concept that frequently appear in references to the concept. After identifying all the different usages of context, the next step will be to read through them to find characteristics that appear over and over again, i.e. the defining attributes of context. At the end of this step, we will have generated a cluster of attributes frequently associated with context (Nuopponen 2010).

Step 5: construct a model case

A model case of context will be identified and/or constructed. A model case will include *all* of the defining attributes of context (identified in Step 4) and will be an actual and realistic example of the use of context (Walker & Avant 2005). It is anticipated, given the evolving nature and current level of confusion about context, that this case will need to be constructed by the team based on the data extracted in Steps 3 and 4.

Step 6: construct additional cases

After identifying/constructing a model case of context, the next step will entail identifying/constructing additional cases of context to assist us to determine which characteristics or attributes define context as well as which ones do not define context (Nuopponen 2010). The additional cases will include: (1) related; (2) borderline; (3) contrary; (4) invented; and (5) illegitimate. A related case is very similar to the main concept of interest (context in this study); it is an instance that is related to the concept, but does not contain all of its defining attributes when closely examined. A borderline case is an instance that will reflect some but not all of the defining attributes of context. Borderline cases are often constructed as another example of the concept’s use, but several of the defining attributes are purposefully excluded. They are important cases because they help clarify the thinking about a concept and, importantly, allow one to begin to understand what the concept is not. A contrary case reflects a case that is clearly not an instance of the concept; such cases are important because they can lead to identification of defining attributes through their explication. Invented cases are constructed to illustrate the essential features of a concept. Finally, illegit-

imate cases refer to improper uses of the concept (Walker & Avant 2005).

Step 7: identify antecedents and consequences

Antecedents and consequences of context will be identified. These refer to events or attributes that must arise prior to (antecedents) or as the result of (consequence) the concept of interest’s occurrence (Walker & Avant 2005). Our focus in this concept analysis is on defining context and identifying the key features that influence healthcare professionals’ use of research evidence in clinical practice; therefore, we will only extract consequence data related to health professionals’ use of research in their practice.

Step 8: define empirical referents

The final step in the concept analysis will involve defining any empirical referents of context that are included in the literature identified for the concept analysis. Empirical referents are measurable ways to demonstrate the occurrence of a concept; they are categories of actual phenomena that by their existence demonstrate the occurrence of the concept. They are linked to the theoretical base of the concept and thus contribute to both its content and construct validity (Walker & Avant 2005). We will identify all measurements (qualitative and quantitative) of the domains and features of context identified through the concept analysis. These data will also form the basis for a subsequent systematic review of measures of context where we will identify and assess the psychometric properties of existing measures of the domains and their features of context identified in this concept analysis.

Search methods

We will develop search strategies in an iterative manner. Initially, we will examine indexing and unique key terms associated with known, relevant discussions of the topic (e.g. Greenhalgh *et al.* 2004, Greenhalgh & Peacock 2005, May *et al.* 2007, Hutchinson *et al.* 2010, Kaplan *et al.* 2010) and develop a strategy based on these terms. Results from this strategy will be screened and search terms reconsidered based on citations selected for inclusion. Using the knowledge gained from this exercise, we will remove and add search terms, conduct a second search and repeat the screening process. This method is used in systematic reviews for the Cochrane Effective Practice and Organisation of Care (EPOC) Group and is a successful method for developing vocabulary for emerging and heterogeneous concepts.

Due to the interdisciplinary and heterogeneous nature of our topic, we will search biomedical and social science databases; we will search for dissertations and theses in an effort to identify research not yet in journal publications; we will also search for books. We will search grey literature, primarily by exploring the publications of government health departments, organizations involved in quality improvement, knowledge translation, or health policy development. We will search the Cochrane Database of Systematic Reviews, with a focus on reviews by the Effective Practice and Organisation of Care Group, the reviews of which focus on organizational and health professional-directed interventions.

We will also: seek out input from researchers whose work we encounter as we scan the literature; scan the reference lists of relevant articles and reports; scan individual issues of journals should we discover issues with a focus on our topic; and conduct searches for authors working in our topic area.

All search methods, strategies and sources will be reported comprehensively in our final report. Search strategies will be replicable.

Database list

- Business Source Complete, ProQuest
- CINAHL (Cumulative Index to Nursing and Allied Health Literature), EbscoHost
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Cochrane Database of Systematic Reviews
- Dissertations and Theses Database, ProQuest
- EMBASE, OvidSP
- MEDLINE(R) and In-Process and other non-indexed citations, OvidSP
- NHS Economic Evaluation Database (NHS EED)
- PAIS (Public Affairs International), Proquest
- PsycINFO, OvidSP
- PubMed
- Science Citation Index and Social Sciences Citation Index (ISI Web of Knowledge)
- Web of Science, Conference Proceedings Citation Index- Science (ISI Web of Knowledge)
- WorldCat (an international catalogue of books)

Inclusion/exclusion criteria

Inclusion

Literature that defines context and/or describes its features will be considered for inclusion. Emphasis will be given to

literature that describes context in relation to nurses' and other healthcare professionals' use of research evidence in clinical practice. Paley (1996) argues that different theories may define a concept differently and, therefore, to truly achieve conceptual clarity, concepts need to be assessed in their theoretical context. Therefore, theoretical (e.g. conceptual writings, think pieces, commentaries) as well as empirical literature (research studies and review articles) will be included. Because we are interested in understanding context from a health perspective, empirical literature will be limited to health literature. A preliminary scoping of the theoretical literature, however, suggests that health theories insufficiently address context. Therefore, theoretical literature from the organizational field that describes theories, frameworks and/or models where context is a component will also be drawn on.

