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Nurses' Concerns about Caring for Patients with Acute and Chronic Traumatic Brain Injury

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Abstract

Background—Patients with moderate-to-severe traumatic brain injury (TBI) typically have significant immediate and chronic cognitive impairments. These cognitive impairments can negatively affect their inpatient stay after an acute TBI and affect their healthcare later in life when seeking care for other acute health conditions during the chronic phase of TBI. Nurses must be knowledgeable about modifying care to accommodate cognitive impairments of these patients throughout the continuum of care. Yet, current guidelines focus exclusively on acute care and do not address nurses' central role in dealing with residual cognitive impairments of these patients. Thus, educational and training interventions are needed to ensure nurses have adequate knowledge to care for these patients.

Aims and Objectives—As a first step in developing TBI-specific nursing education, the purpose of this study was to investigate nurses' concerns about caring for patients with moderate-to-severe TBI.

Design—We conducted a cross-sectional, exploratory survey of 692 nurses across hospital departments at three hospitals between October 2014 and August 2015. Nurses answered the following qualitative open-ended question: "What are your primary concerns about providing care to patients with moderate-to-severe TBI?"

Methods—Conventional qualitative content analysis was used to analyze nurses' responses.

Results—Findings showed nurses reported multiple concerns about caring for patients in the acute phase after TBI, but few concerns about caring for patients in the chronic phase. Some of the

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concerns nurses reported included: 1) preventing physical injury; 2) missing changes in condition; 3) providing adequate education; 4) providing support; and 5) promoting recovery. Barriers to providing adequate care were: 1) lack of knowledge; 2) limited staffing; and 3) inadequate resources.

Conclusions—Findings have implications for education of nurses and development of nursing guidelines for management of patients with TBI, including providing direction for nurses on development of care plans for patients in the chronic phase after a moderate-to-severe TBI.

Keywords

Brain Injury; Nurses; Nursing Education; Content Analysis

INTRODUCTION

Moderate-to-severe traumatic brain injury (TBI) causes immediate and chronic cognitive impairments. Research shows that the residual cognitive impairments can influence how patients with moderate-to-severe TBI receive care when facing other acute health conditions later in life, particularly if the patient is hospitalized for acute inpatient care unrelated to the TBI. As cognitive impairments caused by moderate-to-severe TBI may make it difficult for patients to retain information, communicate, and comprehend communication, healthcare providers, particularly nurses, must be knowledgeable about modifying care to accommodate cognitive impairments of these patients throughout the continuum of care. Yet, most nursing clinical guidelines are for acute care and focus on medical care rather than cognitive impairments. Given the lack of clinical guidelines for managing patients in the chronic phase of moderate-to-severe TBI, educational and training interventions are needed to ensure nurses have adequate knowledge to care for these patients. As a first step in developing TBI-specific nursing education, the purpose of this study was to investigate nurses' concerns about caring for patients with moderate-to-severe TBI.

BACKGROUND

Over 10 million people sustain a TBI each year worldwide (Hyder, Wunderlich, Puvanachandra, Gururaj, & Kobusingye, 2007) with more than 2.5 million of these injuries in the United States (Centers for Disease Control and Prevention, 2016). Although a standard definition of TBI is not available, TBI can be defined as “an alteration in brain function, or other evidence of brain pathology, caused by an external force” (Menon, Schwab, Wright, & Maas, 2010, p. 1638). TBI is a chronic disease (Corrigan & Hammond, 2013), causing significant impairments in psychomotor, verbal, and cognitive functioning (Centers for Disease Control and Prevention, 2014). TBI can be characterized as mild, moderate, or severe, with more than 75% of TBI being mild (Rao et al., 2010). Although there are lower rates of moderate-to-severe TBI, these more severe injuries can leave long-lasting impairments (Ruttan, Martin, Liu, Colella, & Green, 2008). TBI is most common in younger (children age 0 to 4 years, adolescents age 15 to 19 years) and older populations (adults age 65 years and older) (Faul, Xu, Wald, & Coronado, 2010). The most common causes of TBI are falls, motor vehicle accidents, “struck by/against events,” and assault

(Rutland-Brown, Langlois, Thomas, & Xi, 2006). Regardless of age group and cause of injury, men have higher rates of TBI than women (Faul et al., 2010).

There is an increased incidence of TBI among civilians and Veterans returning home from the recent wars (Defense and Veterans Brain Injury Center, 2014). High rates of TBI significantly affect Veterans in the U.S. military, as TBI is one of the signature injuries of Veterans returning from the war (Defense and Veterans Brain Injury Center, 2014). Approximately 333,169 Veterans have sustained TBI worldwide since 2000, including over 25,000 Veterans diagnosed with TBI each year between 2010 and 2014 (Defense Medical Surveillance System (DMSS), Theater Medical Data Store (TMDS), & Armed Forces Health Surveillance Center (AFHSC), 2014). Although many service members sustain TBI in combat, service members can also sustain TBI during common daily activities (Defense and Veterans Brain Injury Center, 2014). Veterans also receive care at all types of hospitals and healthcare facilities, not only Veterans hospitals (Pedersen et al., 2015).

