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Teamwork: a concept analysis

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Abstract

Title. Teamwork: a concept analysis

Aim. This paper is a report of an analysis of the concept of teamwork.

Background. Teamwork is seen as an important facilitator in delivering quality healthcare services internationally. However, research studies of teamwork in health care are criticized for lacking a basic conceptual understanding of what this concept represents. A universal definition for healthcare settings and professionals is missing from published literature.

Method. Walker and Avant's approach was used to guide this concept analysis. Literature searches used bibliographic databases (Medline, CINAHL, Web of Science, Proquest CSA), internet search engines (GoogleScholar), and hand searches. Literature published between 1976 and 2006 was reviewed but only material in English was included.

Findings. Based on the analysis undertaken, teamwork is proposed as a dynamic process involving two or more healthcare professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care. This is accomplished through interdependent collaboration, open communication and shared decision-making, and generates value-added patient, organizational and staff outcomes.

Conclusion. Praising the value of teamwork without a common understanding of what this concept represents endangers both research into this way of working and its effective utilization in practice. The proposed definition helps reconcile discrepancies between how this concept is understood by nurses and doctors, as well as allied health professionals. A common understanding can facilitate communication in educational, research and clinical settings and is imperative for improving clarity and validity of future research.

Keywords: collaboration, communication, concept analysis, health care, nursing, teamwork

Introduction

Teamwork has emerged in recent times as one of the most important facilitators in achieving positive, cost-effective

outcomes in various organizational settings (Procter & Currie 2004). It has been argued that teamwork offers greater adaptability, productivity and creativity than any one individual can offer (Salas *et al.* 2000, 2005) while promoting job

satisfaction and staff retention (Griffin *et al.* 2001, Heywood & Jirjahn 2004). The concept of teamwork is not a new one (Buchanan 2000); it has achieved such interest over recent years that it is referred to by some as the 'panacea' for all organizational ills (Mueller *et al.* 2000). Healthcare systems globally are considered to be large organizations (West & Markiewicz 2004), where effective teamwork can optimize patient care.

The importance of teamwork has been emphasized in numerous documents. In the United Kingdom (UK), the National Health Service (NHS) Plan [Department of Health (DoH) 2000] clearly stated that throughout the NHS previous hierarchical ways of working should give way to more flexible teamwork between the different healthcare professionals. In the United States of America (USA) the Institute of Medicine (IOM 2000, 2001) has similarly advocated the importance of teamwork, and particularly the establishment of team training programmes to develop effective healthcare teams. Moreover, a recent IOM publication warns that poor teamwork amongst healthcare professionals hinders the provision of appropriate and safe patient care (IOM 2004), a proposition supported by the UK DoH (National Audit Office 2005).

Indeed, 70–80% of healthcare errors are caused by human factors associated with poor team communication and understanding (Schaefer *et al.* 1994). The American Association of Critical Care Nurses (2005) further supports this, reporting that 60% of errors in medication are caused by mistakes in interpersonal communication. Similar findings and subsequent calls for improved understanding of healthcare teamwork are also evident in the Australian context, making this an issue of international concern (Wilson *et al.* 1995, Chaboyer & Patterson 2001).

Although it is suggested that effective teams may have positive effects on patient outcomes, studies have reported diverse findings (Kerski *et al.* 1987, Shortell *et al.* 1994) and this has led some people to question its value or benefit (Leatt *et al.* 1997, Zwarenstein & Reeves 2000). According to Wheelan *et al.* (2003), one of the main reasons for these inconsistent findings is the lack of conceptual clarity with regard to what this concept represents. This is further supported by Baker *et al.* (2006), who argue that, despite advances in research, the definition of teamwork is still elusive. Further, they criticize healthcare research programmes for not being grounded in a scientific understanding of what teamwork in health care represents. This confusion has hindered exploration of teamwork and its outcomes (Xyrichis & Lowton 2007). This highlights the need to develop a clear and common understanding of the concept to help enhance validity of future research.

