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Literature Review

Community occupational therapists' clinical reasoning: Identifying tacit knowledge

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***Background*:** *Occupational therapy interventions in the community, a fast expanding practice setting, are central to an important social priority, the ability to live at home. These interventions generally involve only a small number of home visits, which aim at maximising the safety and autonomy of community-dwelling clients. Knowing how community occupational therapists determine their interventions, i.e. their clinical reasoning, can improve intervention efficacy. However, occupational therapists are often uninformed about and neglect the importance of clinical reasoning, which could underoptimise their interventions.*

***Aim*:** *To synthesise current knowledge about community occupational therapists' clinical reasoning.*

***Method*:** *A scoping study of the literature on community occupational therapists' clinical reasoning was undertaken.*

***Results*:** *Fifteen textbooks and 25 articles, including six focussing on community occupational therapists' clinical reasoning, were reviewed. Community occupational therapists' clinical reasoning is influenced by internal and external factors. Internal factors include past experiences, expertise and perceived complexity of a problem. One of the external factors, practice context (e.g. organisational or cultural imperatives, physical location of intervention), particularly shapes community occupational therapists' clinical reasoning, which is interactive, complex and multidimensional. However, the exact influence of many factors (personal context, organisational and legal aspects of health care, lack of resources and increased number of referrals) remains unclear.*

***Conclusion*:** *Further studies are needed to understand better the influence of internal and external factors. The extent to which these factors mould the way community occupational therapists think and act could have a direct influence on the services they provide to their clients.*

KEY WORDS *clinical reasoning, community intervention, community practice, literature review.*

Introduction

Occupational therapists' clinical reasoning (CR) can be defined as the way they solve problems and make decisions (Higgs & Jones, 2008; Ikiugu, 2007). CR can also be described as 'the process that practitioners use to plan, direct, perform, and reflect on client care' (Schell, 2009, p. 314). As client care is the focus of the therapeutic process, CR guides the actions of occupational therapists throughout the five stages of the therapeutic process: referral, evaluation, intervention planning, intervention and discharge (Moyers, 1999). In fact, CR modulates the therapeutic process whatever the practice setting in which it takes place.

With population ageing and the current emphasis on ambulatory care (Bridge, Kendig, Quine & Parsons, 2002; World Health Organization, 2003), community practice, including occupational therapists' services (Bridge *et al.*, 2002; Canadian Home Care Association, 2008), is a fast expanding practice setting. Community occupational therapists' interventions are mainly carried out with impaired individuals (Hébert, Maheux & Potvin, 2001),

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whose impairments can compromise their ability to live at home (Neidstat, 1996). The ability to live at home is an important priority for clients as well as decision-makers (Bridge, Phibbs, Kendig, Mathews & Bartlett, 2006; Steultjens *et al*., 2004). To meet that priority, interventions which aim at maximising the autonomy and safety of community-dwelling clients such as community occupational therapists' services (Lysack & Neufeld, 2003; Steultjens *et al*., 2004) are pivotal and need to be effective. Indeed, community occupational therapy interventions generally involve only a small number of home visits (Hébert, Maheux & Potvin, 2000; Landry, 1998; Mitchell & Unsworth, 2005; Robertson, 1999), making efficacy particularly important. As intervention efficacy can be influenced by CR (Hussey, 2007; Ikiugu, 2007), it is important to know more about how occupational therapists, and specifically community occupational therapists, determine the choice of their interventions.