The different types of TBI (mild, moderate, and severe) cause different types of impairments. Mild TBI often causes poor physical functioning, such as fatigue, emotional distress, and cognitive impairments that typically resolve within a few weeks (Zemek, Farion, Sampson, & McGahern, 2013). In contrast, a person who sustains a moderate-to-severe TBI is highly likely to have significant impairments in psychomotor and verbal communication skills, as well as impairments in cognitive functions such as memory, and attention, and problem solving (Green et al., 2006). These impairments reduce the person's capacity for learning new information and reduce speed of information processing (Millis et al., 2001). The consequences of moderate-to-severe TBI are immediate, chronic, long-lasting, and can affect many aspects of the person's life, including learning abilities and social relationships (Faul et al., 2010). As younger populations have a higher incidence of TBI (Faul et al., 2010), people who sustain moderate-to-severe TBI may live with chronic impairments caused by TBI throughout their life span (Corrigan & Hammond, 2013).

Research shows that patients in the chronic phase of moderate-to-severe TBI, like all adults, will likely face other acute health conditions later in life, which may require acute inpatient hospital care (Jaglal et al., 2014; Masel & DeWitt, 2010). These other acute health conditions may be unrelated to the moderate-to-severe TBI and have the potential to significantly affect the patient's health (Jaglal et al., 2014). However, the chronic cognitive impairments caused by the moderate-to-severe TBI will influence the manner in which patients in the chronic phase of moderate-to-severe TBI receive healthcare for the rest of their lives (Himanen et al., 2006). For instance, chronic cognitive impairments caused by the initial TBI will influence the ability of these individuals to communicate with healthcare providers and remember and use education (Masel & DeWitt, 2010). As these patients may have difficulty retaining information, communicating, and comprehending communication (Christensen et al., 2008), healthcare providers, particularly nurses, must be able to modify their care plans to accommodate the educational and communication needs of these patients.

Nurses play a large role in acute and non-acute management of patients with moderate-to-severe TBI, as nurses are an essential member of interdisciplinary teams (LeCroy & McMahon, 2015). Nurses have multiple responsibilities in care of these patients with TBI

throughout all phases of treatment and recovery, including assessment of patient problems, coordination and communication of care, technical and physical care, therapy integration, emotional support, patient advocacy, involving the patient and family in care, and education of the patient and family (Long, Kneafsey, Ryan, & Berry, 2002; Ryan, 2009). Nurses' further roles and responsibilities when caring for patients with moderate-to-severe TBI depend on the severity of the patient's injuries and the time since injury. Nurses are likely to need to modify their plan of care more for patients with acute, new-onset moderate-to-severe TBI compared to patients in the chronic phase, as patients in the chronic phase may already have strategies and supports to compensate for their cognitive impairments. Patients with moderate-to-severe TBI (whether acute or chronic) can be found on any hospital unit depending on severity of injury, time since injury, and comorbidities (McQuillan & Mitchell, 2002).

In addition, there are gaps in clinical guidelines for evidence-based nursing care of patients with moderate-to-severe TBI. First, although there are nursing-focused clinical guidelines for acute care of patients with new-onset moderate-to-severe TBI (American Association of Neuroscience Nurses, 2008), there are no published nursing-focused clinical guidelines for *non-acute* management of patients in the chronic phase of moderate-to-severe TBI. Without such guidelines, nurses lack information about caring for these patients when they seek care later in life for other health conditions. Second, available acute care guidelines focus on acute medical and technical care, and do not address the impact of acute or chronic cognitive impairments when delivering this care or on patient and family education. Likewise, clinical guidelines on related health conditions, such as an acquired brain injury caused by stroke, provide limited direction on the influence of cognitive impairments when providing care to patients in the chronic phase of brain injury who are hospitalized for other health conditions (Miller et al., 2010).

Given the lack of clinical guidelines for managing patients in the chronic phase of moderate-to-severe TBI (Oyesanya, Brown, & Turkstra, 2016; Oyesanya, Thomas, Brown, & Turkstra, 2016), education and training interventions are needed to ensure nurses have adequate knowledge to care for these patients. To develop relevant and useful nursing education materials, it is important to understand nurses' concerns about caring for patients with moderate-to-severe TBI; the aim of this study was to identify those concerns.

