

Systematic scoping review of the use of handheld computer devices to support clinical decision making in acute nursing practice

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Introduction

Nursing care is increasingly supported by computerised information systems and decision-support aids. Since the advent of Handheld Computer Devices (HCDs) there has been limited exploration of their use in nursing practice.

Aims

1. To identify and evaluate the body of published empirical literature investigating the use and effectiveness of HCDs in supporting nurses' clinical decision-making in the acute health care settings.
2. To summarize the extent, characteristics and scope of published research in this emerging field.

Methodology

- Scoping review:
 - Systematic electronic database searches
 - Hand searches of the reference lists
- HCDs operationally defined as any portable computer device that can be held in one hand and controlled by the person's other hand.
- Two reviewers performed independent full-text review of screened papers. Critical appraisal of methodological quality was undertaken with Joanna Briggs Institute critical appraisal tools.

Results

Number of studies identified

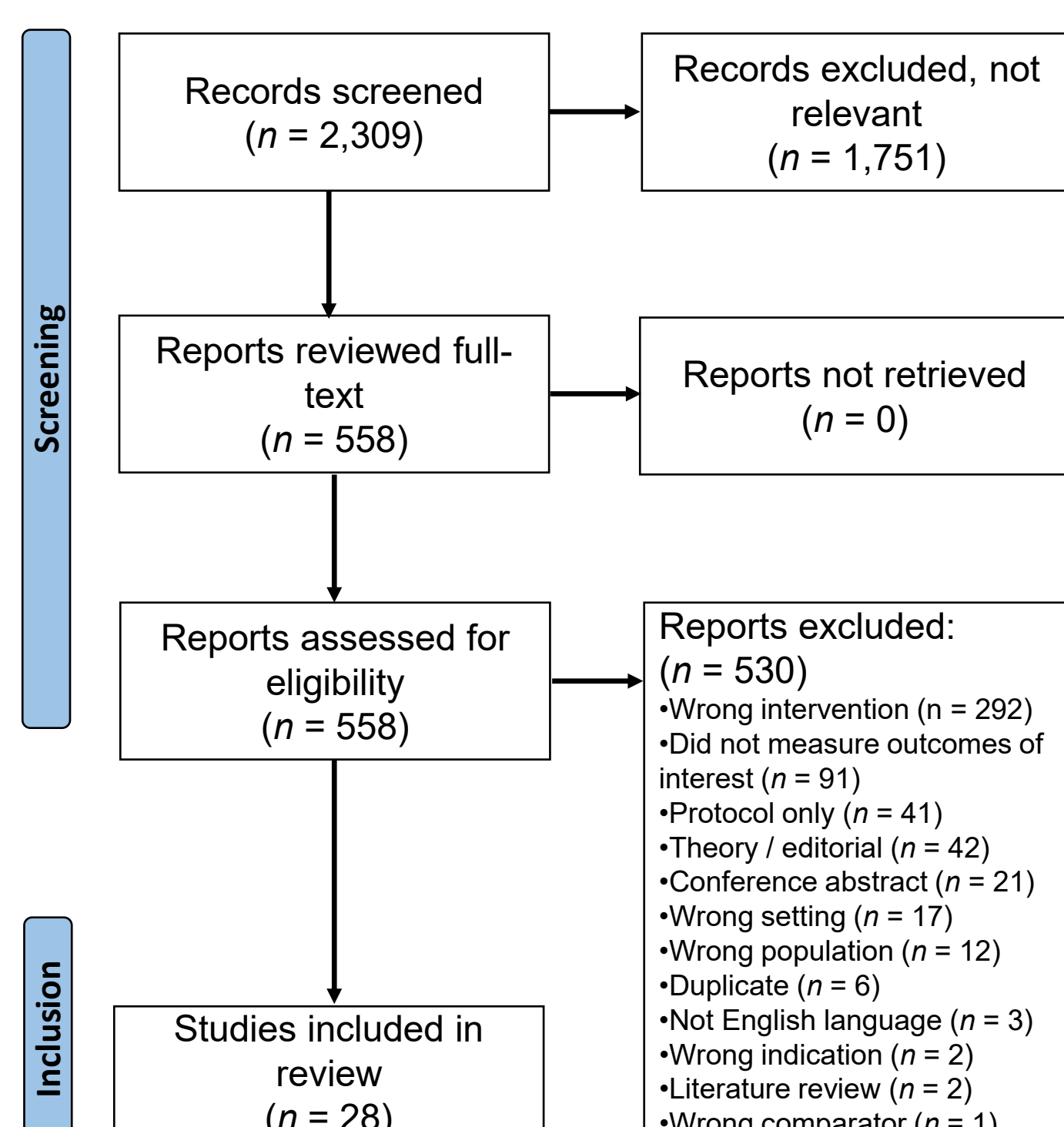


Fig 1. Flow Diagram of study inclusion and exclusion outcomes

- Study inclusion and exclusion outcomes are reported in Fig. 1.
- After removing duplicates, 2,309 studies were screened by title and abstract and 558 underwent full-text review. A total of 28 studies were included in final analyses.