The choice of interventions, which is part of CR, is much more than the application of theory (Patterson & Summerfield-Mann, 2006). In community practice, occupational therapists typically use home-made assessment instruments (Fricke & Unsworth, 1992; Mitchell & Unsworth, 2004, 2005) and informal theories developed in the course of their practice (Hébert, Maheux & Potvin, 2002). Informal theories or tacit knowledge therefore play an important role in how community occupational therapists choose their interventions. Integrating tacit knowledge with formal knowledge may optimise occupational therapists' education and interventions (Higgs, Fish & Rothwell, 2008). To do so, it is imperative to make tacit knowledge explicit. As (i) tacit knowledge is generated through practice (Higgs *et al.*, 2008) and (ii) what influences community occupational therapists is specific to the profession (Strong, Gilbert, Cassidy & Bennett, 1995) and cannot be inferred from the other health professions' literature (Ikiugu, 2007; Unsworth, 1999), studies on community occupational therapists' CR might prove helpful in understanding community occupational therapists' practice (Mitchell & Unsworth, 2004; Munroe, 1996). Indeed, as CR is 'a means of excavating, examining, and passing on theories in use' (Schell, Unsworth & Schell, 2008, p. 414), these studies could shed light on how community occupational therapists choose their interventions and what influences their choice. The present study thus aimed to synthesise current knowledge about community occupational therapists' CR. To our knowledge, community occupational therapists' CR has not been the subject of any comprehensive published literature review.

Method

A scoping study of scientific articles, occupational therapy textbooks and grey literature was undertaken to 'map' relevant literature and synthesise current knowledge about community occupational therapists' CR. Scoping studies are 'specifically designed to identify gaps in the evidence base where no research has been conducted' and 'summarise and disseminate research findings' (Arksey & O'Malley, 2005, p. 21). The five stages of scoping studies' methodological framework were followed: (i) identifying the research question; (ii) identifying relevant studies; (iii) selecting the studies; (iv) charting the data; and (v) collating, summarising and reporting results (Arksey & O'Malley, 2005).

After identifying the research question (What are the particular characteristics, if any, of community occupational therapists' CR?), the Medline, Cochrane Database of Systematic Reviews, Ovid Nursing Database, OTDBASE, OTSeeker, CINAHL, Allied & Complementary Medicine Database (AMED), Embase and MANTIS databases were searched. To ensure as accurate a portrait as possible of knowledge about community occupational therapists' CR, the search covered the period from January 2000 to April 2009. Categories of key words combined were (i) 'clinical reasoning' with (ii) 'occupational therapy' or 'rehabilitation' and then with (iii) 'community practice' or 'home care'. An extensive review of titles and, when available, abstracts was done. All French or English articles which sufficiently considered community occupational therapists' CR or help to understand further community occupational therapists' CR were included and analysed. Indeed, CR of occupational therapists from other practice settings shares some similar aspects with, and helps to underline the particular characteristics of, community occupational therapists' CR. A manual search of bibliographies, occupational therapy textbooks, as well as grey literature was also part of the review.

Fundamental elements of community occupational therapists' CR were first identified in the preliminary analysis of the literature (community occupational therapists' CR only). All documents (occupational therapists' and community occupational therapists' CR) were then analysed using these elements, which are detailed in the Results section.

Results

Results show that the research on community occupational therapists' CR is undoubtedly in its early days. Of the 652 articles found using the key word 'clinical reasoning', 159 (24.4%) also included the key words 'occupational therapy' or 'rehabilitation', while only 10 (0.02%) contained the key words 'community practice' or 'home care'. After reviewing titles and abstracts, 24 of the 159 articles were retrieved for further analysis, including five of the 10 articles identified with the key words 'community practice'. Fifteen textbooks were included for their synthesis of empirical articles and conceptualisation of CR. The bibliographies of the textbooks and retrieved articles were manually searched, from which 16 other articles were identified, including four focussing on community occupational therapists' CR, and a doctoral thesis

that could not be accessed. An Internet search on health-related websites led to the retrieval of one article. The final analysis was performed on 15 textbooks and 25 articles (n = 19 on occupational therapists' CR, n = 6 on community occupational therapists' CR).

Community occupational therapists' CR articles include five key elements (frequency and percentage of occurrence): (i) cognitive processes underlying CR (n = 3; 50%); (ii) dimensions of CR (n = 4; 67%); (iii) factors influencing CR (n = 6; 100%); (iv) methods used to document CR (n = 6; 100%); and (v) elements of community occupational therapists' CR still unknown (n = 4; 67%). Important details about one or more of these key elements are presented in the three following sections. First, what is known about occupational therapists' CR that helps to understand characteristics of community occupational therapists' CR is described (CR in occupational therapy). Second, particular characteristics of community occupational therapists' CR are examined (Particular characteristics of community occupational therapists' CR), followed by methodological challenges and potential avenues for future research (Methodological challenges and potential avenues for future research). Finally, strengths and limitations of the present study are discussed.