METHODS

Study Design

This study was a cross-sectional, exploratory analysis of nurses' concerns about caring for patients with moderate-to-severe TBI.

Data Collection

Participants were recruited from three large, Midwestern hospitals: one public hospital and two Veterans hospitals. Data were collected between: October 2014 and August 2015. All nurses employed by each hospital (n=3,904) were invited to participate via email. Nurses in all inpatient hospital departments were invited to participate because all hospital nurses may

care for both acute and chronic patients with moderate-to-severe TBI depending on severity of injury, time since injury, and comorbidities (McQuillan & Mitchell, 2002). Nurses were asked to answer the following qualitative open-ended question: “What are your primary concerns about providing care to patients with moderate-to-severe TBI?” All survey responses were anonymous. Participants had the option to provide contact information if they were interested in being contacted for future studies. Participants’ survey responses were kept separately from all contact information.

Ethical Considerations

Approval was obtained from all participating institutional review boards before conducting this study, including approval for a waiver of written consent (Lentz, Kennett, Perlmutter, & Forrest, 2016). Upon beginning the electronic survey, the first page listed the informed consent with a request that all participants read the informed consent page thoroughly before proceeding (Blease, Lilienfeld, & Kelley, 2016). The informed consent notified nurses that participation was voluntary and anonymous (Blease et al., 2016). The purpose of the study, risks and benefits of participation, and specific plans for data use and management were also stated (Blease et al., 2016). The informed consent ended with the following text, “After you have read this consent, you may proceed to the survey on the next page by clicking on ‘Continue.’ Completing the survey implies consent to participate in the study. You may leave the survey at any time by closing your web browser.”

Data Analysis

Conventional content analysis was used to analyze the data (Hsieh & Shannon, 2005). Conventional content analysis is defined as using open-ended questions to describe a particular phenomenon or area in which there is limited research (Hsieh & Shannon, 2005), which in this case is nurses’ concerns about caring for patients with moderate-to-severe TBI. As directed by conventional content analysis, the authors asked an open-ended question of participants (Hsieh & Shannon, 2005). This allowed participants to share information that was meaningful to them without being prompted so that the authors could follow the participants’ direction in data collection and analysis instead of leading them (Hsieh & Shannon, 2005).

Specific Data Analysis Procedures—The first author began data analysis with the preparation phase (Elo & Kyngäs, 2008). As directed by conventional content analysis, the first author selected the unit of analysis (Elo & Kyngäs, 2008), which was the full response from each nurse respondent. The number of words in each nurses’ response ranged from 2 words to 93 words. Then, the first author attempted to gain a sense of the data as a whole by reading through all 692 nurses’ responses multiple times (Graneheim & Lundman, 2004).

Next, the first author continued into the organization phase of conventional content analysis using the inductive approach (Elo & Kyngäs, 2008) whereby the categories, or codes, were developed directly from the data (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). This included reading the data on all nurses’ responses again and making notes in the margins of the data about pertinent topics written in nurses’ responses, which was considered first-order coding (Elo & Kyngäs, 2008). Data were solely coded for manifest

content (Graneheim & Lundman, 2004). When completing first-order coding, the first author coded the data based on: 1) the concern that was reported; 2) the focus of the concern (i.e., whether the concern was in reference to patients, families, or nurses); and 3) the phase of TBI recovery (acute vs. chronic). The phase of TBI recovery was considered because moderate-to-severe TBI is a chronic disease (Corrigan & Hammond, 2013) and because care of patients with acute TBI differs compared to care of patients who are in the chronic phase post-injury (McQuillan & Mitchell, 2002). Phase of TBI recovery was dichotomized into: a) *acute* (patients with a new-onset moderate-to-severe TBI who were receiving care in the emergency room or inpatient hospital care following their TBI); and b) *chronic* (patients with a history of moderate-to-severe TBI who were receiving emergency room or inpatient hospital care for an acute condition unrelated to their TBI or outpatient care for TBI-related health concerns). An example of the first-order coding process follows. When a nurse wrote: “I work in an ICU, so our primary concerns are typically during the acute phase of TBI, so monitoring vitals, and neurological exams looking for any acute changes,” this was coded in the margins as:

- Concern reported: Missing changes in condition
- Focus of the concern: Patients
- Phase of TBI recovery: Acute TBI

After completing first-order coding, the total number of first order codes was 236. First-order codes were then transferred to a separate sheet of paper and grouped together based on similarities, also known as higher-order coding (Elo & Kyngäs, 2008). Higher-order coding led to 52 categories and 22 sub-categories. After higher-order codes were developed, the first author began the second iteration of data analysis, including reading through all nurses’ responses again and coding based on the 52 categories and 22 sub-categories that had been developed (Graneheim & Lundman, 2004). Next, the first author began the third iteration of data analysis, specifically continuing with abstraction, to once again group categories based on similarities and generate category names based on content-characteristic words (Elo & Kyngäs, 2008). By definition, abstraction specifically includes “formulating a general description of the research topic through generating categories” (Elo & Kyngäs, 2008, p. 111). Grouping of the 52 categories and 22 sub-categories resulted in 14 final categories. Next, the first author read through all nurses’ responses one final time and coded all data based on the final 14 categories. Analysis was continued until saturation was reached, whereby no categories cancelled each other out and all data were appropriately encompassed within the 14 final categories (Elo & Kyngäs, 2008).