Exclusion

We will exclude non-English articles, as we do not have the capacity to assess them, but will keep track of them to know how much of the literature we may be missing. There will be no restrictions based on study design or publication date or status.

Screening

Screening and searching will occur concurrently. Full-text copies of all potentially relevant articles will be retrieved and independently assessed for inclusion by two team members. Disagreements will be resolved through consensus; when necessary, a third team member will act as an arbitrator and make the final decision.

Data extraction and synthesis

Extracted data will include, but not be limited to: the definition of context, the key domains (and their features) of context, setting, population and data needed for the 8-step concept analysis methods previously described. A detailed comparison of all context theories/frameworks/models will be conducted. Articles will be summarized and coded by two team members independently. Quality assessment on individual publications will not be conducted as we are not extracting data on the 'findings' from the studies. We are interested in the concept of context – how it is defined and its domains and their features. Our goal is to create a definition and framework of domains (and their features) of context that influence healthcare professionals' use of research evidence in clinical practice from the perspective of researchers.

Ethical considerations

This study is a concept analysis that will use secondary publically available data from primary research studies and therefore Research Ethics Committee approval is not necessary. All team members will be required to make an explicit declaration of conflict of interest with any of the studies included or excluded from the concept analysis.

Validity and rigour

Throughout the concept analysis, several measures will be taken to enhance validity and rigour, including:

- All phases of the research will occur under the leadership of the principal investigator (JS).
- Search: the search will be conducted by an information scientist (MF) with expertise in health science and organizational literature, in consistent consultation with the research team. Specific methodological filters and experts will agree on search terms for context compared with MeSH terms and Subject Headings in each database. An extensive spectrum of databases and sources will be included.
- Screening, data extraction and synthesis: each of these phases of the concept analysis will be conducted independently by at least two team members.
- Biweekly analytic meetings with the core researcher team and monthly analytic meetings with the full team (researchers and knowledge users) will be held to ensure quality of the analysis and discuss and reach consensus on the findings as they emerge.
- Knowledge users on the team (SF, TN, JV) will assess, with members of their healthcare organizations, the face validity and potential utility of emergent models from the concept analysis.

Discussion

As a result of strong hypotheses about the effect of context, large but distinct bodies of literature on context in knowledge translation science are beginning to emerge in nursing and other health disciplines (e.g. Greenhalgh *et al.* 2004, Fleuren *et al.* 2004, Kitson *et al.* 1998, Glisson 2002, Estabrooks *et al.* 2011). However, to advance the field and improve evidence-based practice, greater attention to the conceptualization of context is critically needed. Kimberley and Cook (2008) emphasized the importance of understanding context domains from theoretical and practical standpoints. They point out that such an understanding will

be achieved only by identifying a common set of context domains that influence knowledge translation. They further propose that lack of conceptual clarity about context is one of the major contributors to difficulties in interpreting studies of knowledge translation activities and that a consistent definition of context has remained elusive (Kimberley & Cook 2008). Lack of detailed definitions of context, coupled with inconsistencies in definitions, has led to conceptual overlap, confusion and idiosyncrasies in the specification of context (Sleutel 2000, Gershon *et al.* 2004). This confusion has significantly hindered exploration of context in knowledge translation science and, consequently, our understanding of how context has an impact on knowledge translation strategies to improve research use in clinical practice. Therefore, the purpose of this project is to conduct a concept analysis of context to define and develop a framework of context that identifies the domains of context and their features that influence nurses' and other healthcare professionals' use of research in clinical practice.

Challenges

Rather than limitations, this study has challenges. A core challenge to this concept analysis is the potential complexity in the concept and the extent and diversity in the use of the term 'context' in the published literature. A second limitation is that our *a priori* scoping indicated that existing health theories insufficiently address context. Therefore, we will also need to draw on theoretical literature from the organizational field that describes theories, frameworks and/or models where context is a component. This will significantly increase the amount of literature to be analysed. Finally, as the concept of 'context' is evolving at a relatively fast pace, its empirical referents will be subject to change, making it challenging to identify a core set of measures of the domains of context.

Conclusion

This concept analysis of context will result in a framework of the domains of context and their features that influence healthcare professionals' use of research in clinical practice. Researchers will be able to use the framework to guide *a priori* assessments of context (to assist them with the design and delivery of knowledge translation activities) as well as *posteriori* assessments of context (to aid in the interpretation of the effects of knowledge translation activities to inform the design and delivery of subsequent trials). Healthcare decision-makers/evidence-based practice implementers will be able to use the framework to: pragmatically

guide their implementation efforts by identifying the important features of context to consider when choosing, designing and implementing knowledge translation activities and to help assess the transferability of successful knowledge translation activities from other contexts to theirs (by identifying contextual features they need to have in place for successful implementation).

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Conflict of interest

No conflicts of interest have been declared by the authors.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the IC-MJE (http://www.icmje.org/ethical_1author.html)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

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