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Barriers to delirium assessment in the intensive care unit:

A review

Abstract:

Background: Delirium is a common syndrome that has both short and long-term negative outcomes for critically ill patients. Many studies over several years have found a knowledge gap and lack of evidence-based practice from critical care personnel, but there has been little exploration of the reasons for this.

Aim: To identify the perceived barriers to Intensive Care Unit (ICU) delirium assessment and management among critical care nurses.

Method: A review of published studies to examine barriers to effective ICU delirium assessment and management using a comprehensive search strategy. 5 relevant studies identified for review.

Results: Few studies have investigated barriers to ICU delirium assessment and management, but several themes reoccur throughout the literature. The perceived time consuming nature of the assessment tools is cited by many, as is the lack of medical prioritisation of results. Lack of education on ICU delirium appears to be a significant factor and reinforces some of the stated misconceptions.

Conclusion: Many barriers exist to prevent effective assessment and management of ICU delirium, but several of these are due to a lack of understanding or unfamiliarity with the condition and the assessment tools.

Implications for practice:

- Focused education strategies and managerial support could address many of the reported barriers.
- Medical support would also increase nurses' commitment to effective assessment.

Introduction:

ICU delirium is defined as an altered state of consciousness featuring disordered attention, impaired cognition, altered psychomotor activity (increased or decreased) and disorder of the sleep-wake cycle (Borthwick et al 2006, Tait 2016). It has an acute onset and is thought to be reversible (Borthwick et al 2006), although Morandi et al (2012) state that long-term cognitive impairment is common after diagnosis of ICU delirium. Delirium is associated with poorer outcomes, higher costs and increased mortality (Chevrolet and Jolliet 2007; The National Institute for Health and Care Excellence [NICE] 2010).

Incidence varies widely but it is thought to affect from 18% to 82% of critically ill patients (Ely et al 2004; Morandi et al 2012). There are three subtypes: hyperactive, characterised by hallucinations and agitation; hypoactive, where the patient is withdrawn and inattentive; and mixed delirium, which fluctuates between the two (Page and Ely 2015).

Assessment is crucial for effective management, and many studies have identified a deficit in assessment practice such as using clinical observation rather than validated tools (MacSweeney et al 2010) or lack of routine assessment for all ICU patients (Patel et al 2009). However, relatively few studies have examined the barriers to effective and regular delirium assessment in the ICU, and this review aims to explore the reported barriers to recommended practice.

Aim:

- To identify ICU nurses' main perceived barriers to effective delirium assessment

Method:

Search strategy:

A literature search was conducted to obtain relevant material pertaining to the topic.

All search words were set to be recognised within the article title, abstract and/ or keywords, and combined using Boolean operators [OR] or [AND] (see Table 1). CINAHL headings were also searched in the CINAHL database, with MESH headings searched in Medline and the Cochrane databases.

'Backward chaining' of reference lists of the included studies was done to ensure no pertinent or seminal data was missed.

Inclusion criteria comprised all studies of critical care nurses involved in delirium assessment and management with mention of barriers, obstacles or challenges. Studies of all types of adult intensive care patient were included.

The limitations applied to the search were:

- Human studies
- January 2007 - January 2017

The exclusion criteria were:

- Purely paediatric ICUs (as they may not be generalisable to the adult field)
- Case reports and qualitative data, editorials and descriptive reports were used as further reading but excluded from analysis as their results may not be generalisable

Studies published in a language other than English were considered suitable for inclusion in order to ensure the search was as comprehensive as possible and to minimise bias – negative findings are more likely to be published in their local language and therefore excluding non-English language studies may mean valuable data is missed (Dundar and Fleeman 2014).

Table 1: Keywords and combinations for search strategy.