After coding independently at each iteration of data analysis, the first author brought the completed codes with corresponding data back to the research team (consisting of the second author and three nursing doctoral students experienced in qualitative research methods) for confirmation in coding. Revisions suggested by the research team and other authors were implemented. This included development and revision of a coding matrix, which was revised based on feedback from the research team. All authors reviewed and approved the final coding matrix and conceptual model. The reported findings, including conceptual model and description of categories, are described in detail below.

RESULTS

Sample Characteristics

A total of 692 nurses responded (public hospital: n=513; Veterans hospitals: n=179), a 17.7% response rate. Response rates in electronic surveys are typically 20% or lower (Shih & Fan, 2009), thus our response rate was typical. Of the 692 respondents, 89.5% were female and mean age was 40.3 years. All nurses were self-identified registered nurses and their levels of education were: nursing diploma (2.0%); associate's degree (13.7%); bachelors' degree (67.8%); and masters or doctorate degree: (16.1%). Reported nursing roles included: staff registered nurse (77.2%); nurse practitioner/certified nurse anesthetologist/certified nurse specialist (5.6%); division officer/charge nurse/care team leader (5.1%); department head, nurse supervisor, or nurse manager (3.8%); and other (8.4%). Work settings included: primary care clinic (4.6%); emergency room (4.5%); ambulatory clinic or doctor's office (15.5%); inpatient unit (51.6%), and other (26.6%; e.g., operating room, outpatient surgery, organ procurement, radiology, etc). Regarding place of employment, 65.2% worked at a public hospital compared to 27.3% at a Veterans hospital.

Detailed Results

Nurses reported multiple concerns about caring for patients with moderate-to-severe TBI. The main concerns were (in no particular order) were: 1) preventing physical injury; 2) missing changes in condition; 3) causing harm; 4) being harmed; 5) communicating; 6) providing adequate education; 7) providing support; 8) being respectful; 9) promoting recovery; 10) preparing for discharge; and 11) managing chronic TBI and comorbidities (see Figure 1). Nurses also described three nursing-related barriers to providing adequate care to patients with TBI: 1) lack of knowledge; 2) limited staffing; and 3) inadequate resources (see Figure 2).

In Figure 1, information on the focus of the concern (patients; families; or nurses) is depicted. Also, the phase of TBI recovery the reported concern refers to is specified, where patients with new-onset moderate-to-severe TBI are referred to as *acute* and patients with a history of moderate-to-severe TBI are referred to as *chronic*.

Concerns about Caring for Patients with TBI

Preventing physical injury—Nurses reported concerns about preventing physical injury for patients with acute TBI to ensure patients were kept safe, which primarily focused on preventing the patient from falling. A nurse stated, “Keeping them safe-usually these patients are impulsive and have short term memory loss. So they are at an extremely high risk of falling.” Nurses described fall prevention techniques, including use of bed and chair alarms, use of a sitter or personal safety attendant, and placing the patient close to the nurses' station. Nurses also reported preventing patients with new injuries from harming themselves, by attempting to prevent patients from “removing important tubes/lines/drains or trying to leave without appropriate treatment.” Patient behavior, specifically impulsiveness caused by impairments in judgment, was included when nurses discussed safety concerns.

“Keeping patients safe due to patient’s poor judgment, understanding, impulsivity, etc. Patient safety is always a concern with patients who have issues with memory or frontal head injuries from TBI.”

Nurses also reported frequently assessing a patient’s behavior and cognitive function to ensure safety when providing care to patients with acute TBI. A nurse stated, “My primary concerns regarding TBI patients are regular assessment of their neuro status and level of functioning and ensuring they are safe in their care environment.” When discussing concerns about patients with acute TBI, another nurse stated, “Patients with moderate-to-severe TBI can be impulsive, causing nurses to be on our toes, not knowing if they are going to try and crawl out of bed, or suddenly get very angered over unknown causes. Patience is essential.” Other nurses stated, “keeping them safe while in the hospital” and following hospital policies on safety precautions.

