Perceptions of self-competence in theatre nurses and operating department practitioners

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Abstract
Perceptions of self-competence in theatre nurses and operating department practitioners

Over the last 25 years, shortfalls in health care funding and a growing shortage of nurses entering the operating theatre (OT) has driven the development of roles for qualified, non-nursing personnel. Yet, historical differences in training and scope of practice of nurses and non-nursing personnel have influenced the convergence of these roles in providing competent patient care in the OT. This paper compares operating department practitioners (ODPs) and OT nurses’ levels of perceived perioperative self-competence. A consecutive sample of 428 perioperative practitioners (ODPs and nurses) across three NHS trusts in Scotland was surveyed in 2011. Perioperative competence was assessed using a 40-item instrument comprising six subscales: foundational knowledge and skills, leadership, collaboration, proficiency, empathy, and professional development. The survey response rate was 50%. Internal consistency for the scale and its six competence domains was high, with Cronbach’s alpha ranging from .73 to .95. Both groups reported their competence as high across all subscales. There were significant differences between the two groups in foundational knowledge and skills (p=.002), and empathy (p<.0001). These results suggest that there are more similarities than differences between ODPs and nurses. However, a defining difference lies in nurses’ capacity to demonstrate “caring” skills that extend beyond those with a technical orientation.

Keywords: Scotland, survey, operating room, patient safety, nurses.

Introduction
The operating theatre (OT) department is unique in that various members of interdisciplinary teams present at the same time and work interdependently to ensure the delivery of safe patient care throughout the perioperative journey. Over the past 25 years there has been a steady rise in the number of non-nursing personnel practising in instrument and anaesthetic roles within the perioperative settings in countries such as the United Kingdom (UK) and the United States (US). Economic constraints and underfunding, and an apparent shortage of qualified nurses has provided the impetus for a shift in the model of care from a traditional nursing profile to a profile that includes operating department practitioners (ODPs).1,2

In the UK, the generic term of “theatre practitioner” is commonly used to describe staff that have undergone ODP or nurse training. Yet, despite the convergence in ODP and nursing staff roles, there remains some residual reluctance on the part of both groups to achieve professional alignment. Such reluctance has been attributed to the inherent differences in educational frameworks that underpin each group’s professional practice. The essence of nursing education is to create opportunities which enable students to engage in deep, meaningful learning through solving real-world problems, rather than prepare students who are merely “fit for purpose” or limited to technical competence.

Some researchers suggest that differences in these two approaches to education are manifest in variations in scope of practice and competence among theatre practitioners. Differences also exist in how each group perceives its role. Historically, ODPs were considered as non-regulated technicians for whom the registered nurse (RN) was ultimately legally responsible. Their lack of professional and legal accountability and threat of role erosion of the RN have led to resentment from some theatre nurses. While professional registration in the UK has given some clarity and uniformity to the role of ODPs, tensions regarding the focus and execution of patient care activities (that is, technical versus caring roles) have influenced the ways in which these distinct, yet complementary, interdisciplinary roles merge to provide competent care.

Clinical competence
Competence in health care has been described using opposing viewpoints: from a reductionist perspective based on a checklist of technical behaviours, to a more holistic understanding of the essentials that underpin competence in relation to knowledge, skills and attitudes. Across many health care professions, generic competency statements are used to benchmark minimum standards of clinical performance. However, they do not capture the essence of specialist contexts such as the OT and their application is problematic because they do not specify the additional knowledge, skills and attitudes required to practise safely in this environment. Accordingly, the need to define perioperative competence has led to the development of context-specific competencies that articulate practices in this environment. In the UK, the competencies articulated by the NHS Education for Scotland are considered applicable across professional groups practising in anaesthetic and instrument roles, including ODPs and nurses.