Results (cont.)

Designs of studies included

Included studies had a range of study designs (Fig 2.) Comparatively few studies had randomised designs.

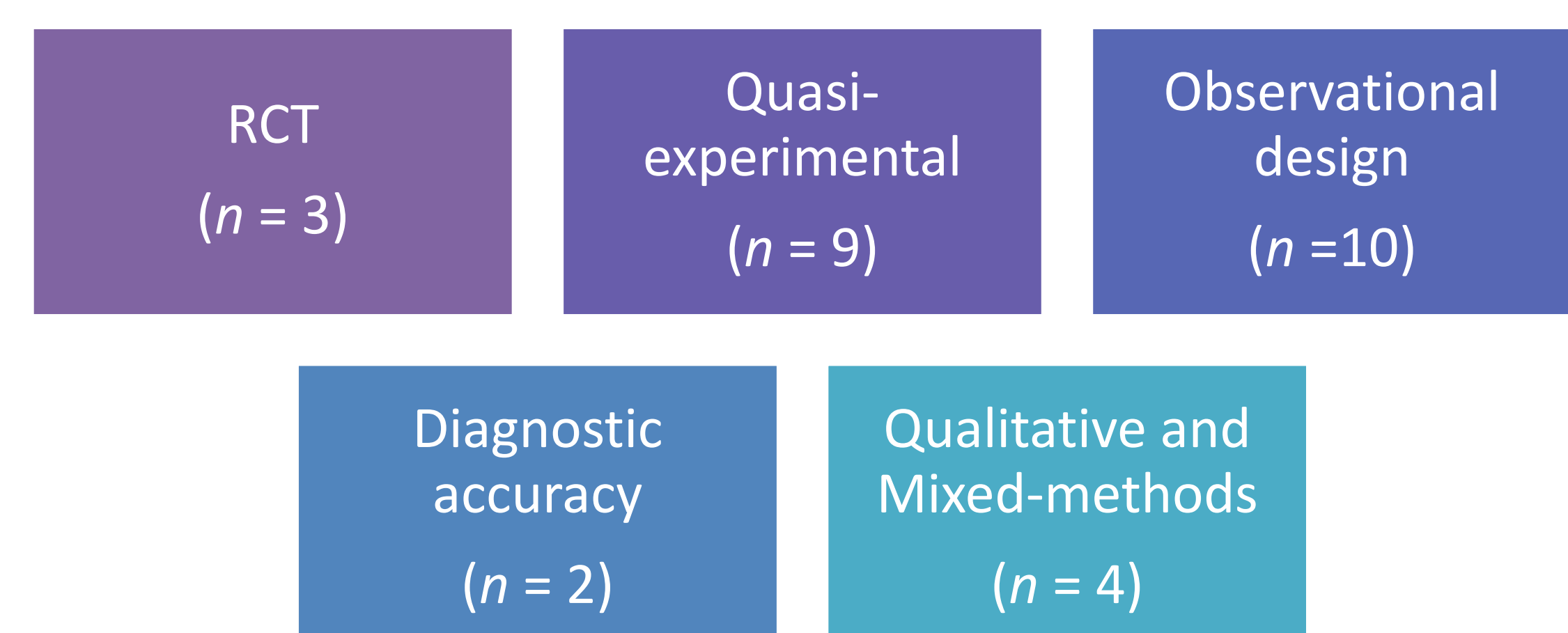


Fig 2. Flow Diagram of study inclusion and exclusion outcomes

Decision-making modalities

Studies included in the review explored up to three domains: (1) impact on clinical decision-making; (2) enhancing the efficiency, safety and quality of care and (3) handheld device usability, uptake and acceptance (See Fig 2). HCD interventions utilised a range of decision-making modalities.

Table 1. Included studies by domain explored and decision-making modality

Domain	HCD supported unstructured clinical judgement	HCD structured clinical judgement	HCD made an algorithmic judgement	HCD not reported	Total
(1) Impact on clinical decision-making	2 (16.7%)	3 (25%)	7 (58.3%)	0 (0%)	12
(2) Enhancing the efficiency, safety and quality of care	5 (55.6%)	0 (0%)	3 (33.3%)	1 (11.1%)	9
(3) Handheld device usability, uptake and acceptance	3 (23.1%)	1 (7.7%)	9 (69.2%)	0 (0%)	13

Conclusions

The extant literature is varied but suggests that HCDs can be used effectively to support aspects of acute nursing care. However, there was a dearth of high-level evidence as well as studies exploring the degree to which HCD implementation may affect acute nursing workflows. Additional targeted research using rigorous experimental designs is needed in this emerging field to determine their true potential in optimising acute nursing care.