Missing changes in condition—Nurses reported concerns about missing changes in condition for patients with acute TBI, including “missing small (but critical) signs in decline.” Many of the nurses’ concerns about missing changes in conditions were related to frequent assessment of patients with acute TBI to ensure their status was not declining. A nurse stated, “Since I work in an ICU, primary concerns are assessing changes in neuro exams, vital signs, respiratory needs, and assessing safety risk (standard vs. high fall risk).”

Causing harm—Concerns about harming patients with acute TBI were also reported. One nurse reported, “My primary concern is causing no harm.” Nurses stated they were worried about “making the TBI worse or decreasing their [the patient’s] ability to recover.” Other nurses were concerned about making sure they had enough knowledge to not cause harm to the patient. For instance, a nurse was concerned about, “causing harm by not being informed enough about specific needs [of a patient with TBI].”

Being harmed—Nurses reported concerns about the patient causing harm to others in the room, often family members or nurses, including themselves. The majority of concerns of being harmed were rooted in the aggressive, violent, and often unpredictable behaviors shown by patients with new injuries. One nurse stated, “In the past, they are greatly impulsive and at times have been unintentionally violent with staff.” Another nurse reported, “I always got nervous with the patients that could easily get upset and violent. It was hard trying to figure out what the triggers are.” Nurses also expressed difficulty with handling patient behavior and managing unpredictable behavior.

Communicating—Nurses reported concerns about communicating with patients and other nurses when caring for patients with acute TBI. In particular, nurses reported concerns about understanding patients’ needs, specifically for patients who were non-verbal or had deficits in communication. A nurse stated concerns about, “not being able to understand when he/she is trying to tell me about a problem and is unable to do so because his/her communication is impaired.” Another nurse stated that it is, “hard to understand what they need when they cannot verbalize it.”

Nurses were also concerned about effectively communicating information about patients with acute TBI to other staff members. One nurse stated worries about “communication with other staff members (charge nurse/nursing assistants) regarding this particular patient and the safety risks that revolve around this patient’s care.” Another nurse stated, “Communicating what works to the staff relieving you to avoid unnecessary agitation of the patient.” Communication about patients with acute TBI to other nurses was rooted in preventing the patient from being physically injured and preventing harm from patients.

Providing adequate education—Nurses were also concerned about providing adequate education to patients and families. Educational concerns pertained to both acute and chronic TBI. Nurses wanted to make sure they were providing accurate information to patients and their families, such as “being able to accurately answer family questions.” Nurses were also concerned about educating patients and families with expectations about recovery for patients with acute TBI.

“My primary concerns are always about the patient and their family as how expectations of the course of care cannot always be laid out smoothly. Sometimes TBI patients have good days and bad ones. The ability to ‘ride the wave’ and to teach that to others is a primary concern that can help elevate major stress issues.”

Nurses also described concerns about helping families learn about recovery. One nurse stated that she worked to “involve the family more by educating them on process and recovery of TBI so they know what to expect.” Prior to providing education, some nurses assessed the patient’s and family’s knowledge to determine where additional education was needed.

“For new [acute] TBI, seek info on how much family knows and if they have any questions. We seem to TELL the family and patient what to do and not give options. For an old [chronic] TBI, try to maintain home routine.”

In contrast, few nurses reported concerns about providing adequate education to patients with chronic TBI and their families.

Providing support—Concerns about providing support to patients with acute TBI and their families were also described. Respondents wrote about providing support for patients and families, sometimes in general terms (e.g., “supporting patient and family”). Nurses also reported concerns about providing emotional support to families of patients with acute TBI, including, “Providing support to the family when the patient’s reactions to them is upsetting.” Another nurse shared the concern of “supporting caregivers who assist patients with TBI, providing the best information to them.” Some nurses were concerned about helping families cope, citing a need to have “strategies for helping family members cope when prognosis is unknown.” Providing support also related to discharge planning, such as “obtaining support for patient and his family/significant other(s) when patient is discharged for an ongoing condition that demands round the clock assistance.”

Being respectful—Nurses discussed concerns about being respectful to patients with acute TBI. Overall, nurses wanted to be respectful of patients, including respecting patients’ thoughts and wishes and ensuring they were not communicating with patients in a

condescending manner. Comments included, “making sure the patient’s thoughts/beliefs are recognized, respected,” and “advocating for them while making sure I am not underestimating their understanding.”

Promoting recovery—Nurses reported concerns about promoting recovery of patients with acute TBI. Because patients with acute TBI have busy schedules while hospitalized, including therapy, completing nursing cares, taking medications, eating, visits from friends and family, etc., nurses wanted to make sure their patients had time to rest. One nurse stated his/her concern was, “getting/keeping them on a normal sleep/wake cycle is important for brain healing.” Another nurse focused on, “Providing the patient with a quiet environment to allow sleep.”