Method

Concept analysis approach

Concept analysis is a formal, rigorous process by which an abstract concept is explored, clarified, validated, defined and differentiated from similar concepts to inform theory development and enhance communication (Morse *et al.* 1996, McKenna 1997, McEwen & Wills 2002, Walker & Avant 2005). There are various approaches to undertaking concept analysis, such as those proposed by Rodgers (1989), Walker and Avant (1995, 2005), Morse (1995), Meleis (1997) and Swartz-Barcott and Kim (2000). However, Walker and Avant's (1995, 2005) method is the most commonly used, probably because it provides a clear and systematic method. It comprises eight steps and is based on the approach developed by Wilson (1963). It is particularly useful to novice concept analysts as it is a relatively prescribed approach that helps to keep the process focussed and leaves little room for distraction (Brennan 1997). It has been successfully used in previous analyses of fatigue (Ream & Richardson 1996), empathy (Wiseman 1996), pain (Montes-Sandoval 1999) and peer support (Dennis 2003), to name a few. However, Paley (1996, p. 577) raised concerns about the sufficiency of Walker and Avant's (1995) method and argued that conceptual clarification is not possible without theoretical commitment; concepts can have different meanings according to the context of different theories. He argues that to achieve conceptual clarity a concept's meaning should be examined within its theoretical context. This suggests that if no theories or theoretical frameworks are identified in the publications reviewed for a concept analysis, that point should be made explicit. Thus, although in the present analysis we used Walker and Avant's (2005) method, we were aware of Paley's (1996) concerns and incorporate a section discussing the concept's relevance within existing theory. Since healthcare theories insufficiently address this concept, we draw on organizational psychology literature and discuss the similarity of the results of our analysis with the workgroup effectiveness theory advocated by McGrath (1964) and Hackman (1987).

Aim

The first two steps in Walker and Avant's (2005) process require identification of a suitable concept and determination of the aims of the analysis. The principal aim of the present concept analysis was to provide a definition of teamwork that contributed to understanding its use within health care and

provided an operational definition for future research in this context.

Literature search

The process continued with a literature search. As advocated by Walker and Avant (2005), this was not limited to nursing literature as this could bias understanding of the concept. Rather, in the search strategy we searched various bibliographic databases including Medline (1966–January Week 1 2006), CINAHL (1982–January 2006), Web of Science (1956–January Week 1 2006) and Cambridge Scientific Abstracts (CSA) (1960–January 2006) using relevant search terms such as ‘team working’, ‘teamwork’, ‘team’ and ‘teamworking’. Complementary searches included using internet search engines such as GoogleScholar, searching e-journals and ancestry searching (scanning the reference list of already obtained articles to locate possible relevant material). Additionally, definitions published in English and health-related dictionaries were sought. Literature between 1976 and 2006 was included in this review but was limited to papers published in English. The resulting literature was initially screened by reviewing titles and abstracts for relevance. Selected material was subsequently retrieved and reviewed in full.

Results

Identify uses of the concept

The literature search outlined above yielded a vast amount of literature from various disciplines, including human resource management (Sewell 2005), organizational behaviour (Wilson *et al.* 2005), education (Levin 2005), as well as from health care (Cott 1998, Rafferty *et al.* 2001). Walker and Avant (2005) suggest that consideration be given to how the chosen concept is used across different disciplines, but recognize that full exploration in different contexts can be both impractical and unhelpful. Thus, the use of teamwork outside health care is considered below, but not in great depth, as it was of limited utility.

Sewell (2005) identifies that teamwork is a popular concept in human resource management because it is seen by many as the best way of ‘tapping’ into the expertise and skills of the workforce. They also recognize that it has proved difficult to define and investigate. In educational settings, Levin (2005) advocates teamwork since it enhances students’ learning capability, assists them in developing integrative perspectives and skills, improves their self-confidence, and gives them a greater appreciation and tolerance of their team-mates.

Moreover, the organizational literature advocates teamwork as a means of promoting healthcare safety by facilitating healthcare organizations to achieve a status of consistent high performance with reduced levels of medical errors (Wilson *et al.* 2005).

In the healthcare and nursing literature much has been written about teamwork in terms of how it can promote nurses’ autonomy and improve patient outcomes (Rafferty *et al.* 2001), facilitate decision-making and improve care (Borrill *et al.* 2000), while improving job satisfaction and staff retention (Baggs *et al.* 1999). However, it appears healthcare professionals may hold different perspectives on the meaning of teamwork (Cott 1998, Thomas *et al.* 2003, Makary *et al.* 2006). Cott (1998, p. 852), for example, reported that physicians viewed teamwork as a form in which nurses were subordinate, whilst nurses viewed it as a way of directly influencing patient care and as a ‘means of gaining status’.

