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Research papers

Teamwork in operating-room nursing as experienced by Finnish, British and American nurses

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ABSTRACT

This study explores teamwork in operating room (OR) nursing, and the factors that improve or hinder it, as experienced by Finnish, British and American OR nurses ($n = 30$). A descriptive phenomenological approach was used to inform the use of a critical incident technique in collecting and analysing data obtained through interviews. The findings established four elements of OR teamwork culture: professional, distracting, organised and physical environment as a marker of teamwork. Good organisation and professionalism improved teamwork, which centred around technical competency and a willingness to co-operate. Teams whose members lacked sufficient skills or motivation, e.g. senior, novice or tired nurses, were thus a source of irritation. OR teamwork was hindered by the presence of distractions such as the unpredictability of some aspects of the work, constant changes in team composition and a need to work overtime. Moreover, excessive perfectionism made nurses worry about mistakes or suppress emotions while working in teams. The four elements of teamwork culture were found in each of the three countries represented in the study. The only finding that related specifically to each country related to the ways in which overtime was organised. Recommendations include the need for further investigation of the ways in which teamwork culture affects patient care particularly with regard to safety issues. In addition, the emotional atmosphere of ORs should be studied with a view to developing positive OR teamwork cultures that attract nurses to work in the OR.

Keywords: descriptive phenomenological research, operating room nursing, teamwork

Introduction

The goal of operating room (OR) nursing is to maintain an optimal level of wellness in response to the physiological, psychological and sociocultural needs of patients undergoing operative procedures. The term 'OR nursing' is synonymous with the British term 'theatre nursing', and it refers to scrub or circulating nurses' activities during intra-operative procedures. In addition, the term OR refers to the physical environment where operations take place and in which the nurses, surgeons and anaesthetists work.

Thus, the term 'OR nursing' is narrower than 'peri-operative nursing', which covers the pre-, intra- and postoperative phases of surgical patient care.

Teamwork is highly valued in OR nursing because orchestrating smooth actions and a scheduled flow of operations requires the simultaneous co-operation of a variety of professionals (Crowell, 2000) and mutual understanding about the task of taking care of patients undergoing surgery (McNamara, 1995; Kleinbeck, 2000; Sexton *et al*, 2000). The need for multiprofessional teamwork is constantly increasing, as both operating times and patients' pre- and postoperative stays in hospital are getting shorter and peri-operative nursing is thus becoming more efficient (Stakes, 1997; Jacobs, 1999). However, the combination of technical and caring expertise required in the OR may lead to confusion about mutual responsibilities and thus make teamwork more challenging. The quality of teamwork may also vary if not all team members are able to participate fully, or if they have different skill levels. (Crowell, 2000) Another problem is that today's busy ORs with their reduced resources cannot afford to give their personnel enough time for orientation (McGarvey *et al*, 2000). Learning the art of intra-operative nursing is a long process that usually extends beyond the initial orientation period. Thus, staff members may lack the skills needed to work as a team, and poor teamwork may jeopardise patients' safety (Sexton *et al*, 2000).

The purpose of this study was to describe the nature of teamwork in OR as experienced by Finnish, American and British OR nurses. In particular the research aimed to identify factors that promoted successful OR teamwork, and those that hindered it. It was anticipated that an understanding of teamwork in different countries and cultures could inform the future development of OR environments. It was also reasoned that, with the increased mobility of nursing staff, transfers between operating departments could be made easier if the major cultural differences between OR teams were made explicit. An understanding of these cultural differences might help nurses to cope better with the increased diversity in healthcare teams and in nursing practice (cf Duffy, 2001). Cultural understanding and competence in nursing might potentially assist in solving OR nursing workforce problems. In the US and the UK, it is already difficult to recruit enough nurses into the OR (Happell, 1999; Seifert, 2000; Bauer, 2001). In Finland a shortage of OR nurses is predicted to occur within the next 5–10 years (Ministry of Social Affairs and Health, 2002).

