

How older people nurses assess cognitive function through daily observation

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Aim. To obtain knowledge and insight into how older people nurses observe the cognitive function of their patients.

Background. In cases of cognitive decline not due to delirium, the daily observation of cognitive function by nurses has not been standardised in hospital wards specialised in the care of older people.

Design. A qualitative study with purposive sampling and semi-structured interviews.

Methods. Data were obtained by interviewing 10 Dutch nursing experts in the field of cognitive function in older patients. The interviews were recorded, transcribed and analysed by two independent researchers.

Results. All the respondents stated that daily observation of cognitive function yields valuable information. The concept of cognitive function was operationalised differently by institute and by nurse. Observation and reporting methods varied, as did the goals set by the nurses. Nurses reported using many days of observation to reach final judgements.

Conclusions. Observations of cognitive functioning should include several cognitive domains, be restricted to a few days of observation and aim to both contribute to medical diagnoses and guide nursing interventions.

Implications for practice. Until a valid instrument becomes available, nursing staff must standardise daily observations themselves. This paper describes input to achieve this.

Key words: assessment, cognitive function, dementia, observation

Background

Patients are admitted to wards specialising in the care of older people in acute hospitals because of multiple concurrent health problems that complicate medical diagnoses. Many patients demonstrate some cognitive impairment due to a combination of factors such as the unusual situation of being admitted to the hospital, serious somatic illness or psychiatric syndromes such as delirium, dementia or depression. Nursing staff are usually alert for delirium because of its high incidence rate and medical urgency. On Dutch older people wards, screening for delirium is common and standardised by means of validated screening tools such as the Confusion Assessment Method (CAM), Delirium Observation Screening Scale (DOS), and Delirium-O-Meter (DOM).

In the case of cognitive decline, if delirium is absent or if symptoms have diminished, further cognitive diagnostics are performed to detect other brain dysfunctions such as dementia or brain injury. A comprehensive assessment of cognitive status includes physical and neurological examinations, a medical history, functional status assessments, neuroimaging, and neuropsychological testing. One additional way of gathering information is through direct observation by nurses. Information can be gathered directly by the nurse during opportunities that arise during patient care activities, such as bathing, at meal times or during transfers. As patients are observed in a fairly natural setting during their daily activities (Langley, 2000), the assessment of cognitive abilities during these times is of high ecological validity. This means that the results of the observations are strongly related to daily practices (Tupper & Cicerone, 1990). Foreman *et al.* (1996) and Milisen *et al.* (2006) explicitly stressed the importance of observing patients in their natural environment as a method for complete cognitive assessment as it adds different pieces to the overall picture of the patient. Daily observation of patient behaviour is a major part of nursing (Lekan-Rutledge, 1997). Several standardised problem-focused observation scales can be used to assess agitation, pain, depression, and delirium, such as the Cohen-Mansfield Agitation Inventory (CMAI), the Pain Assessment in Advanced Dementia (PAINAD), and the Cornell Scale for Depression in Dementia, Confusion Assessment Method (CAM).

Assessment of cognitive function by nurses is important in the context of contributing to the medical diagnosis of brain dysfunction (brain injuries and dementias) and, thus, initiating the correct treatment (Dellasega, 1998; Gerdner & Hall,

2001; Flaherty *et al.*, 2003). At the same time, several authors have reported that nurses assess the patients' cognitive function because this information guides nursing care. Goals of such observation include gaining a greater understanding of the patient, enabling better communication with the patient, explaining the patient's behaviour to relatives, gaining awareness of the interference of cognitive dysfunction with other nursing problems (e.g. pain) and planning discharge policy (Langley, 2000; Flaherty *et al.*, 2003; Foreman *et al.*, 2003; Milisen *et al.*, 2006). This was confirmed in our study of 90 nurses who work with older people. These nurses assessed cognitive function to support medical diagnoses, to guide nursing interventions and to determine discharge arrangements (Persoon *et al.*, 2009). This same study showed that no standardised observation scale was used by nurses to assess cognitively mediated activities. In the protocols handbook edited by the Hartford Foundation, we found one protocol, 'Assessing cognition', in which the authors described nurses' observations as an 'informal part' of the process because it is not standardised and interpretations can vary (Foreman *et al.*, 2003). The next edition of this handbook omitted the protocol (Braes *et al.*, 2008). We searched the literature for a comprehensive observation tool comprising a wide range of cognitive domains (Persoon *et al.*, 2006). Although we found several such observation scales, either these did not include all cognitive domains or elements other than cognitive functioning, such as mood or behavioural problems, were also included. Later on, in 2007, the BATCH was described as a valid tool for the comprehensive observation of cognitive function. Yet, as far as we know, the BATCH is not used in Europe or the United States. This means that nurses are not yet using a standardised scale to observe cognitive function.