CR in occupational therapy

Cognitive processes, i.e. problem solving and decision making, underlying occupational therapists' CR are presented first, followed by CR's different dimensions. Finally, factors influencing occupational therapists' CR are examined.

Underlying cognitive processes: Problem solving and decision making

For every occupational therapist, regardless of practice setting, the client's occupational situation, including his/her disabilities, represents cognitively a 'problem' to solve. Problem solving is a cognitive process that must be distinguished from the occupational therapist's actions to solve the occupational difficulties of his/her client. Problem solving can be described as the way occupational therapists combine theory with personal and professional experiences to get an understanding of the client's situation (Schell, 2009). Although different cognitive strategies have been identified in problem solving, such as hypothetico-deduction and pattern recognition (e.g. Lindsay & Norman, 1977; specifically to health professionals: Higgs & Jones, 2008; to occupational therapists: Schell, 2009), the focus here will be only on pattern recognition. Indeed, pattern recognition is the cognitive strategy most commonly used by experienced occupational therapists (Carr & Shotwell, 2008), who are the main participants in studies about community occupational therapists' CR. Problem solving using pattern recognition has four stages (Fig. 1): (i) problem sensing, (ii) cue acquisition, (iii) problem formulation using cues and mnemonic schemata of past experiences stored in long-term memory, and (iv) identification of potential solutions (Lindsay & Norman, 1977). For example, an occupational therapist evaluates and intervenes to address the difficulty a client with hemiplegia has in transferring to the bath tub independently. The occupational therapist first perceives the 'problem' to solve (*problem sensing*): the client's difficulty with bath transfer. The cues the occupational therapist perceives, such as the client's posture or the layout of the bathroom, trigger *knowledge* about and *past experiences* with other clients with hemiplegia or in similar environmental settings. These cues, knowledge and past experiences are used to *formulate* the problem to solve. In this example, the client cannot step over the side of the bath tub and the position of the toilet prevents the use of a transfer bench. The occupational therapist then *identifies different solutions* to solve the problem. The resolution of the problems is followed by decision making.

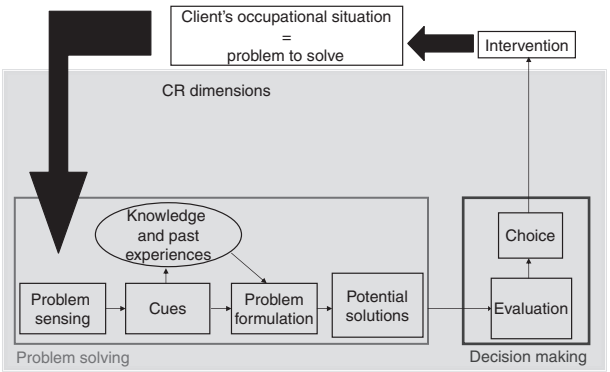

FIGURE 1: *Occupational therapists' clinical reasoning (CR) processes and dimensions. Inspired by: Chapparo & Ranka (2008), Fleming (1993), Fleming & Mattingly (2008), Hagedorn (1996), Ikiugu (2007), Lindsay & Norman (1977), Opacich (1991), Robertson (1996a), Roberts (1996a), Rogers & Holm (1991), Schell (2009), Smith et al. (2008), Unsworth (1999).*

Problem solving and decision making are distinct, but interrelated cognitive processes (Lindsay & Norman, 1977), which are part of CR (Patterson & Summerfield-Mann, 2006; Schell, 2009; Smith, Higgs & Ellis, 2008). The evaluation of potential solutions and the choice of one of them represent decision making (Lindsay & Norman, 1977), which leads to occupational therapist's actions (Robertson, 1996a; Rogers & Holm, 1991). These actions in turn influence the problem and thus its formulation is constantly reframed. The red and blue boxes in Figure 1 represent this model of problem solving (using pattern recognition) and decision making. Furthermore, CR is a context-dependant social phenomenon larger than its underlying cognitive processes (Fleming & Mattingly, 2008) and includes multiple dimensions.