Teamwork in OR nursing

Teamwork can be defined as the work done by people who are committed to a relevant shared purpose and who have common performance goals and a shared approach to their work (Katzenbach and Smith, 1993; Heermann, 1999). Effective teams are flexible and typically outperform individuals when the tasks being done require multiple skills and experience (Heermann, 1999; Robbins, 2000). In nursing teamwork, joint responsibility and intellectual participation and commitment to the common goal in pooling the employees' special skills and time have been emphasised and valued (Keenan *et al*, 1998; Payne and King, 1998). Teamwork has also been seen as a pleasant method of nursing because it leads to active communication between healthcare professionals and thus improves job satisfaction (Wieczorek, 1995; Baggs and Schmitt, 1997). However, it has also been noted that staff in different contexts attribute differing meanings to teamwork (see for example Adams and Bond, 1997; Cott, 1998; Payne and King, 1998).

Little is known about what teamwork means or how it is carried out in the OR environment (cf Leinonen *et al*, 2002). However, studies conducted in the OR context have indicated that teamwork is important in intra-operative nursing. Graff *et al* (1999) evaluated the effectiveness of leadership in the OR and found that team leadership involved co-ordination of tasks, supervision of other staff and intervention in solving problems between team members. A study of the quality of OR nurses' working life emphasised collaborative decision making and teamwork as important factors in a good working environment (Donald, 1999). Happell (1999) found that nursing students described teamwork as the most interesting aspect of OR nursing. However, none of these studies defined the nature of teamwork in the OR or discussed ways of fostering it. This is significant because OR teams are multiprofessional and sometimes characterised by conflicts between individuals who insist on applying their own views of patient care and approaches towards interacting and communicating in teams (Verschuren and Masselink, 1997; Crowell, 2000). The challenge in developing good teamwork in the OR, where physicians and nurses work together under high pressure and with busy schedules, is to help individuals with different work orientations to work together for the common goal of high-quality intra-operative patient care.

Methods

Theoretical framework

A descriptive phenomenology approach was chosen because the main aim of the study was to ascertain nurses' individual experiences about OR teamwork. Phenomenology focuses on the nature of human experience and therefore respects participants' individual descriptions as sources of data. This was important because there has been little research about OR teamwork and this study would be among the first to provide an account of the ways in which nurses experienced their work in that setting.

Method and data collection

The data were collected through individual interviews by using the critical incident technique (CIT) originally developed by Flanagan (1954) as a sensitive basis for identifying important elements of human life through the examination of concrete and contextually situated experiences, in this instance about OR teamwork (Norman *et al*, 1992; Ingleton, 1999; Broström *et al*, 2003).

At the beginning of the interviews, each participant was given the following written instructions to better understand the aim of the study:

> Dear operating room nurse, please describe your own critical incident about teamwork in operating room nursing. Describe the whole incident as if you were telling it to your friend. Also describe the place and time of the incident, the other persons who were present (not to be mentioned by real names) and why the incident was meaningful for you. If you can, indicate whether the incident was positive or negative.

After reading the instructions, the researcher explained that the critical incident could be any incident related to OR teamwork that had had an emotional impact on participants. Participants were encouraged to describe the incident by talking about it in as much detail as they could and indicating how the incident started and ended. Some of the participants were doubtful about their ability to give adequate reports about something that could be called 'critical'. However, all the participants gave detailed accounts about their experiences when they realised that the procedure was a tool to elicit information about their personal negative and positive events. All participating nurses described two or more incidents, and the data were rich enough to allow a concrete description of OR teamwork. All interviews were tape-recorded and lasted for 50 to 110 minutes.

Data analysis

The data were analysed using the descriptive phenomenological method developed by Giorgi (1992), which aims to describe precisely, without presuppositions, how the phenomenon under study has been experienced (Adams and Bond, 1997; Sbaih, 1997). Phenomenological reduction is a methodological device that leads to identification of the essence of the studied phenomenon from the participant's perspective. In practice, an open study about nurses' OR teamwork experiences required bracketing of the researcher's reflections on her preliminary assumptions about OR teamwork, to differentiate personal experiences from those included in the data, and to absorb the important meanings of the informants' experiences.

