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Increasing delirium skills at the front door: results from a repeated survey on delirium knowledge and attitudes

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Abstract

Background: delirium is under-recognised in comparison to other common and serious acute disorders. A 2006 survey of UK junior doctors (not undertaking specialist training) identified poor knowledge of the diagnostic criteria and treatment of delirium. We hypothesised that increased prominence accorded to delirium in the form of national initiatives and guidelines may have had an impact on understanding among junior doctors.

Objective: we repeated a multi-centre survey of knowledge of and attitudes to delirium in junior doctors (not undertaking specialist training) assessing unselected acute medical presentations (the 'medical take').

Design: questionnaire-based survey in 48 acute hospitals in UK and Ireland.

Methods: we used questionnaires designed to test understanding of delirium, including prevalence, knowledge of the DSM-IV diagnostic criteria, use of specific screening tools, association with adverse outcomes and pharmacological management.

Results: one thousand two hundred and fifteen trainee physicians participated. Compared with the 2006 cohort, improvements were seen in 9 of 17 knowledge-based questions and overall score improved in the 2013 cohort. Nonetheless, significant deficits in knowledge, particularly for the diagnostic criteria for delirium, remained.

Conclusions: despite improvements in some aspects of delirium knowledge, the diagnostic criteria for delirium remain poorly understood. Challenges remain in ensuring adequate training for junior doctors in delirium.

Keywords: delirium, education, survey, questionnaire, older people

Introduction

Delirium occurs in 11–42% of older inpatients [1]. It is associated with a prolonged hospital stay, increased mortality and new or worsening dementia [2–5]. Despite its association with multiple short- and long-term complications, delirium is consistently under-recognised [6, 7], and this in itself may lead to higher mortality [8].

A previous survey exploring knowledge and attitudes to delirium among UK junior doctors was conducted in 2006 [9]. It demonstrated that although most respondents recognised delirium was important and common, most had poor knowledge of its diagnosis and treatment and expressed a need for better training [9]. Knowledge of delirium was poor compared with other common medical presentations, and there was limited experience of using delirium assessment tools. Furthermore, experience of working in geriatric medicine only resulted in a small improvement in knowledge [10]. Other studies of delirium in both medical inpatient and ICU settings have also shown significant deficits in doctors' understanding [11, 12].

In 2010, the National Institute for Health and Care Excellence (NICE) published guidelines on the identification, investigation and management of delirium [13]. In England, a dementia Commissioning for Quality and Innovation (CQUIN) target was introduced in 2012 by the Department of Health, financially incentivising the cognitive screening of older people on admission to hospital [14]. Although this target was designed to identify patients with dementia, a likely consequence was the greater prominence accorded to delirium. These contributed to a wider acknowledgement that delirium and dementia were major public health issues, particularly in the acute setting.

We repeated the 2006 survey using the same methods to assess changes in attitudes and knowledge of delirium among UK junior doctors in the context of these national initiatives.

Methods

We used the same questions, devised by D.D. and A.M., from the original 2006 survey [9]. In brief, items were designed to assess knowledge of a number of aspects of delirium, specifically prevalence, diagnostic criteria (based on DSM-IV), use of screening tools, association with adverse outcomes and pharmacological management. Attitudes and beliefs were assessed using a five-point Likert scale. This examined both confidence in the ability to make a diagnosis as well as the perceived value of skills in delirium management.

In addition to the full questionnaire, an abbreviated version was used, focussing on core items identified as being informative in the original study [9] (both versions given in Supplementary data, available in *Age and Ageing* online). This was designed to increase the likelihood of a wider uptake in the survey, though some additional questions were piloted (not part of this analysis). Individual collaborators were randomly assigned one of these to distribute at their site.

The National Delirium Survey group was formed from collaborators at acute trusts across the UK and the Republic

of Ireland through contacts in the British Geriatrics Society, by approaching departments directly who had previously taken part, and through personal networks. Collaborators received written information on the study protocol, and each was contacted by telephone to ensure consistency between participating sites. The survey period was 1st March 2013 to 31st May 2013.

Participants were drawn from a convenience sample of acute general medicine and emergency medicine doctors at foundation doctor or core trainee level. Those at ST3 level or above, specialty registrar doctors, staff grade doctors, associate specialists and consultants were not asked to participate, in keeping with the previous survey. Consistent with the original aims, the objective was to understand how delirium was recognised by those doctors most likely to manage delirium: first-on admitting house staff in emergency and general medicine yet to undertake specialist training. Participants were asked to complete the questionnaire in one go without access to books, computers or other material. The completed forms were sealed in an envelope and returned to either R.J. or A.A.-A. directly who collated the results centrally. Anonymity was assured to participants, and no financial incentives were offered. The protocol was approved by the Faculty of Medicine and Health Sciences Research Ethics Committee at the University of East Anglia (2012/2013-35).

Statistical analysis

We derived a score from key items requiring factual knowledge of delirium. Answers were given equal weighting; missing answers were regarded as incorrect. The difference in proportions of correct answers was assessed using the χ^2 test.