Participants		Nurs*														
Location	[AND]	Critical Care [OR] Intensive Care [OR] CCU [OR] ICU														
Issue	[AND]	Delirium [OR] Psychosis [OR] Confusion														
Process	[AND]	Assessment [OR] Screening														
Outcome	[AND]	Barriers [OR] Obstacles [OR] Challenges														
		<table border="1"> <thead> <tr> <th>Database:</th> <th>Results Found:</th> </tr> </thead> <tbody> <tr> <td>CINAHL</td> <td>233</td> </tr> <tr> <td>Cochrane Library</td> <td>0</td> </tr> <tr> <td>Medline via Ovid</td> <td>73</td> </tr> <tr> <td>SCOPUS</td> <td>5</td> </tr> <tr> <td>BNI</td> <td>10</td> </tr> <tr> <td>Web of Science</td> <td>7</td> </tr> </tbody> </table>	Database:	Results Found:	CINAHL	233	Cochrane Library	0	Medline via Ovid	73	SCOPUS	5	BNI	10	Web of Science	7
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The quality of the included studies was analysed using the Critical Appraisal Skills Programme (CASP) critical appraisal tools (2014) and the Quality Checklist for questionnaire surveys (Boynton and Greenhalgh 2004), which will be discussed when relevant in the following section.

Results

From a total of 344 articles, five were found to meet the aims of the review (see Figure 1).

Figure 1: Article selection process.

