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What Do Nurses Do in Response to Their Predictions of Aggression?

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Abstract and Introduction

Abstract

Nurses working with people who have an acquired brain injury report a high incidence of verbal assault and physical aggression directed against them. The aim of the current study was to identify the responses nurses make to such predictions of aggression. Twenty-eight nurses from 10 inpatient brain injury rehabilitation units in Australia participated. Participants were selected because of their expertise in predicting and minimizing aggression. They were interviewed one-on-one using the Critical Decision Method of interviewing. Transcripts were analyzed using thematic analysis. Nurses identified three general responses to predictions of aggression: paying attention, planned nonintervention, and planned intervention. The nurses were able to respond to predictions of aggression in a clinically effective way. Knowledge of the individual patient and experiences with other brain-injured patients informed their practice.

Introduction

Nurses who work with people experiencing the limitations associated with acquired brain injury report frequent verbal and physical aggression (Carr, 2000). According to the Australian Institute of Health and Welfare (1999), the number of people with acquired brain injury living in Australia is growing, making attention to the aggressive and violent behaviors that some of these people exhibit a priority. This article reports results from a larger project examining the prediction and minimization of aggression in people with acquired brain injury. It focuses on the responses nurses make to predictions of aggression.

Acquired brain injury refers to traumatic brain injury. In the literature, the term *aggression* has been used interchangeably with other terms such as *assault* and *violence*. The definition of *aggression* adopted for this study is "complex behavior comprised of a composite of sensory, emotional, cognitive, and motor elements" (Cassidy, 1990, p. 220), which may include any of the following components: "(1) behavior damaging to individuals or property; (2) attitudes, moods, or gestures that people find threatening or intimidating; and (3) purposeful behavior that disrupts rehabilitation activities and social reintegration" (Wood, 1987, p. 17).

Nurses need to be able to anticipate, de-escalate, and cope with aggression (Occupational Safety and Health Administration, 2001; Royal College of Psychiatrists, 1998). Training has been suggested as a means of managing aggression, but most training focuses on control and restraint (Allen, 2000). Other research has highlighted the importance of nurses learning from experienced staff members (J. Delaney, 2001) and the intuition and unwritten knowledge that nurses develop through experience (K. R. Delaney, 1994). The overall aim of the present study is to give others access to such experience by identifying nurses who are experts in the prediction and minimization of aggression and then exploring and exposing the tacit knowledge they hold and the clinical decision-making processes they use. This effort is particularly valuable given that there is a very small research base documenting the clinical effectiveness of staff responses to challenging behavior in people with acquired brain injury (Ager &

O'May, 2001). Therefore, the aim of the research reported here was to determine the responses that nurses make to their predictions of aggression in people with acquired brain injury.

Method

Participants

The study participants were recruited from 10 hospital brain injury rehabilitation units in five large cities across Australia. Twenty-one female nurses and seven male nurses participated in the study. Seven nurses worked in long-term care settings that provided slow-stream rehabilitation, and 21 worked in acute rehabilitation. Nineteen were registered nurses, and nine were enrolled nurses. The mean age was 40.8 years, and the mean number of years of employment in the current setting was 7.0.

Materials

In this qualitative study, the Critical Decision Method (CDM) of interviewing was used to elicit expert knowledge from nurses about the responses they make to predictions of aggression in patients with acquired brain injury. The CDM is an adaptation of the Critical Incident Technique (Flanagan, 1954). The method employs one-on-one interviews in which participants tell the story of a specific incident from their own work experience. The interviewer guides the participant to establish a timeline of the events and identify decision points. The interviewer uses progressive deep questioning to help the participant create a thorough, in-depth, contextually rich account of the incident. "What-if" probes are used to identify alternative decision-action paths. The seven steps in the CDM are preparation, incident selection, incident recall, incident retelling, timeline verification and decision-point identification, progressive deepening, and what-if queries (Hoffman, Crandall, & Shadbolt, 1998).

Procedure

Nursing unit managers in the participating inpatient brain injury rehabilitation units were asked to identify nurses with expertise in predicting aggression. A letter was sent to those nurses explaining the study and asking permission to contact them.