Aims

As no validated scale is currently in use, nurses in daily practice choose their own way of observing cognitive function and record their observations in a non-standardised way. We were interested in the actual method of assessing cognitive function by geriatric nurses, and the aim of this study was to gain insight into their methods. Therefore, we interviewed nurse specialists about the following research questions:

- 1 Which cognitive domains are observed by older people bedside nurses?

- 2 What do they record during the observations and to what extent do they interpret their findings?
- 3 Which bottlenecks do older people nurses currently encounter in their observations of cognitive functioning in patients admitted to wards specialising in the care of older people?
- 4 What are the opinions of experienced older people nurses about the preconditions and need for a formal observation instrument to assess cognitive functioning?

In our study, we defined cognition as the handling of information. Cognitive function covers the process by which an individual perceives, registers, stores, retrieves and uses information (Lezak *et al.*, 2004).

Methods

Design

As we wanted to gain insight into the actual processes used to assess cognitive function, a qualitative approach was most appropriate. Data were obtained through purposive sampling; semi-structured interviews were conducted with 10 experienced older people nurses.

Study participants

A purposive sample was drawn by selecting Dutch older people nursing experts. Inclusion criteria were as follows: clinical experience of at least 5 years, active status within the Dutch Association of Geriatric Nurses and (inter)national publication or renown as an expert in the recognition of cognitive problems. We attempted to achieve variation in the participants with respect to geographic spread, setting and

job function. A total of 12 experts were approached; 10 of them agreed to participate, while two refused. One of the nurses refused due to lack of time and the other refused because she currently had less contact with older people bedside nurses. The decision was made to interview these 10 participants first and then to judge whether data saturation had occurred. After 10 interviews, no new points were raised, so the number of experts remained at 10. The duration of the study was 8 months. The experts were advanced nurse practitioners and some team leaders (see Table 1 for their characteristics).

Setting

About one-quarter of the acute care hospitals in the Netherlands have a specialist ward for older people ($n = 25$ wards). Patients are admitted because they have multiple health problems and most of them have some degree of cognitive impairment due to dementia, delirium or depression. In general, the wards have an average of 16–24 beds, and the mean duration of hospitalisation is reported to be 17–24 days (Huijsman & Zanen, 2005). The nursing staff are highly educated; many Registered Nurses (bachelor-level education) have specialised in the care of older people (12 weeks of full-time education), and they are supported by an advanced nurse practitioner.

Interviews

The interviewees were invited to tell us about the methods used by bedside nurses at the older people ward in their hospital in the assessment of cognitive function by daily observation. To design the semi-structured interview, a topic

Table 1 Characteristics of the experts

| No. | Sex | Age | Education* | Job title [†] | Setting [‡] | Experience (years) | Active [§] | Publications |
|-----|-----|-------|------------|------------------------|----------------------|--------------------|---------------------|--------------|
| 1 | F | >45 | GN | GN | Univ. | 5–10 | | |
| 2 | M | 30–45 | MA | NP | TH | > 10 | + | |
| 3 | F | < 30 | NS | NS | TH | 5–10 | + | |
| 4 | M | >45 | MA | NS | TH | > 10 | + | + |
| 5 | F | 30–45 | GN | TL | TH | > 10 | + | |
| 6 | V | 30–45 | NS | NS | TH | > 10 | + | |
| 7 | M | 30–45 | GN | TL | Univ. | 5–10 | | |
| 8 | M | >45 | NS | NP | Psych. | > 10 | | + |
| 9 | F | 30–45 | NS | NS | TH | 5–10 | | |
| 10 | F | 30–45 | MA | Teacher | HS | > 10 | + | + |

*Education is the highest education level: RN/GN, registered nurse with geriatric education; NS, nurse specialist; MA, Master of Arts.

[†]Job title: GN, geriatric nurse; NP, nurse practitioner; TL, geriatric nurse and team leader/senior nurse.

[‡]Setting: Univ., university hospital; TH, teaching hospital; Psych, psychiatric institute; HS, higher education college.

[§]Active: Active within professional association.

list was drawn up on the basis of a literature review. Important subjects that resulted from the literature review included the concept of cognitive function, observation methods used by nurses and barriers to such observations. During the interviews, the continued questioning method was used. The interviews were held alternately by one of the two researchers (second and fourth authors) at the hospital of the interviewee and took an average of 1 hour. Eight of the interviews were tape-recorded and transcribed verbatim. Two interviews were not tape-recorded but were recorded in writing because of technical problems. Immediately after these two interviews, the notes were transcribed into a report.