This method of descriptive analysis proceeds to a description of the essential structure of the phenomenon through five phases, but its shape develops flexibly in each research project in response to the specific qualities of the data (Giorgi, 2000). The progress of the method and examples of the important tasks in each phase of analysis are presented in Box 1. Phases 1–4 describe the progress of the analysis at the level of a single participant, while phase 5 is a combination of all participants. In the fifth phase of the analysis, the individual meaning structures can be combined either into a single general meaning structure or into types representing the most important meanings of the studied phenomenon. As a result of this data analysis, four aspects of OR nurses' teamwork experiences were discovered. Each type was derived from a large number of actual events, and all transformed meaning units were taken into account and, at least implicitly, included in the types. Therefore, the types do not pertain to only one person's private reality, but contain the essential meanings of many participants. The reason for combining individual structures was to accentuate similar and important meanings (Turunen, 2002). Therefore, the types were also labelled by the most descriptive names. The types are illustrated by examples of authentic quotations presented in the Results section and in Figure 1. In this study, there was no evidence of special Finnish, British or American culture of OR teamwork to generate culturally specific types, because OR teamwork comprised only a few culturally distinctive aspects. Thus, all the types include Finnish, British and American nurses' experiences. However, the culturally specific meanings are highlighted when discussing the results.

Participants

A purposeful sample was recruited. This consisted of 30 female (24) and male (6) OR nurses who worked in Finnish (n = 10), American (n = 10) and British university hospitals or in British district hospitals

Box 1 Progress of descriptive phenomenological analysis and examples of the tasks done in each phase of analysis

Phase 1: Reading of the entire description of experiences to obtain a view of the whole:
- reading the texts as often as necessary to get a good grasp of the whole.

Phase 2: Identification of the individual units of meaning for the experience by using researcher's intuition and reflection:
- reading through the text with the specific aim of discriminating the meaning units from a nursing perspective and with a focus on the teamwork
- maintaining openness to let unexpected meanings emerge
- regrouping the meaning units based on their fitting together and placing them as they reflect the structure of the original experience.

Phase 3: Transformation of the participants' language into the language of science → expressing the explicit and implicit meanings of the experience:
- transforming the individual meaning units with intuition through a process of reflection and imaginative variation → rewording and restructuring the everyday expressions into the language of nursing science with an emphasis on teamwork
- presenting the transformations as clearly as possible
- avoiding too early commitment to theoretical concepts, and retaining the participants' descriptions as far as possible.

Phase 4: Synthesising the insights into a description of the entire experience = individual meaning structure:
- maintaining the importance of structures in the interrelationship among essences and their relationships, not so much the parts themselves
- going back to the raw data and rendering variations → reanalysis if some meaning is missing in the synthesis → synthesising all of the transformed meaning units into a consistent statement of the structure of each participant's experiences about OR teamwork.

Phase 5: Integrating and synthesising the focal meanings into types of general structure = one general meaning structure or several types:
- typing:
  - when all individual meaning structures contain different essential meanings, it is not possible to combine them into a focal meaning structure
  - comparing each individual's situated specific structures to the others and identifying the convergences and divergences → the similarities may become part of the same type
  - reading through the individual structure by emphasising the most important meanings of the structure related to OR teamwork
  - placing together the structures with the same most important meanings
  - naming by the most descriptive names.

(n = 10) (Table 1). After getting the permissions, in Finland, the data collector contacted the OR nurses in person and asked them to participate in the study. In the US, the data collector observed teamwork in an OR for several weeks, and nurses were invited to volunteer for an interview. In the UK, a local contact person invited nurses to participate in the study, and the data collector met the ten OR nurses who volunteered for data collection. The data collector was the same Finnish doctoral student in all three countries.

The inclusion criteria were that each participant should be a registered nurse, have worked as an OR nurse for at least two years, and be working in this speciality at the time of data collection (Table 1). In each of the three countries, the nurses were engaged in one OR service, where they worked for most of the time, although the OR units provided many different services. The American OR nurses had permanent day, evening or night shifts and occasional on-call duty as well. The shifts of both British and Finnish OR nurses were more variable. Some Finnish nurses had irregular three-shift work.