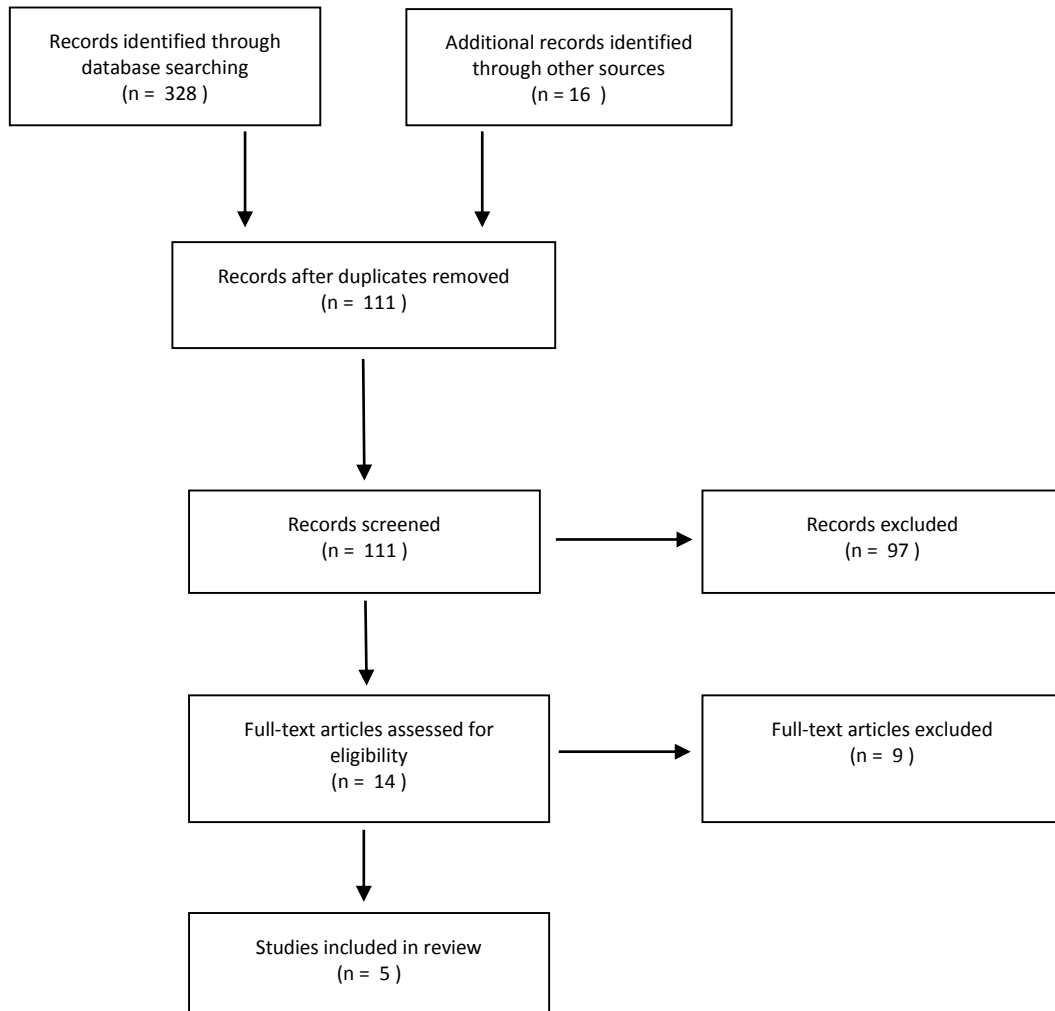


Table 2 Data summary

Author and year	Sample size and characteristics	Setting	Design, method and analysis
Devlin et al (2008)	ICU nurses (n = 331). Response rate 55%.	Sixteen ICUs across five acute care hospitals.	Paper/ web-based survey examining perceptions of delirium assessment current practice.
Law et al (2012)	Critical care trained nurses (n = 84). Response rate 44%.	Four oncology inpatient medical units.	Web-based survey of nurses' experiences with the ICDSC.
Scott, MacIveney & Mallice (2013)	ICU nurses (n = 47). Response rate 60%.	General critical care unit.	Questionnaire study pre and post implementation of the CAM-ICU tool.
Andrews et al (2015)	ICU nurses (n = 20). Response rate 48%.	General ICU in a tertiary care hospital.	Electronic survey, as part of a prospective study into implementation of delirium assessment using CAM-ICU.
Troglic et al (2016)	ICU staff (n = 360). Of whom 79% nurses. Response rate 64%.	Six ICUs from six hospitals.	Electronic survey examining barriers to assessment as part of a prospective implementation of delirium guidelines.

Devlin et al (2008) conducted a questionnaire study (n = 331) examining nursing knowledge and perceptions of ICU delirium, which included perceived barriers to ICU delirium assessment. One question on barriers was included, giving a list of options of potential barriers and respondents could choose any number of options. All questions were generated by an expert panel, but it is not clear if the barriers presented were derived from any previous publication, or merely based on expert opinion. One panel member was a registered nurse, but the remainder comprised medical doctors and pharmacists, which may not generate options that reflect true nursing experience. Surveys were distributed to all nurses on duty over a 2-week period with regular reminders to complete it (601 surveys distributed, 331 returned, response rate 55%). The authors acknowledge that this response rate may lead to both voluntary response and non-response bias, but claim that it is comparable to other similar surveys of nursing staff. VanGeest and Johnson (2011) report in their systematic review that response rates to a combined paper and web-based method of data collection of nurses range from 32% - 66% which supports the authors' claims, as do the response rates for subsequent studies (see Table 2). The large sample size and multicentre sampling are strengths of the study, and increase the generalisability of the results. The researchers found that intubation (chosen by 38% of respondents) and the complexity of assessment tools (34% of respondents) were the most common barriers to delirium assessment. The two major assessment tools used across the surveyed units were the Confusion Assessment Method- Intensive Care Unit (CAM-ICU) (used by 36% of nurses) and the Intensive Care Delirium Screening Checklist (ICDSC) (used by 11% of nurses), although the majority of nurses stated that they used clinical observation of either agitation (71%) or ability to follow commands (78%) more frequently than either of the validated tools. Other cited barriers included the inability to assess sedated patients (13%), lack of confidence with the assessment tools (6%), the time required to perform the assessment (6%) and the fact the results of the assessment were not used by medical staff (4%).