As mentioned earlier, to understand better how the term teamwork is conceived and used, dictionary definitions were sought from various English and medical dictionaries. As this is a two-word concept, the words ‘team’, ‘work’, and ‘teamwork’ were explored independently.

Team

According to *The Oxford Dictionary of English Etymology* (1966), the word ‘team’ is derived from the Proto-Germanic ‘taumaz’, which meant the ‘action of pulling’. In Old English it referred to ‘a set of draft animals yoked together’, and it was not until the 16th century that it became relevant to humans and took the meaning of ‘a group of people working together’. Dictionary definitions conceived team as:

- a group collaborating in their professional work or in some enterprise of assignment (*The Oxford English Dictionary* 1989);
- a group of people organized to work together (*Collins English Dictionary* 2003); and
- a group of people working together with a common aim. In health care, this includes people with a variety of skills and professional background (*Blackwell’s Nursing Dictionary* 2005).

Surprisingly, nursing and medically related dictionaries (except the one mentioned above) do not provide a definition of the word team. Instead, they refer to definitions of ‘team practice’ or ‘team nursing’. For example, *Mosby’s Dictionary of Medical, Nursing and Allied Health* (2002) refers to ‘team practice’ as professional practice by a group of professionals, including physicians, nurses and others, including social workers, nutritionists or physiotherapists, who manage the care of a specified number of patients as a coordinated group.

'Team nursing', on the other hand, refers only to a group of nurses working together for a group of patients (*Oxford Dictionary of Nursing* 2003).

Definitions of 'team' in nursing literature more widely are more difficult to find, but some examples from the healthcare literature include the World Health Organization (1984, p. 13) definition of a 'healthcare team', where it is defined as 'a group who share common health goals and common objectives, determined by community needs, to the achievement of which each member contributes, in accordance with his or her competence and skill and in coordination with the functions of others'. Drinka and Ray (1987) provide a similar definition, referring to 'teams' as consisting of various health disciplines with diverse knowledge and skills sharing common goals, and who utilize interdependent collaboration, including communication and sharing of knowledge, to provide services to patients. These definitions augment the very general dictionary definitions by emphasizing the diversity of professionals involved and the importance of common goals.

Work

The etymological origin of 'work' can be found in Greek 'ergon', which means 'energy', while in Old English the word 'weorc' meant 'something done' (*The Oxford Dictionary of English Etymology* 1966). Work is defined as:

- action involving effort or exertion directed to a definite end (*The Oxford English Dictionary* 1989);
- physical or mental effort directed towards doing or making something (*Collins English Dictionary* 2003); and
- effort or activity performed to achieve a goal or produce something (*Stedman's Medical Dictionary for the Health Professions and Nursing* 2005).

The definition of work was not encountered in the healthcare literature reviewed, but a possible reason for this might be the frequency of its use in everyday life as well as its common understanding. Some words related to work as a verb are provided by *Roget A to Z* (1994), such as labour, operation, function, perform, suffice and exertion.

Teamwork

According to *The Oxford Dictionary of English Etymology* (1966), teamwork meant, in Old English, 'work done with a team of beasts' and only emerged in the 19th century in the form in which it is known today, where it means 'people working in concert'. Dictionary definitions of teamwork include:

- work done by persons working as a team, i.e. with concerted effort (*The Oxford English Dictionary* 1989);

- the combined action of a group, especially when effective and efficient (*Oxford Dictionary of English* 2005);
- cooperation between those who are working together as a team (*Chambers 21st Century Dictionary* 1996).

None of the medical- or nursing-related dictionaries gave a definition of teamwork. However, a definition from the nursing literature was identified as:

that work which is done by a group of people who possess individual expertise, who are responsible for making individual decisions, who hold a common purpose and who meet together to communicate, share and consolidate knowledge from which plans are made, future decisions are influenced and actions determined. (Brill 1976, p. xvi)

Roget's Thesaurus (1987) provides a range of words related to teamwork such as cooperation, collaboration, synergy, association and relation.

