

Operating theatre nurses' experiences in medical emergency response: An integrative literature review

Supplement 1: Decision tree for including or excluding studies for review

1. Language

Inclusion: English

Yes
(included)



No
(excluded)



Exclusion: Non-English

2. Study design/type

Inclusion: qualitative, quantitative, mixed-method, case study and systematic review

Yes
(included)



No
(excluded)



Exclusion: expert reviews/opinions, policy, protocol or checklist for the procedure

3. Participants

Inclusion: perioperative nurses, instrument and circulating nurses

Yes
(included)



No
(excluded)



Exclusion: nurses who are not in the perioperative field

4. Phenomenon of interest

Inclusion: medical emergency experience/perception of instrument and circulating nurses

Yes
(included)

Uncertain

No
(excluded)



Exclusion: articles not related to the medical emergency e.g. code blue in the perioperative area, experiences of the medical team who are not instrument and circulating nurses

This article: Include

Exclude

Uncertain

Reason:

Supplement 2: Data extraction table

Authors (year) Country	Study design and methods for data collection and analysis	Phenomena of interest	Setting/ context/culture	Participant characteristics (sample size)	Description of main results
Wang et al. ¹ (2022) China	Multisite cross-sectional study that used stratified sampling to select participants. Cities in Shandong Province were divided into four tiers based on level of economic development, then two tertiary hospitals were randomly selected (using random number tables) from all tertiary hospitals in cities in each tier. To be included, participants had to be: 1. operating theatre (OT) nurses with Chinese nursing qualifications 2. employed as hospital staff 3. willing to participate. Paper questionnaire surveys were conducted in four hospitals and web-based surveys were conducted in the other four hospitals.	To explore and compare the strength of associations between work-related potential traumatic events and burnout among operating theatre nurses based on three different approaches.	OT nurses from eight tertiary comprehensive hospitals across seven cities in Shandong Province in China.	OT nurses in Shandong Province, China. (N = 361)	Specific traumatic events (e.g. sudden patient death, bullying and ostracism by colleagues) were independently associated with an increased risk of burnout. Work-related potential traumatic events had a cumulative effect on burnout, whereby OT nurses exposed to cumulative potential traumatic events carried a higher risk for burnout than others. The 'multiple work-related potential traumatic events' pattern derived by latent class analysis was related to an increased risk of high depersonalisation.
Serou et al. ² (2021) United Kingdom	Qualitative study that conducted face-to-face, semistructured interviews with a range of professionals and across different surgical specialties. Participants were recruited through purposeful and snowball sampling. All interviews were audio recorded, transcribed verbatim and analysed using an inductive thematic approach which involved reading and re-reading the transcripts, assigning preliminary codes and searching for patterns and themes within the codes, with the aid of NVivo 12 software. These emerging themes were discussed with the wider research team to gain their input.	Exploration of personal and professional impact on operating theatre professionals of surgical events (wrong-site surgery, retained foreign body and wrong implant prostheses).	Operating theatre staff from different surgical specialties across five teaching hospital sites, within one large National Health Service Trust that provides multispecialty surgical procedures including emergency and major trauma. Potential participants, identified through investigation records of surgical incidents, were invited to participate, and posters promoting the study were displayed on Trust noticeboards.	45 participants: • 8 surgeons • 8 anaesthetists • 12 theatre scrub nurses • 9 operating department practitioners • 8 healthcare assistants All participants described incidents that could be considered moderate in severity.	Three overarching themes emerged: 1. personal and professional impact 2. impact of the investigation process 3. positive consequences or impact. Participants recalled experiencing negative emotions following surgical incidents that depended on the severity of the incident, patient outcomes and the support that staff received. A culture of blame, inadequate support and lack of a clear and transparent investigative process appeared to worsen impact.