CR dimensions

Studies of occupational therapists' CR have found multiple dimensions that are used with CR (Table 1). Dimen-

TABLE 1: *Occupational therapists' clinical reasoning (CR) dimensions and factors influencing them*

Aspects of the problem	CR dimensions[2,5,9,10,12,13,16,17,25,28,29,32]	Factors of influence
Condition of client Occupational diagnosis Occupational intervention	Scientific Diagnostic Procedural	Expertise level[1,2,7,14,19–21,30] Personal context[2,3,9,10,19,21,22,27,30,31] Client[3,4,7,12,19–22,25,30,32] Practice context[2,3,9,19,21,22]
Significance of his/her own condition for the client	Narrative	Expertise level[7,8,14,32] Personal context[2,8,10,31] Client[3,5,8]
Practical and logistic aspects affecting clinical practice	Pragmatic	Expertise level[14] Personal context[3,10,23,25,26,31] Practice context[2–4,9,12,18,23,25,26,28]
Desirable actions from a moral perspective	Ethical	Expertise level[14] Personal context[2,10,31] Practice context[3,11]
Occupational therapist's interpersonal relationship with client and other people involved	Interactive	Expertise level[9,12,14,32] Personal context[3,10,24,31] Client[3,4,32] Practice context[14,15,24]
Therapy tailored to the client's particular situation	Conditional	Expertise level[7,9,12,14,20,24,32] Personal context[10,27,31] Client[2]

1. Carr & Shotwell (2008); 2. Chapparo & Ranka (2008); 3. Crabtree & Lyons (1997); 4. Early (2001); 5. Fleming (1993); 6. Fleming & Mattingly (2008); 7. Hagedorn (1996); 8. Hamilton (2008); 9. Hussey (2007); 10. Ikiugu (2007); 11. Kanny & Slater (2008); 12. Leicht & Dickerson (2001); 13. Mendez & Neufeld (2003); 14. Mitchell & Unsworth (2005); 15. Munroe (1996); 16. Patterson & Summerfield-Mann (2006); 17. Pellerito & Burt (2006); 18. Radomski (2002); 19. Robertson (1999); 20. Robertson (1996b); 21. Rogers & Holm (1991); 22. Rogers & Masagatani (1982); 23. Schell (2008a); 24. Schell (2008b); 25. Schell (2009); 26. Schell & Cervero (1993); 27. Schell *et al.* (2008); 28. Schultz-Krohn & Pendleton (2006); 29. Strong *et al.* (1995); 30. Tomlin (2008); 31. Unsworth (2004); 32. Unsworth (1999).

sions used depend on which aspect of the 'problem' is analysed (Chapparo & Ranka, 2008; Crabtree & Lyons, 1997; Fleming, 1993; Hussey, 2007; Schell, 2009). In our example, when occupational therapists think about their client's condition (hemiplegia) and the required intervention (improving hygiene independence), they use the scientific [a] dimension. To understand better the way their client feels about and lives with his/her hemiplegia, occupational therapists tell themselves (or other professionals involved) the 'story' of their client (narrative [b] dimension). As occupational therapists are confronted with practical and logistic aspects affecting their clinical practice, such as which type of bath equipment is available or reimbursed by insurance, the pragmatic [c] dimension is activated. They might then have to choose between recommendations for the required equipment that is not reimbursed or less appropriate equipment that is reimbursed. That kind of reflection about desirable actions from a moral perspective requires the ethical [d] dimension of occupational therapists' CR. As occupational therapists interact face-to-face with their client or other people involved, such as the client's family, the interactive [e] dimension is brought into play. Finally, calling upon the conditional [f] dimension of their CR, occupational therapists might assure themselves that bathing independently is a common goal, and adapt the intervention to fit their client's particular situation, present as well as future. As such and contrary to some authors (e.g. Fleming, 1993; Unsworth, 1999), the conditional dimension is described by Schell (2009) as being a blend of all the other dimensions rather than a dimension on its own. CR is the synthesis of the interaction between all these dimensions and allows occupational therapists to solve problems.