We contacted each nurse who gave permission by telephone to explain the project in more detail and to conduct a screening interview involving a short example scenario and several in-depth probe and what-if questions. The screening interview enabled the investigators to recruit nurses who felt at ease participating in an in-depth interview. Suitable nurses were invited to participate in the study and again were given a verbal and written explanation of the project. Each participant was required to give written consent before participating in the study.

Two experienced registered nurses familiar with brain injury rehabilitation and skilled in the CDM interview technique conducted the interviews. Two interviews, rather than one long interview, were conducted to give the interviewer time to reflect on the information from the first interview and to give the participant time to recall the details of the incident being described (Pryor & Smith, 2000, 2002). The two one-on-one interviews were held on consecutive days and conducted by the same interviewer, with each interview lasting as long as 1.5 hours. Each interview was audiotaped and transcribed verbatim. The first interview covered steps 2–5 of the CDM procedure, and the second interview recapped step 5 and continued with steps 6–7 (Hoffman et al., 1998).

The same interview schedule was used for all the participants. During the first interview, the nurse drew a timeline of the incident on butcher's paper. The time line was used to aid recall and to order the details of the nurses' stories during the interviews. In the second interview, more detail was added.

Analysis

The chief investigator and associate investigator read all transcripts. The chief investigator then coded all interview transcripts, labeling text strings that shared meanings using, wherever possible, the participants' words. The codes were clustered into groups with similar themes. The associate investigator reviewed the codes and clusters as well as the extracts of raw data from which the clusters had been drawn. Minor adjustments to the codes and clusters were made.

Results

The nurses' responses to predictions of aggression fell into three broad clusters, termed here paying attention, planned nonintervention, and planned intervention.

Paying Attention

The nurses reported paying attention to the patient they predicted might become aggressive. The nurses dealt with the situation straight away, gave the patient their undivided attention, and personally worked through the situation until it was resolved.

You basically get onto it straight away. (Nurse 1)

It really had to be dealt with then and there.(Nurse 6)

Staff are not to intervene because it's too distracting. The more people involved, the more distracting it can be and make things more difficult. (Nurse 23)

Planned Nonintervention

Several nurses reported using planned nonintervention, meaning they adopted a wait-and-see approach, assessing whether the situation would pass simply by allowing the patient to deal with the situation by himself or herself.

I always adopt a wait-and-see attitude with him.(Nurse 13)

I just watched to see whether it was going to pass.(Nurse 6)

Planned Intervention

More often than not, a prediction of possible aggression led to planned interventions. These interventions involved interaction between the patient and the nurse and always commenced with pinpointing the problem. Nurses engaged intensely with the patients to achieve a mutually agreed outcome. Without the patient's attention and cooperation, a mutually agreed outcome could not be gained. At times, however, a mutually agreed outcome was not possible. In these instances, the nurses took control of the situation to achieve a safe outcome for all involved. Safety was paramount in all these interactions, that is, safety of the patient and involved staff members, as well as the safety of other patients, staff members, and visitors.

Regardless of the intervention used, when the nurses interacted with people they considered potentially aggressive, they adopted a manner with distinctive elements. Together these elements have been interpreted as a calming approach. The importance of this approach cannot be overstated; these elements were described repeatedly by all the nurses.

Because the calming approach was an essential element of all interactions with the patients, it is described first. Following this, the different interventions are described, namely, ensuring safety, pinpointing the problem, working with the patient, and working for the patient.

A calming approach: A combination of various actions by the nurses is referred to here as a calming approach. The elements of a calming approach varied between nurses and for a given nurse with different patients, although some elements were constant. Nurses reported avoiding the following behaviors: hurrying, startling the patient, confrontation, making demands, arguing, and saying no. Using the patient's name and making eye contact with the patient were considered key elements of connecting with the patient, although one nurse noted that eye contact could make things worse. Touch is another intervention that was used by some nurses but not by others, who noted that it could be confronting.

In their approach to the patients, the nurses used a short and succinct style of communication. They described their voice as calm, quiet, soft, and gentle. The nurses consciously focused on their body language in an effort to appear open, friendly, and nonthreatening.