Determine the defining attributes

Reviewing the literature allowed identification of attributes of teamwork that were repeatedly present. McKenna (1997) argues that it is not appropriate to have many attributes that are only tangentially related to the concept. Instead, it is preferable to have fewer attributes that 'really characterize the concept well' (McKenna 1997, p. 62). He suggests that colleagues be presented with the attributes and challenged to identify examples of the concept that do not include a particular attribute. Moody (1990) calls this process the 'test for necessity'. The 'test of sufficiency' is a second test in which the list of all defining attributes is considered and, if a contrary case exists that includes all of them, then that indicates that an essential attribute has been omitted (Moody 1990). These tests were used in the identification and refinement of the list of teamwork's defining attributes. It became clear through this process that teamwork involves team members:

- exercising concerted effort;
- employing interdependent collaboration; and
- utilizing shared decision-making.

Related concepts

Once a concept's defining attributes have been delineated, it becomes possible to identify concepts that are related to the one being analysed. Related concepts embody most but not all of the defining attributes. In this paper, for reasons of brevity, it is not possible to provide differentiation from all related concepts. However, effort is made to distinguish teamwork from collaboration, as the latter appears to be the most closely related concept to teamwork (Lawson 2004).

These two concepts share many aspects, and this is perhaps why they have been used interchangeably in the healthcare literature (Leathard 2003). Indeed, differentiating them proved difficult.

Henneman *et al.* (1995) reported a concept analysis of collaboration but used the words 'team' and 'team approach' throughout their report. They seemed to suggest that teamwork is part of collaboration; however, it is not mentioned as a critical attribute. Even though the two concepts are closely related, their difference can be demonstrated by considering the critical attributes of teamwork. For example, in everyday collaborative work between doctors and nurses, doctors might ask for nurses' contribution to inform decision-making but the final decision might rest solely with them. The two healthcare professionals might be collaborating but, since shared decision-making is lacking, teamwork is not evident. Moreover, the final decision might be made regardless of the nurses' contribution. Clearly, interdependent collaboration is absent and hence this situation cannot be described as teamwork. These arguments suggest that although the concepts of collaboration and teamwork are very similar, they are not the same.

Model and additional cases

According to McKenna (1997), developing model and additional cases is valuable in clarifying abstract concepts such as those encountered in nursing. Three cases will be presented – a model case, a related case, and a contrary case – to illustrate and clarify what teamwork is and is not. A model case has been described as a paradigmatic example of the use of the concept that includes all of the defining attributes; a related case is a related instance of the concept but does not contain all of the defining attributes; and a contrary case is a clear example of what the concept is not (Walker & Avant 2005).

Model case

The healthcare professionals in a cardiac ward meet to discuss Mr Smith's discharge; he is a 78 year-old man who was admitted with a myocardial infarction.

[Nurse]: Well, if I may begin, Mr Smith has expressed that he wishes to be discharged if his condition allows it. His condition has been stable and the nurses caring for him have prepared him for discharge. They have checked his understanding of his condition and the importance of self-management. He knows what to do should cardiac pain reoccur.

[Doctor]: That seems to be appropriate. His condition has been stable, as you said Mary (nurse), and his medical treatment has been

planned for. I believe he would benefit by returning to the comfort of his home. If we can complete the paperwork this afternoon, he may leave tomorrow.

[Social worker]: That sounds very nice, Mark (doctor), but his family needs to be contacted first. I intended to contact them this afternoon. I have not had the time to do so yet. Tomorrow may be too early.

[Dietician]: I agree with you, John (social worker). I have not had time to discuss dietary issues with Mr Smith yet either. However, I can do so tomorrow morning so I suppose he could be discharged later tomorrow.

[Nurse]: How about you, Jenny (physiotherapist)? What do you think?

[Physiotherapist]: Well, I saw Mr Smith this morning and he told me that he wished to be discharged as well. We talked and I think he is ready, but I told him that I had to consult with the team first.

[Social worker]: Since everybody is in agreement, I could contact Mr Smith's family after the meeting and talk to them about discharging him tomorrow. If everything is OK, tomorrow perhaps would be a good idea.

[Doctor]: Well then, if everybody agrees we can start the discharge process this afternoon.

[Nurse]: Excellent! Now with regard to that other issue of...