Preparing for discharge—Concerns about preparing for discharge were focused on patients with acute TBI and their families. Nurses reported concerns with the patient’s and family’s discharge needs, as well as the patient’s discharge placement. One nurse reported concerns about, “assisting with developing a continuing plan for post-discharge.” Another nurse discussed his/her role in discharge planning, stating, “In my role, it’s important to help improve staff and family understanding regarding the complex discharge needs of this patient population and length of recovery.”

Managing chronic TBI and comorbidities—Only a handful of nurses reported concerns about patients’ and families’ management of chronic TBI and accompanying comorbidities, and these responses typically compared the nurses’ concerns in both the acute and chronic phase of TBI. Nurses who described management of patients with chronic TBI often compared care strategies for these patients to those with acute injuries.

“In the ER, I either see them in the initial injury phase or the chronic long term phase, the concerns are different. During the initial injury phase [concerns are]: keeping cranial pressures down, minimizing injury. During the chronic phase, we often see people for secondary reasons (i.e., trach, feeding tube, foley issues). Concerns mostly focus on the acute issue and not the TBI.”

Nurses who provide care to patients with chronic TBI had concerns about long-term inclusion of TBI into the care plan. Other nurses were concerned with management of comorbidities when caring for patients with chronic TBI, such as pain.

“My team focusses primarily on pain, and chronic pain is a significant co-morbidity with TBI. Coordination of care is particularly essential; both to avoid under-treatment of pain and to ensure the pain interventions do not exacerbate problems related to the management of the TBI.”

Nursing-Related Barriers to Providing Adequate Care to Patients with TBI

Nurses also described three nursing-related barriers to providing adequate care to patients with TBI: 1) lack of knowledge; 2) limited staffing; and 3) inadequate resources (see Figure 2).

In Figure 2, information on the focus of the barrier (patients; families; or nurses) and the influence of the barrier is depicted. Like Figure 1, the phase of TBI recovery the reported concern refers to is specified.

Lack of knowledge—Nurses reported their own lack of knowledge as a barrier that could influence the care they provide to patients with acute and chronic TBI and their families. Lack of knowledge was a barrier to appropriate assessment and care for patients along with education of these patients and their families. One nurse shared his/her concern about caring for patients with acute TBI was “inadequate knowledge to make an accurate assessment. Lack of knowledge to know if a behavior, statement, action, etc. is ‘normal’ or significant.” Another nurse was concerned about educating patients with chronic TBI and their families, stating concerns of “not knowing how to teach patient or family in home.”

In general, limited experience caring for patients with TBI was also reported as a cause for lack of knowledge.

“I do not have much experience in care for these patients and do not encounter them much in my practice area. My concern would be my inexperience in knowing much about TBIs and what type of nursing care works best for patients with this concern.”

Other nurses discussed concerns about needing more knowledge to do an adequate job.

“I feel I need more knowledge about how to successfully work with TBI patients and their families over the phone. Many of the patients we talk to daily have TBI whether it is mild - severe, and none of the RNs in the unit understands the ramifications of providing these men and women with the same routine care that we give to everyone else.”

Another nurse suggested that more education is needed: “Nurses are not knowledgeable about non-pharmacological interventions. We need more education on how to care for the patient without using medication.”

Limited staffing—Nurses reported limited staffing was a barrier influencing their ability to provide adequate care to patients with acute TBI. Often, there were fewer nurses than needed to keep up with the challenges of patient care. One nurse wrote, “We are one to one or one to two with our patient ratio. I might need additional hands when the patient is waking from anesthesia with TBI.” Limited staffing was also discussed as influencing patient care and recovery, as one nurse wrote that, “appropriate staffing is needed to allow concentrated time with patient for assessment of current state and interventions to engage patient.” When commenting on care of patients with acute TBI, a nurse wrote, “On a medicine unit, I do not think staffing is appropriate for most of these patients who require cognitive training.”

Inadequate resources—Nurses also described inadequate resources as a barrier to providing adequate care to patients with acute and chronic TBI and support of the families of these patients. Nurses reported a lack of hospital resources and wanting more “resources to help the patient and family.” Another nurse shared there was “limited availability of

resources on the unit.” Nurses also described lack of resources for patients with chronic TBI and their families outside of the hospital. Unfortunately, information about resources that were needed was not specified.

DISCUSSION

The purpose of this study was to describe nurses’ concerns about caring for patients with moderate-to-severe TBI, including patients in the acute and chronic phase. Nurses’ described eleven categories of concerns about caring for patients with moderate-to-severe TBI and three nursing-related barriers to providing adequate care to these patients. Concerns and nursing-related barriers varied by whom the concern was in reference to (patients, families, or nurses) and whether the TBI was acute or chronic.