Fairly neutral posture. Hands down by the sides, one foot in front of the other, just relaxed. (Nurse 13)

Nurses reported that it was essential to appear confident and not show fear. The consequences of showing fear were considered potentially dangerous for the nurse.

Not letting him know you were scared of him. I was scared of him, as well. Like I was quite scared of him, because he's quite a large man and he has hit out before at people so I tried not to show any fear. (Nurse 11)

Staying calm was not always easy, especially in the face of escalating behavior. To stay calm, some nurses consciously coached themselves as they approached the situation.

Yes it has to be conscious, otherwise my voice will crack and once that happens he's got you basically.... It's in the back of your mind, I've got to talk evenly, talk in an even tone. (Nurse 11)

Allowing time, taking it slowly, and not crowding the patient are important adjuncts to appearing friendly and nonthreatening. They provide the right environment for the brain-injured patient to think. This approach requires patience and persistence. The nurse must be prepared to repeat and reinforce what is said, often several times. The nurses noted that honesty is essential.

The nurses explained that the effectiveness of their interaction with a patient whom they consider potentially aggressive is maximized when they have developed a relationship with the patient. Some nurses spoke of being a peer, a friend, and a mate to the patient. For some nurses this strategy involved the use of humor.

Just walked in like a friend. I wasn't a nurse. I put myself more as a friend toward the patient than a nurse and I talked to him.... I was talking to him as a mate in a pub and like, yeah, "How ya going?" I was having a few jokes and stuff like that and he calmed down. (Nurse 16)

Ensuring safety: In approaching potentially aggressive patients, nurses always considered the safety of themselves and the patient as well as that of other staff members and patients. The nurses reported incorporating a range of strategies to maximize their personal safety. These included being ready, possessing an awareness, positioning one's body ready for attack, maintaining a safe distance out of reach of the patient, and ensuring an exit is always available.

I know I always have an escape route. An open corridor, I can go either way. I can go that way, I can go the other way. I know that there are staff around, if I called they would come. I ensure that I'm not put in a position where I can't get out of it so my back is not to a wall. So I always have an open area or space around me. I do it automatically. (Nurse 8)

Pinpointing the problem: The nurses identified pinpointing the problem as fundamental in their response to patients they predicted might become aggressive. To pinpoint the problem, nurses considered the patient and his or her situation. Patients were seen as responding to something that was not to their liking that they could not change. Nurses pinpointed these problems through interaction with the patient and observation of the patient's situation. Most commonly they asked the patient to tell them about the problem.

I just remember saying, "Ted, are you okay? You look a bit upset about something." I thought it was a good approach for him to tell me if there was something bothering him. (Nurse 25)

After pinpointing the problem, the nurses used a wide range of interventions that involved either working with the patient or working for the patient.

Working with the patient: The nurses demonstrated a commitment to working with their patients, rather than "doing" to them. The interventions used by the nurses ranged from discussing the problem and explaining the situation to separating the patient from the source of irritation.

Although pinpointing the problem involved some discussion, further discussion of the problem itself was sometimes all that was needed to produce a solution. All of the nurses were committed to listening to what their patients had to say.

I didn't say much. I was just looking and listening to what he was saying. (Nurse 25)

Several nurses spent time explaining the situation to the patient. I walked in there and handed him the medications one at a time. I even brought the medication chart in to tell him what he was having. I was pointing at the meds and telling him what the big purple ones were. (Nurse 16)

Generally speaking, once the problem had been pinpointed, the nurses sought to separate the patient from the source of irritation. This step involved either a separation created by diverting the patient's attention to something else or physical separation from the irritant. Diverting the patient's attention might involve making suggestions, walking, or distraction, but it always involved consultation with the patient.

The majority of nurses spoke of distraction as a core technique for avoiding a potentially aggressive situation when working with brain-injured people. Although the essence of distraction is the diversion of the patient's attention away from the source of irritation, the nurses explained that the key to using distraction successfully is that the distraction must be both of interest and plausible to the patient. The nurses used knowledge of their patients to inform their efforts to distract them.