These specialist competencies represent an attempt to standardise the roles of ODPs and nurses; nevertheless, there are limited structured educational opportunities for perioperative practitioners to develop the requisite skills and expertise, underpinned by a broad theoretical knowledge base. In many instances, following a
brief orientation where basic skills are taught, novice perioperative practitioners are expected to perform their clinical roles competently. As such, there may be wide variability in clinical practices among perioperative practitioners. Therefore, measuring competence levels of perioperative practitioners can be a tool to monitor and evaluate performance to ensure consistency and patient safety. Competency self-assessment is becoming widely accepted as a strategy for ensuring consistency of practice across the European Union since the Bologna Declaration and the Lisbon agreement. However, despite the fact that there have been studies measuring competency in theatre staff, this is one of the few studies conducted that has used competency self-assessment.

Methods

Aim and design

The aim of this study was to compare ODPs and OT nurses’ perceptions of their perioperative competence across six context-specific domains using a previously validated perioperative competence scale. A cross-sectional survey was used and data were collected during 2011.

Setting and participants

This multisite study was conducted in the OT departments of three NHS regional trusts in east Scotland, spanning from Aberdeen to Larbert. A consecutive convenience sample of perioperative practitioners employed as ODPs, RNs and enrolled nurses (ENs) in the OT departments of these three regional NHS trusts was invited to participate. Perioperative practitioners eligible for inclusion were staff who worked in direct patient contact (that is, circulating, equipment failures

An a priori power analysis revealed that a minimum per-group sample size of 86 was required to achieve a power of .80 (alpha=.05) for students’ t-test using two independent samples. The aim of this study was to compare ODPs and OT nurses’ perceptions of their perioperative competence across six context-specific domains using a previously validated perioperative competence scale. A cross-sectional survey was used and data were collected during 2011.

Table 1: Competence domain, conceptual definition and scale item examples

<table>
<thead>
<tr>
<th>Competence domain</th>
<th>Conceptual definition</th>
<th>Scale item examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational knowledge</td>
<td>Behaviours that reflect beginning technical skills, such as knowledge of instruments and procedures</td>
<td>• I am familiar with the technological equipment used in the OT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I am familiar with most of the instrumentation in different specialties</td>
</tr>
<tr>
<td>Leadership</td>
<td>Behaviours focused on mentoring staff, delegating tasks and conflict management</td>
<td>• I encourage team members to use innovative solutions to solve traditional problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I encourage active involvement in clinical decision-making processes</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Behaviours that characterise seeking and rendering assistance, tailoring communications to the situation, and respect for other team members</td>
<td>• I tailor my communication based on the mix of personalities in the team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When communicating with other team members, I use language that is appropriate to the situation</td>
</tr>
<tr>
<td>Proficiency</td>
<td>Behaviours that typify skills built on clinical exposure necessary to gain experience</td>
<td>• Based on experience, I am able to identify actual or potential emergency situations and respond appropriately</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I troubleshoot and take appropriate action in the event of machine/equipment failures</td>
</tr>
<tr>
<td>Empathy</td>
<td>Behaviours that characterise providing reassurance to perioperative patients, actively listening, and establishing rapport</td>
<td>• I establish rapport with patients that enhances their ability to express feelings and concerns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I provide appropriate reassurance and explanation for OT patients</td>
</tr>
<tr>
<td>Professional development</td>
<td>Behaviours centred on maintaining practice standards based on current knowledge, reading journals and awareness of organisational policies</td>
<td>• I read current journals and literature that relate to clinical practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I keep up with the technical changes in procedures and equipment</td>
</tr>
</tbody>
</table>

Data collection

Ethics approval to conduct the multisite survey was given by the Human Research Ethics Committees of the three participating NHS trusts and the university. Informed consent was implied by the return of the completed survey.

Following approval, access to perioperative staff was given by the nurse manager at each of the four study sites. Following a presentation about the study, volunteers were recruited from all staff streams. A survey package containing a cover letter, demographic questions, the Perceived Perioperative Competence Scale–Revised (PPCS–R), and reply-paid envelope was distributed by the practice educator or senior nurse within the departments to all clinical staff named on the roster.