Ethical questions

Permission to collect the data was obtained, following the local ethical procedures for approval then in place in each country. Participation in the research was voluntary, and self-determination was respected. The participants were fully informed about the study through the use of a written information sheet. Consent to participate was gained before the interviews started and reconfirmed after the interviews, when the participants were asked again whether they still wanted to give permission to use the data they had provided as

Table 1 The participants' age range and OR working experience (n = 30)

	Age range (years)				
Work experience (years)	25–29	30–39	40–49	≥50	Total
<5	F (2), B (1), A (1)	–	–	–	4
5–9	–	F (3), B (3), A (4)	A (1)	–	11
10–15	–	F (3), B (2)	A (1)	–	6
>15	–	F (1)	F (2), B (3), A (2)	A (1)	9
Total	4	16	9	1	30

F = Finnish nurse B = British nurse A = American nurse

research material. Thus a combination of informed and process consent was the approach used in this study. It was also important to protect the participants' identity, and so absolute confidentiality was emphasised. The participants were advised that they were free to choose what to reveal in the interviews. Anonymity extended to the institutions and they were not identified in any published results.

One of the aims of research, and a particular challenge in a cross-cultural study is the need to protect participants from harmful effects, through informed consent and confidentiality agreements (Seedhouse, 1998; Beauchamp and Childress, 2001). In all three countries, this involved transmitting the research proposal and consent forms to the institutions involved and, after the review process, obtaining approval to carry out the study. That was the practice in 2000, when the data of this study was collected. Regulations governing research were changed in the UK in 2001 through the implementation of the research governance strategy (Department of Health, 2001), which has re-emphasised the need to ensure the safety and well-being of participants within studies through more rigorous reviewing and monitoring of research studies.

Credibility

The three qualitative research criteria, *consistency, dependability and trustworthiness,* which have been identified repeatedly in qualitative research, were used in this study (e.g. Giorgi, 1997; Cuba and Lincoln, 1995; Sandelowski, 1995, 2000; Russel and Gregory, 2003). *Consistency* relates to the philosophical underpinnings of the methodology in view of data collection and analysis. The phenomenological approach was consistent with the OR nurses' experiences of OR teamwork because the topic has been widely researched. In addition, the approach was consistent with the CIT used in data collection and the descriptive phenomenological method of data analysis, because both methods emphasise subjective experiences as a source of descriptive data.

With regard to the *dependability* of this study, one of the researchers collected the data in the three countries, gave all the participants the same instructions and started each interview in the same way, encouraging the participants to speak freely about their experiences in relation to OR teamwork. Therefore, all participants were able to clarify their understanding of the main focus of the study by drawing on the same source of information. A total of 30 nurses provided 120 separate critical incidents, and the number and quality of these incidents were sufficient to allow a meaningful qualitative analysis based on Mårtensson *et al*'s (2001) assertion that, when using CIT in data collection, 100 incidents are sufficient for a qualitative analysis.

Trustworthiness is accomplished when the researcher is able to reach and describe the participants' world precisely as it shows itself (Giorgi, 1992, 1997). In this study, the participants' illustrative and detailed descriptions helped to maintain trustworthiness. By concentrating fully on the participants' experiences, the researcher maintained an open attitude that allowed unexpected meanings to emerge. Furthermore, the researcher's use of bracketing throughout the study ensured that assumptions about OR teamwork in the research team were challenged. However, descriptive phenomenology operates from the premise that total detachment on the part of the researcher is unattainable and that the researcher comprises an integral component of the entire research process (Giorgi, 1997; Mays and Pope, 2000). One researcher undertook data analysis, but consensual validation was obtained from the other research team members,

who had previous experience in the use of the descriptive phenomenological method and with CIT as a data collection method.

Results

This study revealed four aspects of OR teamwork culture: *professional, distracting, organised* and *physical environment as a marker of OR teamwork*. Each was labelled according to the most important meanings attached to teamwork by the nurses (Figure 1). The four themes are presented and discussed below.

Professional OR teamwork

Membership of professional OR teams required competency, including practical skills, an ability to prioritise needs, and a willingness to collaborate. Competent team members often had long experience of OR nursing. Familiarity with the team members individually and as members of OR teams created trust, made advance preparation possible and helped nurses to understand each other's needs from gestures. Trust in each other's professionalism enabled the team members to overcome educational boundaries and gave flexibility to accomplishing good care.