This way of conceptualising CR, although generally accepted in the literature, is not supported by all authors. Clear integration of CR's dimensions between themselves and with cognitive processes (problem solving and decision making) is difficult. As asserted by Tomlin (2008), there is a 'need to reconceptualise all types of reasoning so as to reflect their ultimate interconnectivity' (p. 116). Furthermore, Roberts (1996a) and Strong *et al.* (1995) maintain that dimensions represent the static content of CR and therefore dimensions must be clearly distin-

guished from the active processes of problem solving and decision making. As their position, although interesting, was not reflected in the other studies we reviewed, we decided to focus on the most accepted position, but with a concern to distinguish between processes and dimensions in the results. CR dimensions are indicated in Figure 1 in respect to (i) Tomlin's (2008) assertion, i.e. their lack of interconnectivity and (ii) the opinion of Roberts (1996a) and Strong *et al.* (1995), i.e. as static content of CR distinct from problem solving and decision making.

Factors influencing CR

CR of occupational therapists is influenced by four factors (Table 1), internal and external, which operate interactively (Barris, 1987). The internal factors are occupational therapists' expertise level (1) and personal context (2) while the external factors are the client (3) and the practice context (4).

Occupational therapists reach *expertise level* (*1*) through professional and personal experiences and active reflection on those experiences (Gibson *et al.*, 2000; Hussey, 2007; Jensen, Resnik & Haddad, 2008). The expertise continuum ranges from novice to expert (Jensen *et al.*, 2008; Schell, 2009; both inspired by Benner, 1984 and Dreyfus & Dreyfus, 1986), where the latter typically has more than 10 years of professional experience (Hagedorn, 1996; Schell, 2008c, 2009). Experts' experiences give them access to a wide range of mnemonic schemata (Carr & Shotwell, 2008; Robertson, 1996b, 1999), accessible through cues frequently used unconsciously (Hagedorn, 1996; Hussey, 2007; Lindsay & Norman, 1977). Experts' CR is therefore non-linear (Hagedorn, 1996; Patterson & Summerfield-Mann, 2006), more intuitive (Gibson *et al.*, 2000; Harries & Harries, 2001; Hussey, 2007; Schell, 2009), complex and harder to articulate than novices' CR (Early, 2001; Mendez & Neufeld, 2003; Unsworth, 2001). Experts also have more confidence in their CR (Strong *et al.*, 1995) and are usually more efficient in their use of its diagnostic dimension (component of [a]) than novices (Chapparo & Ranka, 2008; Robertson, 1999; Rogers & Holm, 1991; Unsworth, 1999). Furthermore, experts' mnemonic schemata allow them to use different CR dimensions simultaneously and thus be flexible (Hussey, 2007; Schell, 2009), fast, effective (Carr & Shotwell, 2008; Hagedorn, 1996; Leicht & Dickerson, 2001) and creative (Zimolag, French & Paterson, 2002) in their interventions. Finally, expertise depends on the occupational therapist's practice area (Hagedorn, 1996; Jensen *et al.*, 2008; Leicht & Dickerson, 2001; Pellerito & Blanc, 2006; Radomski, 2002; Robertson, 1999; Rogers & Holm, 1991; Schell, 2009); the same occupational therapists can be a novice in one area and an expert in another.