Knowledge scores were regarded as a continuous measure, whether out of 12 (short version) or 17 (full version). The relationship between specialty experience and median knowledge scores was assessed using the Mann–Whitney U test. The relationship between total knowledge score (dependent variable) and time since qualification, duration of specialty experience in geriatric medicine, psychiatry and/or neurology and self-reported experience with the Confusion Assessment Method (CAM) (independent variables) was modelled using linear regression. All analyses were conducted in SPSS (version 21, SPSS Inc., Chicago, IL, USA).

Results

There were 1,215 participants from 48 trusts in the UK and Ireland (Supplementary data, Appendix, available in *Age and Ageing* online). There were no reports of people approached deciding not to take part at any of the collaborating sites. Characteristics of these participants, in comparison to the 2006 survey, are given in Table 1. The 2013 cohort was slightly more experienced and had had more exposure to geriatric medicine and psychiatry.

The scores from the short and the full versions of the survey were highly correlated (Pearson $\rho = 0.90$, $P < 0.01$)

Table 1. Characteristics of 2006 and 2013 cohorts with respect to postgraduate clinical experience

	2006 cohort	2013 cohort	P value
Months since qualification (median, IQR)	18 (6, 42)	20 (8, 44)	<0.01
Postgraduate experience			
Geriatric medicine (n, %)	399 (51)	765 (66)	<0.01
Neurology (n, %)	57 (7)	121 (11)	0.08
Psychiatry (n, %)	29 (4)	154 (13)	<0.01

Percentages calculated using denominator of completed answers. IQR, inter-quartile range.

and so could be directly compared. There were three additional questions exploring participants' attitudes. These did not contribute to the knowledge scores, but differences between the 2006 and 2013 cohorts are reported below.

For individual items, there was a statistically significant improvement in 9 of the 17 knowledge questions compared with the 2006 cohort (Table 2). Furthermore, for no item was there a statistically significant deterioration in knowledge. For the overall summed knowledge score, there was a small improvement of 1.4 questions (10.3/17 for the 2013 cohort compared with 8.7/17 for the 2006 cohort, $P < 0.01$).

Knowledge of delirium prevalence and outcomes

There was a significant improvement in the knowledge of delirium prevalence with 82% of participants accurately estimating the prevalence of delirium on the acute take, compared with 56% in 2006 ($P < 0.01$). However, this increased

understanding of the high prevalence of delirium was not mirrored by an increased appreciation of poorer outcomes in patients with delirium compared with those without (Table 2).

Delirium prevention and diagnosis

The knowledge of the diagnostic criteria remained poor. Nine questions explored participants' knowledge of the diagnostic criteria with improvements in only three questions (Table 2). Participants' understanding that an acute onset is an essential diagnostic criterion remained high with 87% correctly answering this ($P = 0.41$). Fifty per cent of participants correctly identified inattention as one of the essential criteria, an increase from 36% in the 2006 cohort ($P < 0.01$). Eighty per cent of respondents were aware that delirium is partly preventable, an improvement from the 2006 cohort when only 58% were correct ($P < 0.01$).

Use of validated delirium assessment tools

Use of delirium assessment tools increased from only 9% of participants reporting use of such a tool in 2006 to 35% giving the same response ($P < 0.01$).

Delirium management

Improvements in participants' knowledge of delirium management were mixed. There was a significant increase in the proportion of participants who correctly recognised that benzodiazepines are not first line pharmacological management ($P < 0.01$). There has been no change in the self-rated confidence in delirium management with only a third of participants reporting confidence in managing delirium.

Table 2. Summary of results of survey and comparison of answers between 2006 and 2013 cohorts

Focus of question	2006 cohort n correct (%)	2013 cohort n correct (%)	P value
Knowledge questions			
Prevalence of delirium in acutely admitted patients	434 (56)	986 (82)	<0.01
Essential diagnostic criteria (DSM)			
Acute onset	682 (89)	1,051 (87)	0.41
Inattention	249 (34)	594 (50)	<0.01
Disorientation	116 (15)	200 (17)	0.39
Agitation	360 (47)	619 (52)	0.06
Altered arousal	388 (45)	533 (45)	0.96
Visual hallucination	463 (62)	857 (72)	<0.01
Altered sleep wake cycle	388 (52)	566 (47)	0.03
Altered mood	537 (72)	869 (73)	0.89
Disorganised thinking	116 (15)	380 (32)	<0.01
Have you used a validated assessment tool for delirium?	64 (9)	407 (35)	<0.01
Understanding risk of dementia following delirium	532 (69)	904 (76)	<0.01
Understanding risk of institutionalisation following delirium	509 (66)	767 (64)	0.35
Understanding risk of death following delirium	474 (62)	757 (63)	0.47
Understanding that delirium is under-diagnosed	634 (81)	434 (87)	<0.01
Understanding that delirium is partly preventable	449 (58)	1,047 (80)	<0.01
Awareness that benzodiazepines are not first line treatment in delirium	561 (72)	886 (82)	<0.01
Attitude questions			
Self-rated confidence in delirium diagnosis	239 (21)	399 (36)	<0.01
Self-rated confidence in delirium management	686 (31)	1,015 (33)	0.22
Perception of drug overuse due to staffing constraints	637 (82)	948 (79)	0.09

Percentages calculated using denominator of completed answers. Answers in relation to the Attitude Questions refer to participants reporting 'Strongly agree' or 'Agree'.