> 'So he stopped being an anaesthetic nurse and became part of us. Things just happened, and we sort of went into these roles and helped others. Nobody said anything, it happened instinctively.' (Senior nurse, Finland)

> 'One Sunday night we had the consultant anaesthetist washing the floor. He did not walk out, have a cup of coffee and leave us tidying up. Instead, he helped us to get a decent break before the next case.' (Senior nurse, US)

OR teams worked under extreme pressure to achieve high standards set by themselves. Perfectionism, for example always being accurate, never making mistakes, was emphasised and team members continuously monitored each other's actions. Mistakes were

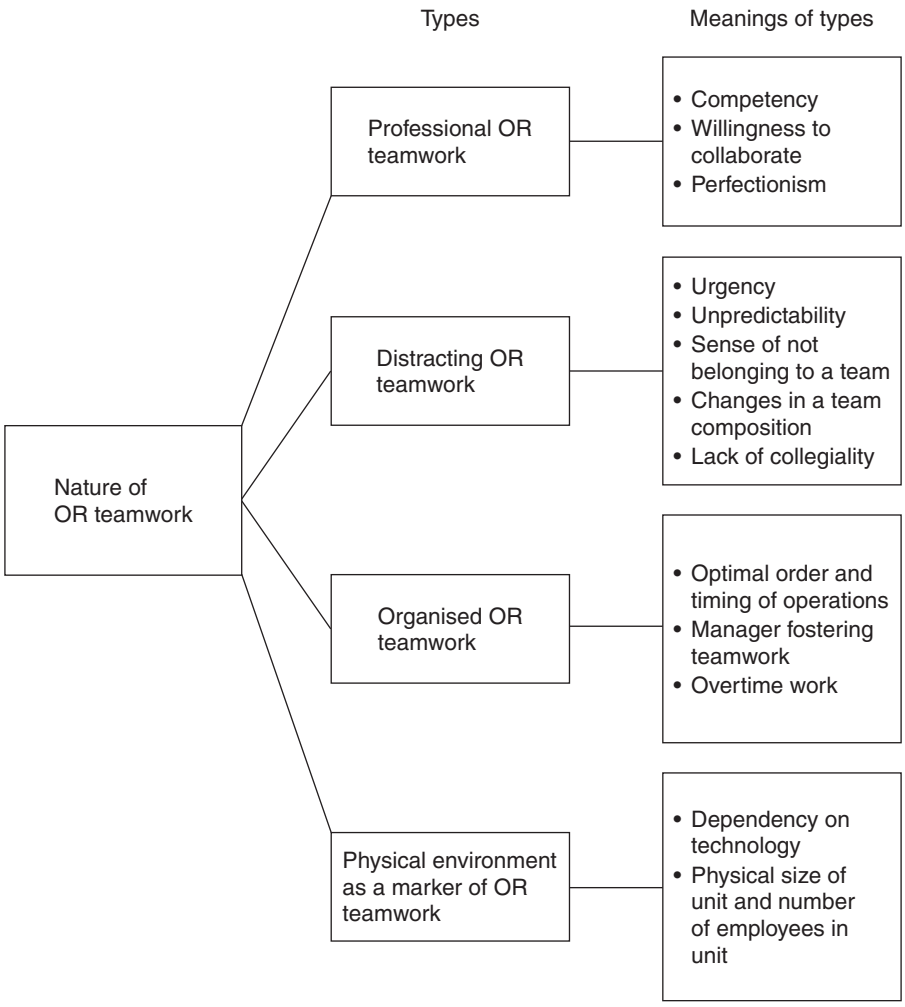

Figure 1 Types and meanings of the types of OR teamwork experienced by Finnish, British and American nurses

not allowed, but if they occurred, they were soon widely known and harshly judged. Both British and American nurses were expected to write reports about events that bothered them or seemed to involve malpractice issues.