Law et al (2012) conducted a questionnaire of critical care nurses (n = 84) in four oncology inpatient units, all of which provide Level 3 critical care. The survey comprised two parts, one regarding nursing perceptions of assessment and the second focusing on perceived barriers. The study was unlikely to be prone to selection bias, as all nurses were approached, meaning the sample was representative of the unit. However, it is possible that the results are not generalisable to the wider critical care nurse population as the sample was

nurses working in oncology inpatient units, all of whom regularly provide 1:1 intensive care to patients, but do not work in a dedicated ICU. The questionnaire was likely to be valid and reliable as all questions were those used in two previous questionnaires and had already been tested for content validity, clarity and inter-rater reliability (Pun et al 2005; Soja et al 2008). The response rate was 44%, which is below the 60% threshold identified by Nulty (2008) as likely to minimise non-response bias, but is above the average response rate to online and web-based questionnaires (Fincham 2008). The questionnaire contained seven binary response questions regarding potential barriers to using the ICDSC, a validated tool for use in critical care, which had been hospital policy for the five years preceding the study. There are some drawbacks to using binary response questions, as respondents can only choose to agree or disagree, and can't give any further detail or explanation (Parahoo 2014), which may have been useful when examining personal experiences of the respondents. This may mean that valuable data was lost, and an open response question may have been more appropriate. The results showed that medical staff were considered the greatest barrier to assessment of ICU delirium, identified by 24% of surveyed nurses. This study also identified some leadership issues that contribute to poor delirium assessment, such as a lack of feedback on performance (27%) and support from senior staff (6%). The other main barriers found were lack of knowledge on delirium (19%), lack of resources to clarify questions (17%) and lack of confidence with the assessment tool (13%).

A study by Scott et al (2013) evaluated the feasibility and efficiency of the CAM-ICU by means of questionnaires pre- and post- delirium education and practical training for critical care nurses (pre-intervention, n = 72; post-intervention, n = 47). Although the sample size was smaller than other studies, the response rates were high: 92% pre-intervention and 60% post-intervention. The researchers included questions on barriers in both questionnaires to allow comparison. They state that three barriers were identified with both questionnaires, however, the format of the questions is not clear and it cannot be established whether other options could be chosen or these were the only options given to respondents. The barriers to assessment identified were (pre- and post- implementation of the educational strategy): intubated patients (44% pre- and 42.5% post-), sedated patients (29% pre- and 42.5% post-), and lack of response to results by medical staff (25% pre- and 25.5% post-). Little difference was shown in the results before and after the educational intervention except for more nurses identifying the inability to assess sedated patients as a barrier.

Andrews et al (2015) studied barriers to delirium assessment as perceived by nursing staff (n = 20) as part of a larger study examining patient outcomes following implementation of a validated assessment tool and educational program. The researchers used seven open response questions to gain information regarding the respondents' experiences of using the tool, and these were summarised in themes. The three most common reported barriers to delirium assessment were lack of confidence in using the assessment tool, difficulty of use with intubated patients and lack of medical response to the findings, which echo previous studies. However, caution must be exercised in interpreting these results as no quantitative figures are quoted and it is not possible to establish the frequency of these responses. In addition, the reported response rate was 48%, which may have led to non-response bias and voluntary response bias, and the small sample size limits generalisability.

Trogrlic et al (2016) surveyed ICU staff (n = 360) of whom 79% were nurses, in order to examine barriers to the prospective implementation of a guideline for delirium in the ICU setting, which included assessment. The questionnaire comprised three sections: delirium knowledge; attitudes, perceptions and practice; and adherence to guidelines. The identification of barriers was then done by the researchers, rather than the respondents, by designating a score on the knowledge section of less than 70% as indicative of a knowledge deficit barrier, and identification of over 50% agreement with a dichotomous (yes/no or agree/disagree) statement as a potential barrier. Some of the statements pertain to management of delirium, and so the identified barriers to assessment for nursing staff included knowledge deficit, lack of trust in the reliability of the assessment tools and lack of time. However, it is not possible to establish what proportion of nursing staff would have agreed with these identified barriers if asked directly, which impedes comparison with other studies.