Effect of experience in geriatric medicine on overall knowledge scores

Previous experience in geriatric medicine was correlated with a small, but statistically significant, increase in overall knowledge score (10.5/17 and 10.1/17 for those with and without experience in geriatric medicine, respectively ($P < 0.01$)). (Table 3) Experiences in neurology and psychiatry were not associated with improved scores. This is consistent with our previous analyses on the effects of specialty exposure in the 2006 cohort [7].

Discussion

Since the last survey, there have been significant increases in some aspects of delirium knowledge and more positive attitudes towards delirium. However, the diagnostic criteria for delirium remain poorly understood. Even though the use of formal delirium assessment tools increased to 35%, it is of concern that the remaining majority were still not aware of such instruments. Taken as a whole, these findings suggest that lack of knowledge may be an important barrier to improving detection rates and thus early and appropriate initiation of treatment in acute setting, though more complex factors are likely to be at play (discussed below) [15].

This is the largest survey to date of junior doctors' understanding of delirium. While the use of a convenience sample leads to the possibility of selection bias, the large sample size taken from 48 trusts across the UK and Ireland should mitigate this to an extent. The use of two versions of the questionnaire is a potential limitation, though only the common items that comprise this analysis were used for direct comparability. The 2013 cohort was marginally more experienced than in 2006. This reflects the timing of the surveys in calendar year (December–January for 2006 cohort versus March–May for 2013). This difference may also account for some improved scores in 2013.

Initiatives such as the publication of NICE guidance on delirium and the dementia CQUIN may have contributed to the improvements evident in many aspects of the survey. Though only directly applicable to trusts in England and Wales, both NICE guidelines and the CQUIN initiative may have indirect influence in Scotland and Ireland. Our findings have occurred during the establishment of professional societies for delirium (European Delirium Association, Scottish

Delirium Association, American Delirium Society and Australasian Delirium Association). Each provides leadership in raising awareness of delirium among health professionals [16]. Teaching in geriatric medicine has improved in UK medical schools [17] and while particular challenges remain, some of our current findings may relate to better education at this stage [18]. Yet in the postgraduate curriculum (core medical training), no mention is made of knowing the diagnostic criteria under the heading of 'Acute confusion/Delirium'. Nevertheless, the increased use of a delirium assessment tools among junior doctors is encouraging, although overall it is insufficient given the high prevalence of delirium. Use of newer tools such as the 4AT, which combines a single brief assessment for delirium and cognitive impairment, might be a way of tackling both delirium and dementia in the acute setting [19]. With cognitive screening being embedded in routine practice, there is some prospect of future improvements in delirium knowledge and detection.

Considering delirium care as a whole, while improving deficits of knowledge and attitudes of delirium among junior doctors is important, it is unlikely to improve clinical practice if done in isolation. Optimal delirium care requires a coordinated inter-professional approach, in an appropriate environment within an organisation that values the provision of good delirium care [20]. A recent systematic review of multidisciplinary educational interventions for the recognition of delirium found that using a combination of educational approaches to improve practice were more successful than simpler interventions, for example, didactic teaching [21]. The need for more integrated approaches to inter-professional education has also been emphasised by the European Delirium Association [22].

Understanding the wider cultural context in acute hospitals may be a key for delirium care, perhaps demonstrating that little can be expected to occur in a somewhat 'passive' fashion as a result of national initiatives. Identifying the gaps between desired and actual practice should be the starting point for educational interventions. Qualitative research across the multidisciplinary team has shown several domains of learner need, of which specific knowledge of delirium is only a part [23]. Other learning needs include a sense of ownership of the patient (and thereby their delirium); understanding how frightening the experience is for the patient; the importance of person-centred care and fostering good partnerships with patients' carers. This reinforces the point that improving knowledge and attitudes for doctors can only be part of a broader multidisciplinary educational initiative to improve delirium care.

Table 3. Effect of experience in geriatric medicine, neurology and psychiatry on knowledge score in the 2013 cohort (maximum score = 17)

Experience	Previous experience?	Mean adjusted score	P value
Geriatric medicine	No	10.08	<0.01
	Yes	10.49	
Neurology	No	10.34	0.506
	Yes	10.49	
Psychiatry	No	10.33	0.346
	Yes	10.54	

Conclusion

There is some cause for optimism with improvements in many aspects of the understanding of delirium, possibly as a consequence of major national initiatives. However, the core diagnostic criteria for delirium remain poorly understood. Ensuring a better understanding of the diagnostic criteria and improving on the high rates of under-recognition of delirium continue to be a

challenge, and this study highlights the need for continued and concerted educational efforts to address this important issue.

Key points

- Delirium attitudes and knowledge are increasing in certain areas.
- This may be due to increasing delirium awareness through national initiatives.
- Specific knowledge of diagnostic criteria for delirium is still lacking.

Supplementary data

Supplementary data mentioned in the text are available to subscribers in *Age and Ageing* online.

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Conflicts of interest

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