This model case represents an ideal example of teamwork and includes all of the defining attributes. The first quote from Mary (nurse) demonstrates that there is no power hierarchy in the team and she does not assume that one person is the team leader; instead, collaboration is evident by showing respect towards her team members (...if I may begin...). In the discussion that follows, two members of the team are not in agreement and express concerns about Mr Smith's (patient) discharge. However, they are willing to compromise and adapt in considering the rest of the team and Mr Smith's benefit, thus exercising concerted effort. This is also demonstrated by Jenny's (physiotherapist) quote (I had to consult with the team first). Mark's (doctor) final quote shows interdependent collaboration and consideration towards the team members, as well as shared decision-making.

Related case

The doctor walks into the nurse's office.

[Doctor]: Hello, Nurse Adams. I was just talking to Mr Smith – did you know that he wishes to be discharged?

[Nurse]: Oh. Yes, he mentioned it earlier – I was about to ring you.

[Doctor]: (still standing) Anyway, he is stable so I think it would be good for him if he was discharged tomorrow. What do you think?

[Nurse]: That's fine by me and I think the physiotherapist mentioned to one of the staff that she also thinks he is ready to be discharged. But I leave that decision to you.

[Doctor]: Yeah...(thinks for a moment). I will take a look at his blood analyses and I'll let you know.

[Nurse]: OK then. In the meantime I'll let the social worker know that the patient will probably be discharged tomorrow?

[Doctor]: Yeah, that's fine. Talk later.

The doctor walks out of the office.

This case appears to be similar to the model case in some ways, but does not contain any of the defining attributes. Communication exists, since another professional's opinion (nurse) is sought (What do you think?), but no other professional's opinion is sought, demonstrating a lack of shared decision-making and interdependent collaboration. In addition, the nurse's response (I leave that decision to you) reveals lack of concerted effort. This is not an example of teamwork; instead it might be seen as similar to collaboration.

Contrary case

The nurse telephones the doctor.

[Doctor]: Hello? Mark Patel speaking.

[Nurse]: Yes, hello, Mike Grainger here, the charge nurse from the cardiac ward. A patient has requested to be discharged tomorrow and apparently the physio(therapist) told him that he can be. You need to come and talk with him.

[Doctor]: What? Why wasn't I informed about this earlier? (sighs) Which patient are we talking about?

[Nurse]: Mr Smith.

[Doctor]: Hm... I'm too busy right now. I'll think about it later.

[Nurse]: But the patient...

[Doctor]: (interrupts) I'm sorry, I'm rather busy at the moment! (hangs up).

This is an example where none of the critical attributes are present. Moreover, there is no collaboration, shared decision-making, or consideration of other professionals. Whatever this scenario might represent, clearly it is not teamwork.

Identify antecedents and consequences

Walker and Avant (2005) describe antecedents as events or incidents that must occur prior to the occurrence of a concept, while consequences are events that occur as result

of it. Identifying antecedents and consequences can shed light on the social contexts within which the concept is used and help in refining the defining attributes; an attribute cannot be an antecedent or consequence at the same time (Walker & Avant 2005). For example, one of the original attributes was that two or more healthcare professionals must be involved. However, it became apparent that this feature is arguably more of an antecedent and necessary aspect for teamwork to occur. Thus, the antecedents of teamwork are:

- two or more healthcare professionals with complementary backgrounds/skills must be involved;
- there is open communication and information sharing amongst the team's members;
- there has to be an understanding of each professional's role; and
- a team must have common health goals.

Various authors have discussed a number of consequences of teamwork. For instance, Peiro *et al.* (1992), Field and West (1995), Borrill *et al.* (2000) and Baggs *et al.* (1992, 1999) report an association between teamwork and job satisfaction, motivation and improved mental health through reduction in stress levels. Ross *et al.* (2000), Rafferty *et al.* (2001) and West *et al.* (2002) discuss how teamwork can enhance patient satisfaction, influence the quality of patient care and improve patient outcomes. West and Anderson (1996), Baggs and Schmitt (1997), Sommers *et al.* (2000) and Borrill *et al.* (2001) argue that teamwork can be associated with organizational innovation, cost control, workforce retention and reduced turnover. Arguably, since research into teamwork is still in its infancy (Baker *et al.* 2006), its consequences are still being established. However, we propose that the following consequences of teamwork are supported by current literature:

For healthcare professionals, teamwork leads to:

- job satisfaction;
- recognition of individual contribution and motivation; and
- improved mental health.

For patients, teamwork leads to:

- improved quality of care;
- value-added patient outcomes; and
- satisfaction with services.