Most nurses reported concerns about caring for patients with acute moderate-to-severe TBI, while few reported caring for patients with chronic TBI. The multiple concerns described about care of patients with acute TBI imply that nurses are mainly focused on issues that arise when caring for acute patients with TBI. For patients with chronic TBI, particularly those who are hospitalized for other health conditions that are unrelated to the TBI, nurses only reported concerns in two areas: providing adequate education and managing chronic TBI and comorbidities.

Although there is evidence to show that the chronic cognitive impairments caused by moderate-to-severe TBI will likely cause difficulties for individuals in the chronic phase of moderate-to-severe TBI when seeking acute inpatient healthcare later in life for conditions unrelated to the TBI (Himanen et al., 2006), very few of the 692 nurses in our sample described concerns about caring of patients with chronic TBI. Yet, many of these nurses work in hospital settings and are likely to provide care to these patients at any time depending on the patient’s severity of injury, time since injury, and comorbidities (McQuillan & Mitchell, 2002). The very limited concerns about patients in the chronic phase of moderate-to-severe TBI suggest these important issues may not be considered in development of nursing care plans when caring for these patients. Lack of reports of concerns about caring for patients with chronic TBI might imply nurses: 1) are not aware of important areas to take into consideration; 2) may be aware of important areas to take into consideration but lack knowledge on how to modify the plan of care appropriately; or 3) may be focused on issues unrelated to the patient’s chronic cognitive impairments. Limited reports of concerns about caring for patients with chronic TBI may stem from the fact that clinical guidelines on management of chronic cognitive impairment after TBI or non-acute management of patients in the chronic phase of moderate-to-severe TBI do not exist.

Nurses reported multiple concerns that involved family members of patients with TBI. Concerns relating to family included the following categories: 1) being harmed; 2) providing adequate education; 3) providing support; 4) preparing for discharge; and 5) managing chronic TBI and comorbidities. As prior research has shown that family members of civilian and Veteran patients with TBI report receiving inadequate information for healthcare providers, the need for more assistance with healthcare (O’Callaghan, McAllister, & Wilson, 2011) and difficulty navigating the healthcare system (Griffin et al., 2012), nurses reported

concerns about families are reassuring as it suggests that nurses are keeping families' needs in mind. However, nurses' reports of these concerns may also imply that nurses need more education and training about management of families of patients with TBI throughout the care continuum. Similar to the lack of nursing-focused clinical guidelines on management of acute or chronic cognitive impairments after TBI and non-acute management of patients with chronic TBI, these concerns may also stem from the fact that guidelines on family-centered care for patients with TBI do not exist.

Nurses reported nursing-related barriers to caring for patients with TBI throughout the continuum of recovery. Frequent reports of lack of knowledge about caring for patients with both acute and chronic TBI and multiple reports of barriers specific to family members of patients with TBI suggest that nurses may need more education and training. Nurses' concerns about limited staffing and inadequate resources (such as inadequate staffing ratios) imply that nurses may not have adequate resources to care for these patients and their families or may not be knowledgeable about available resources.

The overall emphasis on concerns about acute TBI rather than chronic TBI are concerning due to the increased incidence of TBI among both civilians and Veterans returning home from the recent wars (Centers for Disease Control and Prevention, 2014; Defense and Veterans Brain Injury Center, 2014). More individuals with life-long impairments caused by moderate-to-severe TBI will be seeking care for other health conditions later in life, including Veterans who are cared for in all settings, not just in Veterans hospitals. Nurses everywhere will need to know how to take care of these patients in the chronic phase of moderate-to-severe TBI, not for just primary management of TBI, but because of the influence of TBI on the patient's comorbidities. Nurses' limited concern about caring for patients with chronic TBI begs the question: are nurses' knowledgeable about care of patients in the chronic phase of moderate-to-severe TBI?

Trustworthiness of Findings

Multiple strategies were used in this study to improve trustworthiness of findings, including credibility, dependability, and transferability (Elo & Kyngäs, 2008; Graneheim & Lundman, 2004). To achieve credibility, the authors selected categories that covered a wide range of nurses' responses (Elo & Kyngäs, 2008). To achieve dependability, authors provided sufficient evidence for each category described by using quotes from multiple participants to indicate a clear link from data to results (Elo & Kyngäs, 2008). Finally, authors achieved transferability by clearly describing the context of data collection, characteristics of participants, and data analysis process to allow findings to be transferred or applied to another setting or group (Elo & Kyngäs, 2008; Graneheim & Lundman, 2004).