Reliability and validity

The 40-item PPCS–R was developed over several iterations which involved item generation, Delphi panel assessment, pilot testing, a national survey, and item reduction through exploratory factor analysis. The revised scale has been used in the Australian and Canadian contexts, and the internal consistency using Cronbach’s alpha (α) for the PPCS–R was .96 and .97 respectively.

Prior to the current study, the PPCS–R was assessed by three expert UK perioperative experts (with master’s or doctoral degrees) to ensure that it was contextually appropriate. Minor word changes to three items were made based on the feedback. The 40-item PPCS–R uses a five-point Likert response scale ranging with (1) indicating “never” through to (5) indicating “always”. Scale scores range from 40 to 200 with higher scores indicating greater levels of perioperative competence. The PPCS–R is comprised of six subscales that indicate different dimensions of perioperative competence. Table 1 details the six domains of perioperative competence, their conceptual definitions, and scale item examples.
Demographic data such as age, gender, years of OT experience, professional stream (ODP/nurse), specialty qualification (that is, certificate/diploma/degree), primary clinical role and professional association membership were also collected.

Data analysis

Survey data were analysed using the statistical program Predictive Analysis Software (PASW Statistics® Version 20.0; Inc., Chicago, IL) for Windows and statistics were checked for accuracy. Both descriptive and inferential analyses were used. Descriptive statistics were used to measure variable dispersion across the sample. The types of analyses used were determined by the level of the data (that is, categorical or continuous) and its distribution. Respondents’ age, years of OT experience, and composite PPCS–R and subscale scores (for the six domains) were measured as continuous variables while gender, stream, primary role, specialty qualifications, were analysed as categorical variables. Cronbach’s alpha (α) was used to determine the internal consistency of the PPCS–R and its six subscales. A value of > .70 is considered acceptable internal consistency for newly developed instruments16.

Inferential statistics included parametric and non-parametric tests, depending on the level of data. The Chi-squared test was used to compare ODPs and OT nurses in relation to gender, stream, specialty qualifications and professional association membership. Students’ t-tests were used for group comparisons in relation to age, years of OT experience and competence scores using the PPCS–R and its six subscales. For inferential analyses, a p value of <0.05 was considered significant.

Results

A total of 428 surveys were distributed, with a return of 214 (116 ODPs and 94 nurses), yielding an overall response rate of 50%. Table 2 presents results of the Chi-squared tests used to describe group differences in relation to demography. Both ODPs and OT nurses were similar in age, experience and specialty qualifications. However, there were significant group differences related to gender and professional membership (p<0.05). Notably, the majority of perioperative practitioners across both groups did not have specialty qualifications, nor were they members of a professional association.

Table 3 details results for the six subscales and total scale in relation to possible and actual scores, mean and standard deviation, and internal consistency. Comparison of actual scores with theoretically possible score ranges indicates that scores were positively skewed — that is, perioperative practitioners generally perceived themselves

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as having high levels of competence. Internal consistency as measured by α for the six subscales ranged from .73 to .91, while for the total PPCS–R scores, internal consistency reliability was a high .95.

**Group differences**

Table 4 displays the means, standard deviations and t-test results comparing differences across each competence domain for the six subscales and total scale scores for ODPs and OT nurses. Mean item scores for each subscale ranged from 3.4 (±.89) to 4.6 (±.42). In spite of this positive skew, there was some variability across groups in each subscale. Between groups there were significant differences in only two of the six subscales; *foundational knowledge and skills* (p = .002), and *empathy* (p < .0001).

**Discussion**

To the best of our knowledge, this is the first study of its kind to compare ODPs and OT nurses’ perceptions of their perioperative competence. Our study results indicate that both ODPs and nurses scored similarly across the domains of *leadership*, *collaboration*, *proficiency*, *professional development* and the total PPSC–R and may reflect the impact of “role drift” on nursing1. ODPs are indeed undertaking roles within the perioperative environment previously performed by RNs. Currently in the UK, the nursing education program consists of a three-year diploma or degree with a common foundation year, while the ODP training program is a 12-month diploma level course1. University education for nurses would seem to be distinct from the technical training approach to skills development. Learning in a comprehensive curriculum focuses not only on skills but reflective practice and analytical discussion, which prepares the nurse to undertake a multidimensional role that includes all aspects of caring including advocacy and empathy, and an approach to practice that is embedded in, and informed by professional socialisation18.