Data analysis

The analysis of the 10 manuscripts took place in several stages as described by Schmidt (2008). Each manuscript was analysed before the next interview took place. First, the manuscripts were read intensively and repeatedly by two researchers. Fragments of text were marked if they were relevant to the four research questions. Secondly, the key points of each fragment were summarised and labelled by the two researchers independently. The aim was to note, for every interview, the topics that were broached and the individual aspects of each. Thirdly, all manuscripts were coded to conform to the categories that emerged. Particular fragments of the manuscripts that were related to one category, as well as similarities and differences between the interviews, were articulated.

Interviewees reported on the cognitive domains that were observed regularly by nurses working with older people. The domains mentioned were categorised and quantified in accordance with the parameters published by Foreman *et al.* (2003): consciousness, attention, memory, thinking, perception, psychomotor behaviour, and executive functions.

Reliability and validity

The interviews were conducted by two researchers (second and fourth authors). To ensure that their interview techniques were as similar as possible, the two researchers observed each other during the first three interviews. Each interview was heard and transcribed independently by the two researchers. All 10 transcribed texts were sent to the interviewee to ensure that the content of the interview had been expressed correctly. Reliability was increased because the two researchers performed the total analysis step-by-step and independently of each other. The analysis included transcribing the interview, marking the fragments, and assigning labels to fragments (Silverman, 2006). The last step, which involved formulating categories, was done by the two researchers

together. Peer debriefing was utilised by having a third researcher (third author) listen in during two interviews. The labelling and the formulation of the categories were checked by the third and fourth authors.

Seven out of the 10 nursing experts granted the researchers access to existing documents to support the interview. These included nursing plans, self-developed observation lists, tuition programs and reports. In this way, information from the interview could be expanded more objectively.

Results

Cognitive domains observed

The respondents indicated that during the admission procedure or shortly afterwards, agreements were made about whether or not the patient's cognitive function should be observed. Observations by nurses alone were not considered to be sufficient to fully map the cognitive functioning of the patient. The respondents emphasised the importance of information from family members as well as observations by professionals from other disciplines.

In answer to the question 'Which domains do you and your colleagues observe?', the respondents mentioned that the nurses at the ward each observe different items. In total, many domains were mentioned (Table 2). Within the domains, various aspects were observed. A few respondents mentioned aspects that are not part of cognitive function as defined by Foreman *et al.*, such as mood, behavioural problems and disturbed day-night rhythms (1996). The respondents felt that there was coherence or a relationship between the domains, but they all had different ideas. Remarks were made such as:

Orientation is definitely a form of memory.

Or:

Table 2 Experts' opinions ($n = 10$) on the domains of cognitive function observed

| Domain | No. of times mentioned |
|-----------------------|------------------------|
| Memory | 10 |
| Executive functions* | 10 |
| Orientation | 9 |
| Psychomotor behaviour | 9 |
| Language | 8 |
| Perception | 4 |
| Attention/alertness | 3 |
| Consciousness | 3 |

*Executive functions: all experts mentioned one or more executive functions, such as thinking, higher cognitive functions, insight, judgment, initiative, decision-making, or organising.

If one domain deteriorates, then the other deteriorates too.

Even the hierarchy within the domains was discussed in one case:

If the patient isn't very alert, it is difficult to assess cognition. There is a sort of hierarchy: people need to be alert in order to pay attention. And if their attention is poor, then you soon see that cognition is affected. There seems to be some sort of order to things.

In contrast, it was also mentioned that it is often difficult to assess the relationship between the domains.

According to the respondents, observation consisted of observing activities of daily living (ADL), communication and behaviours in the living room or a similar area. The nurses not only observed all sorts of activities, but they also listened to the patients. They observed the patient for longer or shorter periods of the day, sometimes during ADL, and sometimes during meals and conversations. This depended to a large extent on how much time they had. The respondents held the view that the first impression is extremely important:

Right from the start of admission to the ward, you take notice of how patients introduce themselves, whether they are conscious of themselves and how much they depend on their partner or children.

The observation method depended partly on the knowledge and experience of the nurse. Knowledge of the concept of cognitive function was considered to be very important. Opinions differed regarding the importance of experience. Some respondents felt that experienced nurses were more likely to interpret their observations:

Experienced nurses might see everything, but that doesn't mean that they write it all down.