The occupational therapist's *personal context* (*2*) also influences CR. Stemming from their personal and professional being, personal context includes occupational therapists' (i) perceived capability and self-efficacy to treat clients (Smith *et al.*, 2008); (ii) knowledge (Chapparo & Ranka, 2008; Leicht & Dickerson, 2001; Rogers & Holm, 1991; Schell, 2009); (iii) interest in, views and conceptions of occupational therapy and its role (Chapparo & Ranka, 2008; Crabtree & Lyons, 1997; Fondiller, Rosage & Neuhaus, 1990; Higgs & Jones, 2008; Leicht & Dickerson, 2001; Radomski, 2002; Unsworth, 2004); and (iv) beliefs about and interest in clients (Chapparo & Ranka, 2008; Crabtree & Lyons, 1997; Fondiller *et al.*, 1990; Higgs & Jones, 2008; Radomski, 2002; Unsworth, 2004). Personal context might have an isolated influence on specific dimensions such as scientific [a] (Chapparo & Ranka, 2008; Crabtree & Lyons, 1997; Robertson, 1999; Rogers & Holm, 1991; Schell *et al.*, 2008; Tomlin, 2008), narrative [b] (Chapparo & Ranka, 2008; Hamilton, 2008), pragmatic [c] (Crabtree & Lyons, 1997; Schell, 2008a, 2009; Schell & Cevero, 1993), ethical [d] (Chapparo & Ranka, 2008) and interactive [e] (Crabtree & Lyons, 1997; Schell, 2008b). Or the personal context might simultaneously influence all dimensions of CR (Ikiugu, 2007; Unsworth, 2004) and consequently have an impact on occupational therapists' every action (Smith *et al.*, 2008).

Occupational therapists' CR and ways of intervening are thus highly personal (Higgs & Jones, 2008; Schell, 2009), but are nevertheless also influenced by external factors: the client and the practice context. Indeed, the characteristics of the *client* (*3*) impact first on the problem sensing (Rogers & Holm, 1991). Then the understanding of the client's particular situation, developed through mutual interactions, leads to the problem formulation (Ikiugu, 2007; Leicht & Dickerson, 2001; Robertson, 1996b, 1999; Rogers & Holm, 1991; Rogers & Masagatani, 1982; Schell, 2009). The problem formulated reflects the client's multifaceted needs, personal and environmental contexts (Higgs & Jones, 2008; Opacich, 1991; Unsworth, 1999) and defines the occupational therapists' cognitive 'task', i.e. the decision making leading to the particular action (Crabtree & Lyons, 1997; Smith *et al.*, 2008). The level of complexity, difficulty and uncertainty of the 'task' influences the occupational therapists' capacity to problem sense and formulate effectively, their decision speed and their use of CR dimensions (Hagedorn, 1996; Smith *et al.*, 2008). In addition, because of the client's active participation throughout the occupational therapists' therapeutic process, including the decision making (Early, 2001), the narrative [b] (Crabtree & Lyons, 1997; Fleming & Mattingly, 2008; Hamilton, 2008), interactive [e] (Crabtree & Lyons, 1997; Fleming & Mattingly, 2008; Unsworth, 1999) and conditional [f] (Chapparo & Ranka, 2008; Schell *et al.*, 2008) dimensions of CR come into play. The influence of the client on the occupational therapists' CR is therefore partly tied to the philosophy and values of the profession (Fleming, 1993), such as client-centred practice (Crabtree & Lyons, 1997; Fondiller *et al.*, 1990). These values can be supported by the practice context (Atkins & Ersser, 2008; Restall, Ripat & Stern, 2003).

According to Barris (1987), the *practice context* (*4*) has greater influence on CR than the occupational therapists'

personal context. The practice context includes the physical location of the intervention, and the organisational, legal (Matthews & Burton, 2001) and social environments (Smith *et al*., 2008). Its influence on occupational therapists' CR affects the scientific [a] (Crabtree & Lyons, 1997; Hussey, 2007; Robertson, 1999; Rogers & Holm, 1991; Rogers & Masagatani, 1982), pragmatic [c] (Chapparo & Ranka, 2008; Crabtree & Lyons, 1997; Early, 2001; Hussey, 2007; Leicht & Dickerson, 2001; Radomski, 2002; Schell, 2008a, 2009; Schultz-Krohn & Pendleton, 2006) and ethical [d] dimensions (Crabtree & Lyons, 1997; Kanny & Slater, 2008). The occupational therapists' actions are therefore modulated by the conditions and constraints of the present practice context (Barris, 1987; Townsend, 1996). Through the mnemonic schemata, occupational therapists' actions are also modulated by the past practice context (Chapparo & Ranka, 2008). Occupational therapists' CR therefore cannot be fully understood outside a specific context (Bannigan & Moores, 2009; Higgs & Loftus, 2008; Loftus & Smith, 2008; Patterson & Summerfield-Mann, 2006; Smith *et al*., 2008). For that reason, it is important to study CR in a particular context, such as community practice (Robertson, 1999).