For healthcare organizations, teamwork generates:

- satisfied and committed workforce;
- cost control; and
- workforce retention and reduced turnover.

The antecedents, consequences and attributes of teamwork are summarized in Figure 1.

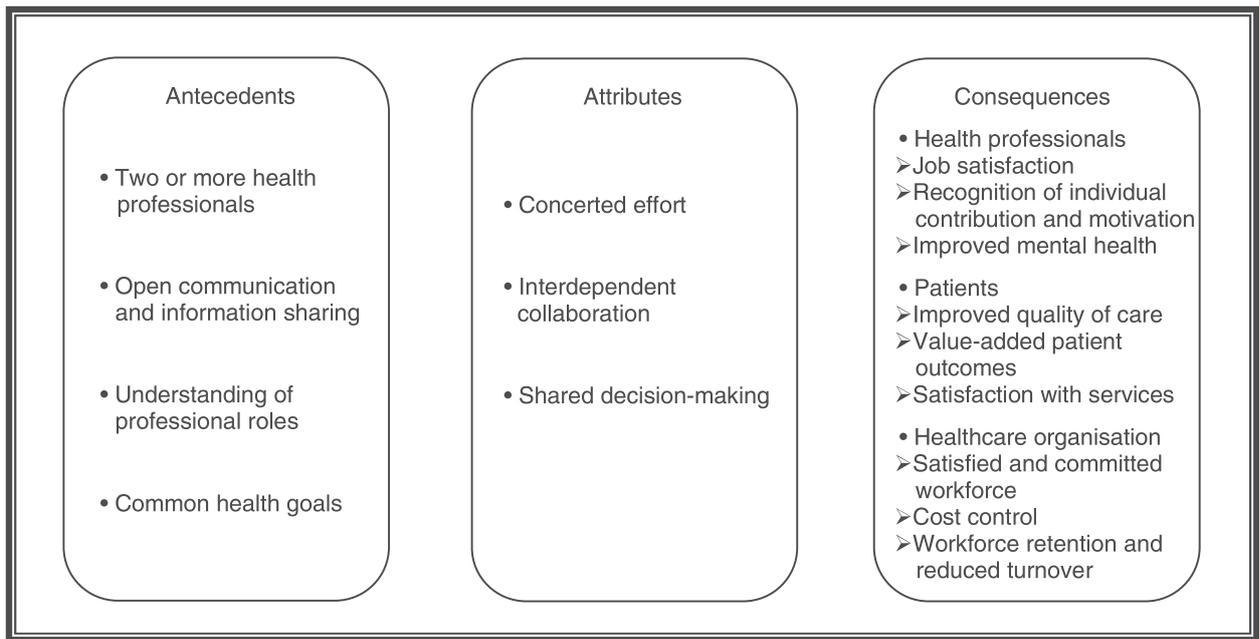


Figure 1 Antecedents, attributes and consequences of teamwork.

Empirical referents

The final step in a concept analysis is to identify empirical referents for the defining attributes (Walker & Avant 2005). Empirical referents are instances that by their existence demonstrate the occurrence of the concept, and can be very useful in measuring the concept and validating its existence (McKenna 1997, Walker & Avant 2005). Walker and Avant (2005, p. 46) argue that when a concept is highly abstract the question to be asked is, 'If we are to measure this concept or determine its existence in the real world, how do we do so?'

The existence of teamwork in the real world can be demonstrated in a number of ways. Books that have been written on the concept and by their publication suggest that the concept exists. For example, Procter and Mueller (2000) wrote a book entitled *Teamworking*, whilst Onyett (2003) authored a book entitled *Teamworking in Mental Health*. Moreover, a number of instruments have been developed and published that measure teamwork, such as Anderson and West's (1994) 'Team Climate Inventory'; this is used extensively in researching levels and quality of teamwork within healthcare teams, especially in primary and community care (Poulton & West 1999, Williams & Laungani 1999).

A number of research reports are also available in which teamwork was measured (Borrill *et al.* 2000, Rafferty *et al.* 2001, Kaissi *et al.* 2003). For instance, Borrill *et al.* (2000) report on a survey of teamwork processes in primary, community and secondary care, while Rafferty *et al.* (2001) published a large survey of medical and surgical nurses that

demonstrated the value of teamwork and its association with a range of positive organizational and occupational attributes, such as job satisfaction and quality nursing care.