However, professional convergence is promoted and reinforced by the well-publicised overlap in the roles of ODPs and nurses12,19. Some assert that role overlap is possible because both are capable of performing each other’s roles after specialised training1. As such, nurses practising in perioperative settings within the NHS are increasingly being challenged to identify, clarify19 – and justify their roles and responsibilities well beyond their traditional boundaries. Clarification and justification is more applicable than ever, as health care services continue to tighten their budgets and reduce staffing costs. Saliently, it is incumbent on nurses to articulate and capitalise on their professional identity in terms of the unique qualities they bring, and the value they add to patient care in the perioperative context.

The nurses in our study reported higher scores than their ODP counterparts on the *empathy* subscale, and although these differences were small, they were statistically significant. These results support previous research describing nurses as carers and nurturers that provide the conduit between the patient and the machine6,20,21. Conceivably, the unique quality and value-adding strengths nurses offer is their ability to demonstrate “caring” skills that transcend well beyond the technical focus of the OT milieu2,6,21. In contrast, ODPs have traditionally been described as “technicians” – solely relegated to perform the procedurally focused tasks within the OT environment as opposed to providing direct patient care in other clinical settings12,22. Their different orientations have an implication for patient safety. The escalation in adverse events in hospitals and the vital role nurses play as patient advocates, especially in the perioperative context cannot be understated6. OT nurses assume the responsibility for patient care once they enter the theatre suite; confirm the patient’s identity and the operative procedure, discuss the operation with the patient to identify anxiety concerns, and liaise with other members of the team22. OT nurses

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**Table 2: Comparative demographic characteristics of ODPs and OT nurses (n=214)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ODPs (n=116)</th>
<th>OT nurses (n=94)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>40.1 (9.9)</td>
<td>39.7 (8.8)</td>
<td>.788</td>
</tr>
<tr>
<td>OR experience (years)</td>
<td>13.9 (10.0)</td>
<td>12.1 (9.2)</td>
<td>.152</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>102 (93.0)</td>
<td>78 (83.9)</td>
<td>.036</td>
</tr>
<tr>
<td>Perioperative specialty qualifications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>82 (73.9)</td>
<td>64 (68.8)</td>
<td>.425</td>
</tr>
<tr>
<td>Member of a professional perioperative association</td>
<td>73 (65.2)</td>
<td>73 (78.5)</td>
<td>.016</td>
</tr>
</tbody>
</table>

*Missing values not replaced

**Table 3: Summary statistics for the combined group (n=214)**

<table>
<thead>
<tr>
<th>PPCS-R domain</th>
<th>Possible range</th>
<th>Actual range</th>
<th>Mean (SD)</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational knowledge &amp; skills (9)</td>
<td>9 – 45</td>
<td>20-45</td>
<td>37.5 (4.9)</td>
<td>.81</td>
</tr>
<tr>
<td>Leadership (8)</td>
<td>8 – 40</td>
<td>10-40</td>
<td>28.8 (7.0)</td>
<td>.91</td>
</tr>
<tr>
<td>Collaboration (6)</td>
<td>6 – 30</td>
<td>16-30</td>
<td>27.0 (2.8)</td>
<td>.73</td>
</tr>
<tr>
<td>Proficiency (6)</td>
<td>6 – 30</td>
<td>13-30</td>
<td>25.6 (3.6)</td>
<td>.82</td>
</tr>
<tr>
<td>Empathy (5)</td>
<td>5 – 25</td>
<td>10-25</td>
<td>22.2 (3.4)</td>
<td>.87</td>
</tr>
<tr>
<td>Professional development (6)</td>
<td>6 – 30</td>
<td>13-30</td>
<td>24.7 (3.7)</td>
<td>.85</td>
</tr>
<tr>
<td>Total scale score and α</td>
<td></td>
<td>90-200</td>
<td>166.2 (21.5)</td>
<td>.95</td>
</tr>
</tbody>
</table>
Table 4: Comparative data: six competence domains for the ODPs and OT nurses