I said, "What about we go and play eight ball?"...I engaged him in a social activity, doing some thing that he was very good at. (Nurse 14)

Time out was the most common form of physical separation used. Time out always involved relocating the patient to a quieter environment to allow time for the patient to settle down.

Working for the patient: When working for patients, nurses initiated interventions aimed at calming patients and lessening their irritation. These interventions involved removing the source of irritation, creating a calming environment, or both. Nurses might do this with little or no consultation with patients. Nonetheless, their decisions were based upon their knowledge of their patients.

The nurses were quite aware of the potentially negative effect noise can have on patients with acquired brain injury, as well as the stimulation created by the presence of too many people in the patient's vicinity. Other situational factors the nurses considered important were having a consistent staff roster and avoiding the assignment of care to staff members whom the patient did not know or like or to staff members who did not feel comfortable with the patient.

It's no good having her look after somebody like that if she doesn't want to do it. (Nurse 7)

Discussion

The nurses in this study reported using a range of strategies in response to their predictions of aggression in patients with acquired brain injury, but they emphasized that they adopt an individualized approach that recognizes patient differences and preferences. All of the nurses demonstrated a commitment to minimizing distress for patients and preserving patients' dignity.

Various interventions have been discussed in the literature in relation to behavioral problems following brain injury. These include use of behavior analysis and feedback (Schlind & Pace, 1999), a nonaversive approach (Rothwell, LaVigna, & Willis, 1999), and remedial and moderating approaches (Ducharme, 1999). All are informative and useful but only to a certain degree. The extensive and complex descriptions of these approaches are at times too theoretical and lack the specific detail required to support their implementation by direct-care workers such as clinical nurses.

Generally speaking, in the current study two sources informed the responses of the nurses to their predictions of likely aggression: knowledge of the particular patient and experience working with other people with acquired brain injury. There is no evidence that the responses of any of the nurses were informed by a particular documented approach, school of thinking, or standardized approach. Several nurses did, however, demonstrate possession of detailed knowledge of particular patients' previous responses to potential irritants, as well as knowledge of various nursing interventions. Other commentators have cited the importance of knowledge of an individual patient when assessing psychiatric and brain-injured patients for potential for aggression (J. Delaney, 2001; Plylar, 1989). This use of personal knowledge and experience is typical of clinical nurses with expertise in a particular area (Benner, 1984).

Approaching potentially aggressive patients with the intent of calming them has been widely supported in the literature (Carlsson, Dahlberg, & Drew, 2000; Plylar, 1989; Royal College of Psychiatrists, 1998; Sexton, 2002). Many commentators suggest using pacifying words and appropriate body language, including a confident demeanor (Garnham, 2001; Harrison, 1999; Lowe, 1992; New South Wales Health, 2001; Paterson, Leadbetter, & Bowie, 1999; Royal College of Psychiatrists, 1998; Sexton, 2002). Nonetheless, some commentators (Paterson, Leadbetter, & McComish, 1997) warn that remaining calm may in some situations add to the person's irritation, as a calm approach is considered by them to be inappropriate. None of the nurses' stories in this study reflected this experience.

There is also support in the general literature for the strategies the nurses reported for ensuring their own safety. These include maintaining space between nurse and the patient (Plylar, 1989; Royal College of Psychiatrists, 1998; Sexton, 2002) and remaining near a door (New South Wales Health, 2001).

Some of the strategies nurses detailed for working with and working for the patient have support in the literature on populations of cognitively impaired individuals (see [Table 1](#)).

Using eye contact is one strategy supported by nurses in this study that the literature recommends using with some caution. Some experts (Garnham, 2001) believe that eye contact shows interest and care (New South Wales Health, 2001). However, others suggest avoiding prolonged eye contact. Paterson et al. (1997) advise that eye contact should be similar to that used in normal conversation.

Similarly, the use of touch requires careful consideration. Some commentators (Paterson et al., 1997) explain that touching someone who is angry requires extreme care and that knowledge of the person is invaluable in making these decisions. However, in a context of potential aggression, touch should only be used with patients the nurse knows well and has touched in other situations (Garnham, 2001). Natural therapeutic holding has been used as part of the response to cues of aggression from individuals with intellectual disabilities (Stirling & McHugh, 1998). However, while Stirling and McHugh explain that therapeutic holding aims to provide emotional and physical support as opposed to control and restraint and that it was developed initially in nonconfrontational situations, they do not provide details of how this intervention is actually provided.