Particular characteristics of community occupational therapists' CR

Scientific papers that focussed on community occupational therapists' CR suggest some particular characteristics of the underlying cognitive processes and dimensions. Studies which mainly address cognitive processes (problem solving and decision making) are presented first, followed by studies focussing on CR dimensions.

Problem solving and decision making

Roberts (1996b) studied problem solving with 38 community occupational therapists who each processed two typical client referrals. The 76 written accounts of problem solving examined showed non-linear use of the stages involved and great variation between the participants in the sequence and length of those stages. Three profiles of problem solving were identified: (i) rapid formulation (formulation *precedes* problem sensing and cue acquisition), (ii) formulation (formulation *follows* problem sensing and cue acquisition), and (iii) non-formulation of the problem. The profile used by occupational therapists varies according to the type of referrals processed. Contrary to 'formulators' and 'non-formulators', the CR of 'rapid formulators' contains more objectives for gathering information related to the client's history and elements to be assessed and suggestions for potential interventions (Roberts, 1996b). In addition, rapid formulators refer more to their past experiences, and are more confident, proactive and flexible.

Another study (Fortune & Ryan, 1996) showed that past experiences also influence the perceived complexity of the 'problem', i.e. the client's disability and particular situation. To establish a system of caseload management, three occupational therapists evaluated the complexity of 70 community-dwelling clients' problems. The more experience an occupational therapist has of a particular problem, the less likely that problem is perceived as complex (Fortune & Ryan, 1996). The complexity of the client's disability and situation is characterised either by an unclear problem, a non-apparent solution, difficulty in interactions between occupational therapist and client, variability of or sudden change in the client's health, or by the client's frustration (Fortune & Ryan, 1996). The procedural dimension (component of [a]) of CR will not suffice to solve a complex problem. Other dimensions of CR are required. Past experiences therefore determine perceived problem complexity, which in turn influences CR.

Munroe (1996) specifically studied community occupational therapists' decision making using observation of 29 occupational therapists during three or four home visits at different stages of the therapeutic process. Observations were followed by semi-directed interviews. This qualitative study showed that reasoning (defined by the author as the process of accounting for and ascribing meaning to clinical actions) is difficult to articulate and follows decision making instead of preceding it (Munroe, 1996). Decision making is of three types: technical (e.g. choice of equipment, environmental modifications), procedural (e.g. policies and procedures) and interactive (e.g. interpersonal behaviour). Munroe (1996) maintains that, surprisingly given the mostly technical interventions community occupational therapists must do, interactive decision making is the most frequent, leading to greater use of the interactive dimension [e] of CR. That prominence might be explained by the therapeutic relationship between occupational therapists and clients and factors related to the community practice context, such as organisational or cultural imperatives (e.g. empowerment values) or physical location of the intervention ('Being a guest in the client's home').

CR dimensions

Two other studies focussed on the evaluation stage of the therapeutic process using case histories followed by semi-directed interviews (Doumanov & Rugg, 2003) or self-administered questionnaires (Mitchell & Unsworth, 2004). These studies showed that community occupational therapists' CR is complex, using different dimensions simultaneously (Mitchell & Unsworth, 2004).

From a critical perspective, it might be wondered if the particular characteristics of occupational therapists' CR described so far (rapid formulation, decision making prior to reasoning, interactive decisions most frequent, use of different CR dimensions simultaneously) are specific to community occupational therapists. Indeed, these particular characteristics have some similarity to the CR of experts, so the level of expertise of occupational therapists participating in those studies might explain these

results. Mitchell and Unsworth (2005) compared novice and expert community occupational therapists' CR using retrospective protocol analysis in the form of videotaped home visits followed by feedback on the video footage. Use of the interactive dimension [e] of CR was similar for novices and experts. Novices also used different dimensions of CR simultaneously, but they tended to use fewer dimensions at the same time than the experts (two instead of three), focussing more on the procedural dimension (component of [a]). However, even for the experts, when a complex procedural task had to be performed (e.g. difficult home modification), the procedural dimension was used more often (Mitchell & Unsworth, 2005). Certain specific characteristics of occupational therapists' CR (using the interactive decision most often and different CR dimensions simultaneously) are thus particular to community occupational therapists.