Record

Reports concerning observed cognitive function were written in the patient's hospital file during the shift or at the end of a shift. This was usually described with reference to some cognitive domains but at the nurses' own discretion. Under these headings, the nurses wrote in free text. The nurses decided what and how much to write. One nurse mentioned that instinct guided the choice of what to describe. Although nurses reported on concrete behaviour as much as possible, there were also signs of interpretation. The degree to which this occurred differed by nurse and by situation. One of the respondents said:

Within every observation and report there is a bit of interpretation; that is inherent to observing.

Another respondent said:

You wouldn't be able to keep on describing concrete behaviour week after week. After a few days, the nurses start to make their reports in general terms.

One comment about the length of the reports was:

Nurses write the most, but it is difficult to know whether it is actually effective.

At all 10 hospitals and institutes, the nurses made weekly summaries of the reports in preparation for the multidisciplinary meeting. Interpretation sometimes played a role in this process:

Sometimes the nurse mainly writes her personal experience with the patient on that morning, even when that is the only time she has seen the patient.

Barriers

According to the majority of respondents, the present methods of observation are useful because they produce information that contributes to medical and nursing diagnoses and to the choice of interventions. However, nine out of the 10 respondents mentioned the lack of uniformity in the observation of cognitive function. This applied to the contents as well as to the observation method itself.

On a ward level, no agreements had been made about the definition of cognitive function. In addition, the policy was not clear about how many days the observation should cover. Several different comments were made on this issue, such as:

Sometimes observations are made for weeks on end without any final judgment being made;

Or:

Realistically, observations are made throughout the period of admission; it would be short-sighted to draw conclusions after only three days.

Comments about stopping the observations included:

It sometimes happens that a conclusion is drawn (usually in terms of medical diagnosis) but the observations go on; or that the observations stop but there is no final judgment.

Another barrier, which was emphasised by five out of the 10 respondents, was that it was not possible to make good interpretations of the observations, because the starting situation of the patient and the timing of the observations could be influential.

Comments were also made about the amount of time available to make the observations and the attitude of the nurses towards actual observation:

The working pressure of the nurse means that she is often called away from the patient and that she has to work fast, so the observations are not as good.

Observation instrument

All the respondents were of the opinion that an observation instrument would be useful in that it would probably solve some of the above-mentioned barriers. Important arguments in favour of such an instrument included the increase in uniformity of information collected and the reduction in interpretations by the nurses.

The respondents were in agreement about the feasibility of use, indicating that it should be low work-load and simple to use. However, opinions differed widely about the contents of such an instrument. For some of the respondents, a simple mnemonic would suffice, e.g. in the form of a pocket-sized card containing the domains of cognitive functioning. Others reported that they would prefer to score the presence or absence of a particular type of behaviour. Several times we heard the comment:

But you mustn't interview the patient; it has to be about spontaneous behaviour.

Some of the nurses felt that such an instrument should be used three times per day, whereas others said that three times per week would be sufficient. One of the respondents stated that the goal of the observation must be made clear first before a decision can be made concerning what the instrument should look like:

If the list provides valid and reliable information on which to base a diagnosis or differential diagnosis, then that is sufficient. But for other objectives (nursing interventions), the list might be too concise.

Discussion

The aim of our study was to gain insight into the method used by nurses to assess cognitive function by daily observation in cases where delirium is excluded or its symptoms have diminished. Data gathered from interviewing experts indicate that daily observation of cognitive function is generally non-uniform, non-systematic and leads to no final conclusions following the observation period. When and for how long cognitive function was observed generally depended on factors such as the individual knowledge of the nurse and the amount of time available. At the ward level, the concept

of cognitive function was not uniformly operationalised. Many cognitive domains were recognised, but no consensus was found on the number and type of these domains. This observation is not without precedent in the literature; other researchers have noted that there is no uniform way to classify domains, and, therefore, various authors have organised cognitive domains in different ways (Dellasega, 1998; Langley, 2000; Gazzaniga *et al.*, 2002; Foreman *et al.*, 2003; Burns *et al.*, 2004; Lezak *et al.*, 2004). When using a classification system, it appeared that the variety of cognitive domains mentioned by the 10 experts was similar to the variety reported by nurses in a previous study ($n = 90$); frequently, activities related to memory, orientation, executive functions and psychomotor behaviour were observed, and, less frequently, language, perception, attention, and consciousness were assessed (Persoon *et al.*, 2009).

The records on daily observations varied in length from short to very long. In many cases, concrete behaviour was reported along with interpretations made by the nurse. This non-standardised method of observation allowed the moderate degree of agreement between nurses that was found in a previous study (Persoon *et al.*, 2007). The agreement appeared to be fair to good in half of the cognitive domains, but it was only poor in the other domains.