Some of the nurses in this study used a wait-and-see approach for particular patients in particular circumstances. This process has not been advocated in recent literature. However, this approach was well thought out by nurses and in line with the patient's rehabilitation. "Wait and see" allowed patients additional time to negotiate or reduce the source of irritation or moderate their own response to the irritant. Only when the patient could not attain an appropriate outcome independently did the nurses intervene.

Limitations

It is important to remember that the responses used by the nurses in this study were responses to predictions of aggression from patients confined to inpatient rehabilitation settings due to acquired brain injury. In most cases, the nurse had known the patient for an extended period of time, often for weeks or months. The nurses' responses were, in most cases, considered to be effective when responding to brain-injured patients who were considered likely to become aggressive or more aggressive. Strategies used with cognitively impaired patients such as these may or may not be appropriate for use with other populations. The literature contains no trustworthy reports of studies that have compared the effectiveness of particular strategies for different patient populations.

The study may be limited in that nurses gave retrospective accounts of their responses when they anticipated aggression. These retrospective accounts may not accurately reflect the responses used and the often-successful outcomes. To overcome this problem and further develop knowledge of the responses nurses use after predicting aggression in brain-injured patients, particularly responses that yield successful outcomes, future studies could adopt an observational procedure as part or all of the study method.

Summary

Nurses with expertise in predicting and minimizing aggression use a range of strategies in response to their predictions of aggression in patients with acquired brain injury. Such strategies include paying attention to the patient, adopting a wait-and-see approach, and implementing planned interventions that may include a calming approach and working with or for the patient once the problem has been pinpointed, all while ensuring the safety of all concerned. Nurses respond effectively by drawing on their knowledge of the patient and their experience with

other brain-injured individuals to minimize patient aggression.

Table 1. Nurses' Reported Responses to Potential Aggression in Patients with Acquired Brain Injury and Corresponding Literature on Cognitively Impaired Individuals

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Reported Response	Selected Literature
Maintaining one-on-one communication and excluding others	Garnham, 2001
Demonstrating interest and concern	Harrison, 1999
Offering patients time to state concerns, discussing concerns, and attempting to ascertain the cause of the behavior	New South Wales Health, 2001
Responding in a nonjudgmental manner	New South Wales Health, 2001
Providing reassurance	Garnham, 2001; Harrison, 1999
Providing explanation	Harrison, 1999
Avoiding confrontation	New South Wales Health, 2001; Sexton, 2002
Being honest	Lowe, 1992; Plylar, 1989; Sexton, 2002
Providing appropriate distraction	Finnema, Dassen, & Halfens, 1994; Plylar, 1989
Moving the patient to a quieter place	Finnema et al., 1994
Allocating a staff member who is familiar to the patient	J. Delaney, 2001

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References

1. Ager, A., & O'May, F. (2001). Issues in the definition and implementation of "best practice" for staff delivery of interventions for challenging behaviour. *Journal of Intellectual & Developmental Disability, 26*, 243–256.
2. Allen, D. (2000). Recent research on physical aggression in persons with intellectual disability: An overview. *Journal of Intellectual and Developmental Disability, 25*, 41–57.
3. Australian Institute of Health and Welfare (1999). *Acquired brain injury severely affects 160,000 Australians: 1999*. Retrieved January, 24, 2000, from www.aihw.gov.au/releases/1999/dipabia.html.
4. Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.
5. Carlsson, G., Dahlberg, K., & Drew, N. (2000). Encountering violence and aggression in mental health nursing: A phenomenological study of tacit caring knowledge. *Issues in Mental Health Nursing, 21*, 533–545.
6. Carr, B. (2000). Nurses' experiences of patient violence in a rehabilitation and extended care setting: OHS implications. *The Journal of Occupational Health and Safety—Australia and New Zealand, 16*, 155–162.
7. Cassidy, J. W. (1990). Pharmacological treatment of post-traumatic behavioral disorders: Aggression and disorders of mood. In R. L. Wood (Ed.), *Neurobehavioural sequelae of traumatic brain injury* (pp. 219–248). New York: Taylor & Francis.
8. Delaney, J. (2001) *Prevention and management of workplace aggression: Guidelines and case studies from*