> 'Your responses were supposed to be correct, and all things that you did and said were under very strict evaluation. The attitude, the speed, the high tension, the atmosphere, sometimes there were too many things.' (Senior nurse, UK)

> 'I felt that I made mistakes all the time. And when I felt like that, I really made them, because I was so nervous.' (Staff nurse, US)

Even though senior nurses had more experience than their novice colleagues, both of them could be a source of irritation because of their inadequate teamwork skills. Slowness, tiredness and overall unawareness of work were not well tolerated. Additionally, excessively emotional attitudes or over-reacting to situations were seen as hindering teamwork.

Distracting OR teamwork

Distraction in teamwork was due to the fact that it simultaneously demanded many things and was characterised by urgency. Constantly changing situations forced the team members to respond quickly and to share information. Teamwork was unpredictable, especially during on-call hours, because the work was unscheduled, the teams were established in a rush, and all surgical services were covered.

> 'They could change into a lot more quickly in theatre and I wasn't used to it. They could go from laughing and joking straight to being really stroppy. They could be carrying on and then suddenly say: be quiet, stop it, shut up.' (Staff nurse, US)

The sense of not belonging to a team was also a source of distraction. Anaesthetic and OR nurses often felt their own speciality groups to be their real teams rather than the daily scheduled teams. It seemed hard for the nurses to be members of teams other than their own. However, the composition of teams changed daily and thus could cause distraction and impair one's ability to work effectively. Successful and pleasant team efforts helped people bond together and fostered a feeling of belonging.

> 'It became obvious to me that although she was supportive of my concerns, the anaesthetic team was more of a team for her.' (Senior nurse, UK)

> 'Well, if you do ten laparoscopies a day then you should know how to do it, but it is different, if you get to do one once every year. Still, each surgeon thinks that you should know exactly what he wants, and he does not realise that his preferences are completely different to the next surgeon.' (Staff nurse, US)

Lack of collegiality was another source of distraction from teamwork and could be manifested as bullying. In addition, the reluctance of individuals to talk to one another made nurses act as buffers between other occupational groups. Differences in educational level or professional esteem between the team members caused distrust, leading to a tendency to make excuses, to act offensively or to be reluctant to work in teams. Power struggles could take place among surgeons, anaesthetists and anaesthetic nurses, and the ways of misusing power included shortened lunch breaks, making OR nurses feel guilty about leaving on time, and lying about a patient's critical condition. Furthermore, a single difficult person in the team could imperil the whole team's cohesion.

> 'The surgeon said, this patient has got a cancer, has been starving all day, and needs to be done. Emotional blackmail was unbelievable.' (Staff nurse, Finland)

> 'You can be working with 15 people and one person can make it awkward, which therefore makes the rest of the others, 14 people, a miserable shift.' (Staff nurse, UK)

Organised OR teamwork

Organised OR teamwork was characterised by optimal order and timing of patient allocation. Continuous interaction between the anesthesthetic and operating room staff was extremely important, because collaborative decision making ensured the effectiveness of teamwork. The OR manager secured organised teamwork by assigning enough experienced staff to each team. However, inconsistent demands or values in teams, such as a contradiction between the desire to have the best nurses for each case and the novice nurses' learning needs, caused disagreements. Both financial (e.g. extra salary) and emotional (e.g. praise and encouragement) rewards kept the teams motivated, and feedback was expected not only from the manager but also from the co-workers and physicians. This was particularly important for new team members.

> 'The manager tried to find out the level of knowing and had to think about the doctor, the case, the people who they were working with ... all the different personalities.' (Senior nurse, US)

> 'I said I am not going to that room, please do not put me there again. My manager said of course, you got to get rid of your scare ... and I did, thank goodness!' (Staff nurse, Finland)

The problem of organised OR teamwork was that the daily schedules were often overbooked, and nurses working in different shifts were under constant threat of a demand to work overtime. Thus, the schedules needed manipulating and some surgeons pushed teams to work faster and longer, even though rushing in non-hurry situations hindered teamwork. The problem of

overtime work was solved in culturally specific ways. The Finnish OR teams had specified shifts that worked overtime when needed. In British ORs, the nurses who were already working with cases requiring overtime were expected to stay as long as necessary. In the American OR culture, surgeons personally asked nurses to stay longer.