Both the risk of individual interpretations by caregivers as well as the need to interpret information are described by Polit and Beck (2004). The difference between objective, observable behaviour and an interpretation of that behaviour is not dichotomous but, rather, represents two ends of a continuum. The need to cut down the free text in nursing files into a summary leads inevitably to interpretation of the patients' behaviour by the nurses. The alternative is to structure observations by means of a rating scale that requires observers to rate a phenomenon along a descriptive continuum that is typically bipolar (Polit & Beck, 2004).

Furthermore, prolonged observation, as was the situation in most hospitals, is not very efficient. The finding that such observation can yield no conclusions is quite remarkable. A nurse should only gather information that is relevant (Lekan-Rutledge, 1997). It seems quite easy to overcome this time-consuming behaviour by planning beforehand the time that will be spent on the observation.

Although the respondents felt that the present observation methods yield important information, in view of the above-mentioned shortcomings, the objectives of these methods cannot be easily achieved. An important prerequisite for making diagnoses and providing nursing care is a standardised, unequivocal, valid observation. It was remarkable that all interviewees expressed a need for an observation scale.

Conclusions

The conclusions of this study can be generalised to all wards specialising in the care of older people in the Netherlands. We interviewed 10 nursing experts employed in 10 out of the 25 hospitals with a ward specialising in the care of older people. During the last few interviews, no new insights emerged. The degree to which our findings can be translated internationally depends on the patient population in wards or units that specialise in the care of older people. Hence, to enable comparisons, in the 'Methods' section we have presented clear descriptions of our study participants and setting. A limitation of our study was that the description of how nurses observe cognitive function was based on interviews and not on practical observations, and interviewing might have provoked socially desirable answers; however, our respondents were critical towards themselves and their own practice. Although the study has some limitations, it has provided a great deal of insight into how nurses currently observe the cognitive function of older patients.

Relevance to clinical practice

On the basis of the shortcomings in the daily observation method currently in use, we suggest two recommendations to improve its quality. Firstly, as all of the respondents indicated, there is a need for a standardised observation instrument. With such an instrument, it will be possible to observe systematically and without interpretation (Streiner & Norman, 2003). The instrument should contribute to nursing and medical diagnoses and help guide nursing interventions. This requires a fairly precise and extensive observation list, which means that as many domains as possible should be mapped. The most objective observation systems are those that yield the shortest reports with the fewest individual interpretations. Good examples of instruments with very concrete behavioural observations and a simple rating along a descriptive continuum are the Confusion Assessment Method (CAM, Inouye *et al.*, 1990), the Cohen-Mansfield Agitation Inventory (CMAI, Schuurmans *et al.*, 2003), the Delirium Observation Screening Scale (DOS, Cohen-Mansfield, 1986) and the Nurses' Observation Scale for Geriatric Patients (NOSGER, Spiegel *et al.*, 1991). However, many care providers feel that these systems detract from reality because they are overly artificial (Langley, 2000). Therefore, the level of detail built in to the observation instrument is a topic that will require further discussion within professional groups.

Secondly, until a standardised observation instrument becomes available, wards will have to standardise daily

observations themselves. Agreements have to be made about the objectives of the observation, which domains to observe, the observation method, the reporting method and when final judgments should be made. With this paper, we hope to have provided input to fill these gaps. Consultation with other disciplines concerning observation methods will undoubtedly enrich all relevant professional groups.

Another important point is that it will be important to explore in more detail how nurses tailor their interventions to the patient's cognitive abilities. Up to now, because assessment of the specific cognitive domains has been hampered, this approach could not be planned in detail. However, through assessment of the (dys)function of certain cognitive domains, nurses have the opportunity to tailor their approach more explicitly to the patient's abilities and to integrate this approach into the nursing care plan. For example, in case of memory problems, information may be repeated or written down; in case of attention deficits, a quiet environment may be offered; and in cases of executional problems, information can be simplified.

One final remark concerns the nurse and teamwork. If team members make their daily observations in a non-systematic manner and achieve different results, this will impact on other disciplines. It is not difficult to imagine that this situation would put such teamwork under pressure.

Implications for practice

- Daily observation is a major part of nursing.
- Standardisation of daily observation for cognitive function should include the following: a statement on which cognitive domains to assess, objective observable behavioural symptoms, the number of day days over which to observe, a standardised form for recording and a final conclusion.
- In this way, daily observation for cognitive function in older patients can contribute to medical and nursing diagnoses and guide nursing interventions.

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