- the NSW health industry*. Sydney, Australia: WorkCover NSW and Central Sydney Area Health Service.
9. Delaney, K. R. (1994). Calming an escalated psychiatric milieu. *Journal of Child and Adolescent Psychiatric Nursing, 7*, 5–13.
 10. Ducharme, J. M. (1999). A conceptual model for treatment of externalizing behaviours in acquired brain injury. *Brain Injury, 13*, 645–668.
 11. Finnema, E. J., Dassen, T., & Halfens, R. (1994). Aggression in psychiatry: A qualitative study focusing on the characterization and perception of patient aggression by nurses working on psychiatric wards. *Journal of Advanced Nursing, 19*, 1088–1095.
 12. Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*, 327–358.
 13. Garnham, P. (2001). Understanding and dealing with anger, aggression and violence. *Nursing Standard, 16*, 37–42.
 14. Harrison, A. (1999). Managing acutely disturbed behaviour. *Professional Nurses, 15*, 183–186.
 15. Hoffman, R. R., Crandall, B., & Shadbolt, N. (1998). Use of the critical decision method to elicit expert knowledge: A case study in the methodology of cognitive task analysis. *Human Factors, 40*, 254–277.
 16. Lowe, T. (1992). Characteristics of effective nursing interventions in the management of challenging behaviour. *Journal of Advanced Nursing, 17*, 1226–1232.
 17. New South Wales Health. (2001). *Management of adults with severe behavioural disturbances*. North Sydney, Australia: Author.
 18. Occupational Safety and Health Administration (2001). *Guidelines for preventing workplace violence for health-care and social-service workers*. Retrieved November, 11, 2003, from www.osha-slc.gov/SLIC/workplaceviolence.
 19. Paterson, B., Leadbetter, D., & Bowie, V. (1999). Supporting nursing staff exposed to violence at work. *International Journal of Nursing Studies, 36*, 479–486.
 20. Paterson, B., Leadbetter, D., & McComish, A. (1997). De-escalation in the management of aggression and violence. *Nursing Times, 93*, 3–9.
 21. Plylar, P. A. (1989). Management of the agitated and aggressive head injury patient in an acute hospital setting. *Journal of Neuroscience Nursing, 21*, 353–356.
 22. Pryor, J., & Smith, C. (2000). *A framework for the specialty practice of rehabilitation nursing* (Rehabilitation Nursing Research and Development Unit Monograph No. 4). Ryde, Australia: Royal Rehabilitation Centre Sydney, Rehabilitation Nursing Research and Development Unit.
 23. Pryor, J., & Smith, C. (2002). A framework for the role of registered nurses in the specialty practice of rehabilitation nursing in Australia. *Journal of Advanced Nursing, 39*, 249–257.
 24. Rothwell, N. A., LaVigna, G. W., & Willis, T. J. (1999). A non-aversive rehabilitation approach for people with severe behavioural problems resulting from brain injury. *Brain Injury, 3*, 521–533.
 25. Royal College of Psychiatrists. (1998). *Management of imminent violence: Clinical practice guidelines to support mental health services*. Occasional Paper OP41. Retrieved November, 11, 2003, from www.rcpsych.ac.uk/publications/guidelines/index.htm.
 26. Schlind, M. W., & Pace, G. (1999). Relations between traumatic brain injury and the environment: Feedback reduces maladaptive behaviour exhibited by three persons with traumatic brain injury. *Brain Injury, 13*, 889–897.
 27. Sexton, K. (2002). Dealing with aggression. *The Lamp, 17*, 17–19.
 28. Stirling, C., & McHugh, A. (1998). Developing a non-aversive intervention strategy in the management of aggression and violence for people with learning disabilities using natural therapeutic holding. *Journal of Advanced Nursing, 27*, 503–509.
 29. Wood, R. L. (1987). *Brain injury rehabilitation: A neurobehavioural approach*. London: Croom Helm.

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