<table>
<thead>
<tr>
<th>PPCS-R domain</th>
<th>ODPs (n*=116)</th>
<th>OT nurses (n*=94)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational Knowledge &amp; skills</td>
<td>4.2 (.48)</td>
<td>4.0 (.60)</td>
<td>p = .002**</td>
</tr>
<tr>
<td>Leadership</td>
<td>3.7 (.86)</td>
<td>3.4 (.89)</td>
<td>p = .068</td>
</tr>
<tr>
<td>Collaboration</td>
<td>4.5 (.48)</td>
<td>4.5 (.45)</td>
<td>p = .697</td>
</tr>
<tr>
<td>Proficiency</td>
<td>4.2 (.64)</td>
<td>4.3 (.57)</td>
<td>p = .603</td>
</tr>
<tr>
<td>Empathy</td>
<td>4.2 (.80)</td>
<td>4.6 (.42)</td>
<td>p &lt; .0001**</td>
</tr>
<tr>
<td>Professional development</td>
<td>4.1 (.61)</td>
<td>4.0 (.60)</td>
<td>p = .249</td>
</tr>
<tr>
<td>Total PPCS-R</td>
<td>4.1 (.54)</td>
<td>4.1 (.52)</td>
<td>p = .357</td>
</tr>
</tbody>
</table>

*Missing values not replaced   **Statistically significant p<.05

make important clinical judgements, as opposed to being merely task-focused. Undoubtedly, patients are at their most vulnerable when they enter the cloistered confines of the OT, and are completely reliant on the skills and expertise of the perioperative practitioners assigned to their care23.

The notable differences between ODPs and nurses’ scores on the foundational knowledge and skills subscale, while small, were significant. That ODPs posted higher scores on this competence domain may be reflective of their orientation to the more task-focused activities. The items within this subscale indicate specialised skills and abilities such as knowledge about the technical aspects and steps of a surgical procedure, knowledge of instrumentation and the location of equipment19. ODPs are trained to pass instruments to the surgeon, thus the technical function of the performing the task is covered with limited requirement to provide care22.

Limitations

We acknowledge that this study has some limitations. Firstly, an overall response rate of around 50% is less than ideal24, and may diminish the ability to generalise results beyond the samples from which they were drawn because of non-response bias16. Despite this limitation, our study included four hospital sites, and captured a wide cross-section of respondents. Secondly, although self-assessment of competence is the most common form of assessment, criticism has been given to the inherent subjectivity of self-report measures25-27. Notwithstanding, regular self-assessment is imperative as it allows practitioners to reflect on their practice during the course of their professional career. Finally, although the aim of this cross-sectional study was to compare ODPs and OT nurses’ competence; differences in the hospital context

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Conclusions

Measuring self-perceived competence levels of perioperative practitioners is a useful tool to monitor and evaluate performance to ensure consistency and patient safety. Competency self-assessment also enables self-reflection. In this study, there were differences in only two of the six competence scale domains, suggesting convergence in role performance between nurses and ODPS within the NHS trusts surveyed in this study. As nursing shortages persist and health care budgets continue to dwindle, employment of non-nursing personnel may serve as a cheaper and more viable option. To ensure the future of a sustained nursing presence in the perioperative milieu, nurses need to capitalise on their unique contribution to this environment: nurses’ ability to demonstrate “caring” skills encompasses a holistic model of care, and extends beyond the predominant technical and task-oriented focus that ostensibly characterises the OT milieu.

Acknowledgements

The researchers are grateful to the staff working in the OT departments of the study sites for their willingness to participate. The authors also wish to acknowledge funding from the Ethicon/APP Nurse & Practitioner Educational Fund Award. The authors are also indebted to Emeritus Professor Anne McMurray for providing an insightful critique of an earlier version of this manuscript.

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