> 'There was the feeling of immense stress and the pressure where no one said: ''can you stay?'', ''do you mind staying?'', ''thank you for staying'' ... they were so short-staffed that there was nobody else to take over, so you were there from half past six to eight o'clock in the evening.' (Staff nurse, UK)

Physical environment as a marker of OR teamwork

The success of OR teamwork was partly dependent on technology. Accurate use of equipment and task-orientation, especially in emergency situations, fostered the nurses' tendency to act as responsible team members. The physical size of the unit and the number of employees in it were also environmental markers of teamwork. Larger ORs had difficulties in setting up teams, mainly because it took too long to get hold of all the necessary team members. The teams in small units were flexible, comfortable mingling with each other and better at implementing decisions than those in big units.

> 'We have become so blasé in the environment, but we are not technicians. We use the technology to nurse the patients. They [technology] are helping us to help the patient.' (Staff nurse, Finland)

> 'I think that teamwork was a bit lacking in that big department. I would rather do a job by myself than ask somebody, who says, ''well me, I haven't the time''.' (Staff nurse, UK)

Discussion

The findings revealed some important aspects of nurses' attitudes, feelings and behaviour in relation to OR teamwork. Four aspects of OR teamwork culture were identified: professional teamwork, distracting teamwork, organised teamwork, and physical environment as a marker of teamwork. These aspects were found within each of the three countries in which the study took place. The only specific difference between Finnish, British and American practices concerned the ways of organising shifts and overtime work and the written reporting of adverse incidents that could be taken into account when rescheduling and developing OR nursing. Understanding both the positive and the problematic features of teamwork may potentially help to develop OR nursing and to make it more satisfying for employees, and thus safer for patients.

The main limitation of this study was that the data collector was not a native English speaker and was thus not able to understand all the nuances of the verbal data. However, she lived in the US for more than a year, spent some time in the UK and so was familiar with the American and British nursing cultures. In addition, the discussions and reflection on the cultural issues and expressions in the academic Finnish–British research group, which comprised a Finnish doctoral student, two Finnish senior researchers and two British senior researchers, made it possible to understand the studied phenomenon.

Features that improved OR teamwork

Professionalism improved OR teamwork. Professional teams were competent and willing to co-operate and thus able to anticipate each other's needs. Therefore, providing OR teams with members lacking sufficient skills or motivation, e.g. novice, senior, or tired nurses, was a source of irritation. This finding contrasts with the work Blythe *et al* (2001) who found that mixed teams with members of different age groups were socially active and traded clinical expertise for technical or physical help. However, there is evidence that having less skilled team members may not always be helpful. For example, some studies (see for example Kovner and Gergen, 1998; Parker *et al*, 1999; Bauer, 2001) have noted that replacing a professional circulating nurse with unlicensed assistive personnel (UAP) (in US) or operating department assistants (ODA) (in UK) is questionable from the viewpoint of safety and fluency. In Finland, such roles have not yet been introduced. Theatres are staffed only by RNs but this situation may change because the number of applicants interested in OR nursing programmes in Finland is decreasing.

Professional OR teams were sensitive to the need to value patients' lives and used a task-oriented approach to their work, especially in emergency cases. While nursing theorists have produced many arguments against this style of work organisation, they have not sufficiently considered the needs of OR nursing. For example, Graff *et al* (1999) showed that focusing perioperative nursing on patients rather than tasks improves patient outcomes. However, their study did not set out the difference between focusing on patients or tasks in an OR environment, where, for example, the need to keep operations as short as possible to avoid infections and nerve damage is an important aspect of the quality of care. Safe and professional nursing during operations, as described by the Finnish, American and British OR nurses in this paper, consisted of a

mixture of social–emotional balance, competency and willingness to work in teams. Moreover, even though Baker *et al* (2000) earlier reported that a spacious environment in the emergency room was supportive, in this study small units were emphasised as being flexible and better able to implement decisions.

One difference between these three countries was the practice in the UK and US of writing reports concerning mistakes or malpractice. However, although many hospitals in the UK and US have established incident reporting systems of some kind, these are said to be unlikely to reveal the full nature of errors, because of the possible inconsistency in reporting, and because they rarely reveal the antecedents of errors (Meurier, 2000; Anderson and Webster, 2001). In Finland, nurses write reports only when they are officially requested to do so, but there is no common practice for dealing with minor malpractice issues.