Discussion:

Although the studies provided varied methodologies and results, it is possible to categorise the identified barriers to delirium assessment into three broad themes: individual barriers; patient-related barriers; and environmental/ system barriers. Individual barriers would comprise those relating to the competence, education or confidence of individual nurses. Several of the studies identified a lack of confidence with delirium assessment tools as a major barrier to assessment (Andrews et al 2015; Devlin et al 2008; Law et al 2012; Trogrlic et al 2016), as well as the tool's complexity (Devlin et al 2008). The two assessment tools used by nurses in the reviewed studies are the ICDS and the CAM-ICU, both of which have been found to be quick and easy to use (Bergeron et al 2001; Pun et al 2005; Roberts et al 2005). It is unclear why, therefore, the studied nurses felt that they lacked confidence or that the tools were too complex, but this could be an issue with the education they had received on the use of the assessment tools prior to implementation.

The main patient-related barriers described in the studies were the difficulty assessing intubated patients, and the inability to assess sedated patients. Devlin et al's (2008) results show that many respondents mistakenly believed that it is not possible to complete a delirium assessment in an intubated or moderately sedated patient, which may be due to a lack of education on the assessment tools, although the researchers do not mention this as a factor. The researchers suggest that the main reason for these perceptions could be increasing patient-nurse ratios and increasing patient acuity resulting in deeper sedation levels. However this study was done in the United States (US), which has higher patient-nurse ratios in critical care areas than in the United Kingdom (UK) (Wunsch et al 2008; Bray et al 2010) and therefore it may not be possible to generalise this.

In the study by Scott et al (2013), the communication difficulties found with intubated patients reflect the results of Devlin et al (2008), but it is surprising that there was no significant change in perception after the nurses received education on the assessment tool (CAM-ICU), as this has been extensively validated in non-verbal patients and is recommended practice in critical care units with intubated patients (Borthwick et al 2006). The second barrier relating to difficulties assessing sedated patients also does not reflect current guidelines, as the CAM-ICU incorporates a concomitant sedation assessment, and explicitly states that deeply sedated or comatose patients should not be assessed

(Ely et al 2001). The researchers report a low frequency of sedation assessment in this study, so perhaps further education would address this. They also suggest that the increasing complexity of critically ill patients and higher ratios of patients to nursing staff may result in deeper sedation levels and compromises nurses' ability to effectively assess sedation, but this seems unlikely due to the simplistic descriptive sedation assessment scale (the Richmond Agitation-Sedation Scale [RASS]; Ely et al 2001) that comprises part of the CAM-ICU tool. This scale has been extensively validated in the critical care setting and ranges from +4 combative, to -5 unrousable, which appears to cover all levels of sedation commonly seen in critical care; in addition it has been found to be easy, quick and reliable to use by nursing staff (Sessler et al 2002).

Several studies found barriers relating to the wider system or working environment, including lack of time (Devlin et al 2008; Law et al 2012; Trogrlic et al 2016), lack of leadership support (Law et al 2012), and a lack of response to positive results (Devlin et al 2008; Scott et al 2013; Andrews et al 2015; Trogrlic et al 2016). Law et al (2012) also found that medical staff were considered a significant barrier to delirium assessment. However, this study was done in oncology inpatient areas that provide Level 3 care when required, rather than in dedicated ICUs, and the attending doctors were general medics and oncologists rather than intensivists, so this may not be generalisable to other critical care areas. It is easy to understand how a lack of response to the results would discourage nursing staff from prioritising the assessment, and perhaps as more ICUs develop delirium management protocols this will improve. It is clear that increased interest in delirium and increased buy-in from all levels of staff would motivate those involved in assessing patients. The studies citing a lack of time again contradict previous findings about the time required to assess for delirium, but perhaps this does reflect increasing patient acuity and lower prioritisation of delirium in the face of physiological instability or deterioration; indeed, Devlin et al (2008) found that delirium assessment was considered less important than pain, sedation level and invasive device placement. Again, more education on the impact and outcomes of ICU delirium may help to change nursing perceptions in future.

Conclusion:

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