Definition

Based on our analysis, teamwork in health care would appear to be:

A dynamic process involving two or more health professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care. This is accomplished through interdependent collaboration, open communication and shared decision-making. This in turn generates value-added patient, organizational and staff outcomes.

Discussion

As stated earlier in this paper, a theoretical context is invaluable in specifying the precise meaning of a concept (Paley 1996). However, the concept of teamwork has been insufficiently addressed in healthcare theories. Thus, in this discussion we explore the results of our analysis within McGrath's (1964) and Hackman's (1987) workgroup effectiveness theory for successful organizations. In this body of work, workgroups refer to teams of two or more employees who are put together to perform organizational tasks, and they are considered the backbone of successful organizations.

What is already known about this topic

- Teamwork is the dominant philosophy underpinning contemporary health care internationally.
- There is lack of clarity regarding the definition of teamwork as applied to health care.

What this paper adds

- Teamwork is a dynamic process involving two or more healthcare professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care.
- Teamwork is accomplished through interdependent collaboration, open communication and shared decision-making, and generates value-added patient, organizational, and staff outcomes.
- The antecedents of teamwork are common goals, open communication and information sharing, understanding of professional roles, held by two or more health professionals.
- The attributes of teamwork are concerted effort, interdependent collaboration and shared decision-making.

Hackman's (1987) theory, based on earlier work by McGrath (1964), proposed three stages for team and organization success: inputs, processes and outputs. In brief, success depends on inputs, including the nature of particular tasks and the composition of the group, and processes, such as communication and coordination, which result in positive team member and client outcomes. Moreover, the existence of shared team goals and the effects of the organizational context are key issues for consideration.

Hackman's (1987) model has been widely used across settings and has evolved in numerous forms. However, the basic premise of the three stages remains. For example, West *et al.* (1998) proposed an adaptation of the input-processes-output model for effective organizations, and this has been used to guide healthcare research studies (Borrill *et al.* 2001). Borrill *et al.* (2001) confirmed the salience of this theory for health care through investigating 406 NHS teams in the UK. Their results demonstrated the importance of team goals, team member participation effort and organizational support for innovation.

The results of the current concept analysis of teamwork in health care appear pertinent for Hackman's (1987) theory since we postulate that 'value-added patient, orga-

nizational, and healthcare staff outcomes may occur when two or more health professionals who share common goals and communicate openly exercise concerted effort, interdependent collaboration and shared decision-making' (Figure. 1). Further, the antecedents identified within this concept analysis resemble Hackman's 'inputs' (e.g. communication), and the identified 'consequences' appear synonymous with Hackman's 'outcomes' (e.g. for clients or patients). Moreover, similarities can be found with Borrill *et al.*'s (2001) research findings, notably the importance of effort and team goals. However, questions arise about the importance and role of constructs such as coordination, task structure, organizational effects and support for healthcare teamwork theory.

In summary, the results of this concept analysis are twofold. They highlight the lack of healthcare teamwork theory but also offer a stepping stone from which this could evolve. This concept analysis also encourages critical thinking to evaluate the pertinence of organizational theories within health care, and emphasizes the need for further investigation to make this concept sufficiently salient and unambiguous to enable quality research into teamwork within health care.

Conclusion

Considering the state of current health care internationally, this concept analysis seems particularly timely. Numerous reports identify the difficulties healthcare teams face in achieving effective teamwork. Our proposed definition offers a broad theoretical understanding of what teamwork in health care represents, and can help reconcile discrepancies between how this concept is understood by nurses, doctors and allied health professionals. This will potentially increase and facilitate communication in academic as well as in clinical settings regarding what teamwork is and how it is best promoted.

Moreover, healthcare researchers can use this definition to improve clarity in research, while practitioners can use the identified antecedents, attributes and consequences to evaluate current practice in accordance with their specific clinical setting. Our analysis may also give guidance to team managers and members for developing and maintaining effective teams. In addition, the paper could offer a theoretical frame to guide future work on the concept. Finally, it is evident that further research is needed to determine the concept's meanings and nature across different settings (e.g. primary care, critical care) and health care contexts to uncover optimal ways of fostering teamwork in practice and help realize its true potential.

Author contributions

AX was responsible for the study conception and design and the AX and ER were responsible for the drafting of the manuscript. AX performed the data collection and data analysis. ER supervised the study.

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