Features hindering OR teamwork

OR teamwork was hindered by distraction, which manifested as unpredictability and constant changes in team composition. The most permanent aspect of nurses' work orientation was the membership in the team of a particular service, but the service could also change. Unpredictability has been cited as one reason for restlessness (Leinonen *et al*, 2002), stress (Firth-Cozens *et al*, 1999; Blythe *et al*, 2001) and high job turnover (Cox, 2001) in nursing. Moreover, Cameron *et al* (1994) and Walker and Adam (2001) have pointed out that nurses are more satisfied when they can specialise in certain tasks. Another hindering feature of OR teamwork was the need to work overtime. The problem of overtime was solved in different ways: by designating certain shifts to stay overtime (Finland), by asking nurses personally to stay longer (US) or simply having nurses stay for as long as the operations lasted (UK). Overtime (Bauer, 2001; General Accounting Office, 2001) and inadequate staffing (Graff *et al*, 1999) have been reported in the US as the major impediment in OR teamwork leading to increased job turnover. In Finland, Leinonen *et al* (2002) suggested that more attention should be given to the number of OR staff needed in each shift.

This study also highlighted some distinctive psychological features that hindered teamwork. Excessive perfectionism made nurses worry about mistakes or suppress emotions while working in teams. In spite of the obvious high priority assigned to maintaining safety, the idea of never making mistakes is unreasonable and could easily cause unduly protective behaviour (Graff *et al*, 1999) or negative scrutiny by other team members (Chaboyer *et al*, 2001). Moreover, such an attitude may lead to a breakdown of teamwork and interfere with good patient care (cf Meurier, 2000; Firth-Cozens, 2001; Benner *et al*, 2002). The nurses' role as buffers between other professionals, identified in this study, highlights the problems in interaction between team members. Situational factors inherent in the OR, e.g. the close working relationships in which surgeons and nurses depend on each other, stressful patient care situations and the challenge of working with people of diverse skill levels, predispose nurses to a subordinate position where they are not able to work as equal team members (Kreitzer, 1997; Cook *et al*, 2001). Heermann (1999) has emphasised the importance of congruent communication among team members, which means experiencing an emotion and then communicating it honestly to the others. Bullying and the other non-professional behaviours mentioned in this study should not be wrongly understood, even in a stressful situation, as open communication.

Conclusions

The primary intention of this study was to increase our understanding about the nature of OR teams, which provide care to surgical patients, in three OR nursing cultures. The mainly consistent findings contribute to the current limited knowledge base about OR teamwork. Based on this study, suggestions for further studies and changes in OR nursing practices can be made.

- The composition of OR teams often changes, which makes it demanding for nurses to manage in a variety of teams. More evidence is needed in order to understand when and how changes in the OR team's composition affect patient care. Thus, OR teamwork should be studied in different settings such as day surgery and some special OR services, to find out if it is possible to keep the teams more stable in such units.
- The problem of overtime in OR teams requires a respectful attitude towards nurses' own wishes and preferences such as that shown in the American OR. Moreover, the rotation of team members between services overall needs to be analysed, because the fast development of surgical technology makes it difficult for nurses to manage in all surgical services. Also, the economic aspects of organising smaller units could be studied from the perspective of smoothly functioning teams.
- Skilfulness and co-operativeness are valued highly in OR teams, but the fear of mistakes causes stress. The good practice of writing reports and systematic critical analysis of both near misses and malpractice issues could reveal the factors underlying errors. Therefore, an error reporting system could be introduced in Finland, and more effective ways in reporting incidents could be adopted in the UK and US. Also, the overall emotional atmosphere of OR teams should be studied further.

- Arranging duty rotas in ways that enable both novice and senior nurses to share responsibilities in OR teams should be worked out. Even though senior nurses may at times be slow and tired of their work, they still have a huge amount of tacit knowledge, which is easily lost by the organisation when they retire. Overall, there will be a pressing need for OR nurses in Finland in the near future. Consequently, Finnish OR nurses need to improve the image of this speciality in order to attract nurses to work in theatres.

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CONFLICTS OF INTEREST

None.

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