To summarise, occupational therapists' CR is a complex, multidimensional process, which is influenced by internal (level of expertise and personal context) and external (client and practice context) factors. The past experiences and expertise of community occupational therapists determine the perceived complexity of a problem and thus influence CR. Several dimensions of community occupational therapists' CR are generally used simultaneously. The interactive [e] dimension is called upon more, possibly but not exclusively because of the practice context.

Methodological challenges and potential avenues for future research

CR knowledge development is influenced by the methods used to study it (Loftus & Smith, 2008; Unsworth, 2008). CR has mostly been studied through protocol analysis and interpretative methods. Protocol analysis, using for example case scenarios or observational videos, is an effective way to highlight the cognitive processes underlying CR (Arocha & Patel, 2008; Patel, Kaufman & Arocha, 1995). However, this method is not sufficient when one wants to illustrate the influence of interactions, personal and practice contexts on CR (Norman, 1980). Interpretive methods have frequently been used to study CR and consider the environmental and social context in which CR takes place (Arocha & Patel, 2008; Greeno, 1989, 1998; Loftus & Smith, 2008; Patel *et al.*, 1995). Specifically, ethnographic designs have been used most often in that regard. This might explain the descriptive nature of occupational therapists' CR and the proliferation of CR dimensions lacking dynamic interrelations. Other types of designs, such as grounded theory, have been used (Fondiller *et al.*, 1990; Rogers & Masagatani, 1982) and could be used more often to underline the dynamic process taking place when an occupational therapist intervenes with a community-dwelling client. However, interpretive methods have been criticised because of possible omissions or *post hoc* rationalisation (Harries & Harries, 2001; Unsworth, 2004, 2005). The use of techniques such as 'making explicit' methods that allow effective reminiscence might reduce these limitations significantly (Vermersch, 2006).

Regardless of the methods used, past studies have demonstrated the importance of developing knowledge about the particular characteristics of community occupational therapists' CR (Mitchell & Unsworth, 2004, 2005). Future studies could identify, for example, the exact influence of personal context on community occupational therapists' CR. The impact of external factors, such as organisational and legal aspects of health care or lack of resources and increased number of referrals, on community occupational therapists' CR should also be investigated.

Strengths and limitations

This study followed the rigorous scoping studies' methodological framework and systematically retrieved articles on community occupational therapists' CR in numerous databases. Results obtained were enriched by knowledge on CR of occupational therapists from multiple practice settings, although articles on these settings were not systematically retrieved. Results provide an accurate and up-to-date synthesis of knowledge about community occupational therapists' CR and an original portrait of its particular characteristics. However, and as is usually the case with scoping studies (Arksey & O'Malley, 2005), this study does not provide a quality assessment of the studies examined. Furthermore, because textbooks are not systematically included in electronic databases, information available in some textbooks might have been missed. The electronic search could also have covered a longer period and used more keywords such as 'professional reasoning' or 'critical reasoning' and 'community interventions' or 'home-based interventions'. This analysis is thus a first step, which could lead to more in-depth studies.

Conclusion

CR guides occupational therapists' actions and influences their interventions. Problem solving and decision making are cognitive processes underlying CR. However, occupational therapists' CR is a context-dependant social phenomenon larger than these cognitive processes. Its six dimensions (scientific, narrative, pragmatic, ethical, interactive and conditional) are used depending on which aspect of the 'problem', i.e. the client's occupational situation, is analysed. Occupational therapists' CR is also influenced by internal (level of expertise and personal context) and external (client and practice context) factors. The practice context particularly shapes community occupational therapists' CR. Much remains unknown about community occupational therapists' CR. Considering the importance of community practice and of integrating tacit with formal knowledge which could optimise occupational therapists' interventions, further

studies are needed. Indeed, the extent to which internal (personal context) and external factors (organisational and legal aspects of health care, lack of resources and increased number of referrals) mould the way community occupational therapists think and act could have a direct influence on the services they provide to their clients.

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