Authors (year) Country	Study design and methods for data collection and analysis	Phenomena of interest	Setting/ context/culture	Participant characteristics (sample size)	Description of main results
Goras et al. ³ (2020) Sweden	Qualitative explorative design using group interviews of three professional groups – surgeons, OT nurses and registered nurse anaesthetists (RNAs). One interview session for each profession except for OT nurses for which two separate interviews were performed. The audio-taped interviews were transcribed verbatim and analysed by inductive qualitative content analysis focussing on the manifest content.	Preparedness and adaptability of the OT team to deal with adverse events to create safe care in the OT, exploring how complexity is managed as expressed by OT nurses, anaesthetics nurses and surgeons.	Interviews were conducted in two central OT departments at one county hospital and one local county hospital in mid-Sweden. The central OT department at both hospitals served both acute and elective surgical and orthopaedic patients; the OT department at the county hospital also served gynaecological patients. Teams in Swedish OTs commonly comprise six different professionals: 1. OT nurse 2. operating surgeon 3. assisting surgeon 4. circulating nurse (commonly a licensed practical nurse) 5. anaesthetist 6. RNA. In Sweden, RNAs are allowed to maintain anaesthesia with direct or indirect supervision from the anaesthetist.	17 participants (mean age 54 years, mean length of experience 22 years): • 4 OT nurses (all female, mean age (and range) 52 (37–61), mean experience (and range) 27 (9–38) • 8 surgeons (3 female and 5 male, mean age (and range) 51 (34–67), mean experience (and range) 16 (0–34) • 5 RNAs (2 female, 3 male) mean age (and range) 59 (49–66), mean experience (and range) 22 (15–36).	The findings revealed three generic categories of ways to create safe care in the OT: 1. preconditions and resources 2. planning and preparing for the expected and unexpected 3. adapting to the unexpected. In each category, one sub-category emerged that was common to all three professions, respectively: 1. coordinating and reaffirming information 2. creating a plan for the patient and undergoing mental preparation 3. prioritising and solving upcoming problems.

Supplement 3: Appraisal of articles

Checklist item ⁴	Wang et al.	Serou et al.	Goras et al.
1. Is there congruity between the stated philosophical perspective and the research methodology?	Yes	Unclear	Unclear
2. Is there congruity between the research methodology and the research question or objectives?	Yes	Yes	Yes
3. Is there congruity between the research methodology and the methods used to collect data?	Yes	Yes	Yes
4. Is there congruity between the research methodology and the representation and analysis of data?	Yes	Yes	Yes
5. Is there congruity between the research methodology and the interpretation of results?	Yes	Yes	Yes
6. Is there a statement locating the researcher culturally or theoretically?	Yes	Yes	Yes
7. Is the influence of the researcher on the research, and vice-versa, addressed?	Yes	No	Yes
8. Are participants, and their voices, adequately represented?	Yes	Yes	Yes
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	Yes	Yes	Yes
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	Yes	Yes	Yes
Quality	100%	80%	90%

Supplement references

1. Wang J, Mao F, Wu L, et al. Work-related potential traumatic events and job burnout among operating room nurses: Independent effect, cumulative risk, and latent class approaches [Internet]. J Adv Nurs. 2022[cited 2023 Sep 4];78(7):2042–54. DOI:10.1111/jan.15114
2. Serou N, Slight SP, Husband AK, Forrest SP, Slight RD. Surgical incidents and their impact on operating theatre staff: Qualitative study [Internet]. BJS Open. Mar 5 2021[cited 2023 Sep 4];5(2). DOI:10.1093/bjsopen/zraa007
3. Göras C, Nilsson U, Ekstedt M, Unbeck M, Ehrenberg A. Managing complexity in the operating room: a group interview study [Internet]. BMC Health Serv Res. 2020[cited 2023 Sep 4];20(1):440. DOI:10.1186/s12913-020-05192-8
4. Joanna Briggs Institute (JBI). Checklist for qualitative research [Internet]. Adelaide: JBI; 2017 [cited 2023 Sep 4]. Available from: https://jbi.global/sites/default/files/2019-05/JBI_Critical_Appraisal-Checklist_for_Qualitative_Research2017_0.pdf