Strengths and Limitations

Multiple strengths were present in this study. We had a large sample size and data were collected from nurses across hospital departments at three hospitals. Our sample also included nurses from units that do and do not regularly care for patients with TBI. Responses from nurses across departments allowed us to gain knowledge on nurses' concerns about care, which is particularly important because all nurses may provide care to

patients with TBI depending on time since injury, severity of injury, and comorbidities (McQuillan & Mitchell, 2002). In addition, a research team with experts in qualitative methods, was used to analyze data, improving rigor in our findings. However, this study was not without limitations.

One limitation is that although we surveyed nurses from both public and Veterans hospitals, two-thirds of those surveyed were from civilian hospitals vs. one-third from Veterans hospitals, so responses may be weighted in favor of civilian nursing concerns. Reported concerns from nurses employed by the public hospital vs. the Veterans hospitals were highly similar, however, so the difference in sample sizes is unlikely to have affected results. A second limitation is that we asked nurses to state their *primary* concerns about care of patients with moderate-to-severe TBI; we did not explicitly ask nurses to report their concerns about caring for patients in the acute and chronic phase post-injury. The word “primary” may have led nurses to only list concerns that were high on their priority list. For this reason, respondents might have focused on urgent, serious medical concerns and underreported less urgent problems that are nevertheless critical for patient care, such as medication or general health management in the chronic phase post-injury, or prevention of secondary injury complications that can occur weeks and months after injury (e.g., pneumonia, seizures, changes in body weight, chronic pain). In addition, explicit mention of acute and chronic TBI in the question would have prompted nurses to provide specific responses related to acute or chronic TBI. Instead, we allowed nurses to share their thoughts openly without being led by the authors, thus discovering the majority of nurses’ responses were related to acute TBI. Finally, use of an electronic survey did not allow the authors to follow up with participants to ask questions about their initial responses. However, nurses provided clear, detailed information that was sufficient for analysis.

Future Research

More research is needed to compare nurses’ concerns about care of patients with moderate-to-severe TBI with findings from tests of actual knowledge about care of these patients. Research is also needed to determine specific resources needed by nurses to provide adequate care to patients and support to their family members, as information on resources provided by nurses from our sample were vague. Future research of this nature will provide direction for development and testing of training and educational interventions for nurses. Finally, it is possible that when patients with chronic TBI seek medical care for other problems, nurses do not always recognize that TBI is a chronic health condition (Corrigan & Hammond, 2013), and that these patients might need care accommodations because of cognitive, physical, sensory, and psychological consequences of the initial TBI. Future studies might take a more comprehensive approach, and ask nurses to identify any and all concerns for patients throughout the continuum of care.

CONCLUSIONS

Nurses caring for patients with TBI must possess appropriate knowledge to care for patients with TBI to engage in evidence-based practice and improve patient outcomes. These findings emphasize nurses have multiple concerns about care for patients with TBI, which

may suggest the need for additional training and education. In addition, these findings emphasize the need for development of nursing-focused clinical guidelines for nursing management of patients and their families in both the acute and chronic phase after moderate-to-severe TBI to direct training and education for all nurses, as all nurses will likely care for these patients at some point in their practice.

RELEVANCE TO CLINICAL PRACTICE

These findings have implications for policy and practice, including development of nursing-focused clinical guidelines on management of acute or chronic cognitive impairment after TBI and non-acute management of patients in the chronic phase of moderate-to-severe TBI to direct training and educating nurses. The lack of reports of concerns about patients with chronic TBI, including those who are hospitalized for acute health conditions unrelated to the TBI, suggests nurses need education on developing care plans for these patients. The multiple reports of concerns about management of family members of these patients also suggest nurses are keeping families' needs in mind but may need more guidance on making care family-centered. Overall, the numerous concerns reported by nurses in this sample can be used to provide direction on areas where nurses may need more education and training. All nurses, including nurses practicing in hospital-based, outpatient, and home health settings in both public and Veterans hospitals should receive this training because patients with both acute and chronic TBI can be found in any of these healthcare settings.

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SUMMARY BOX**What does this paper contribute to the wider global clinical community?**

- In this study of nurses' concerns about caring for patients with moderate-to-severe traumatic brain injury (TBI), nurses reported multiple concerns including: 1) preventing physical injury; 2) missing changes in condition; 3) providing adequate education; and 4) providing support.
- Although research shows that the residual impairments of patients moderate-to-severe TBI have in the chronic phase of recovery may influence how they receive care when facing other acute health conditions later in life, few nurses reported concerns about caring for patients with TBI in the chronic phase.
- Findings have implications for education of nurses and development of nursing guidelines for management of patients with TBI, including providing direction for nurses on development of care plans for patients in the chronic phase after a moderate-to-severe TBI.

	Concerns Reported	Focus of Concern	Phase of TBI Recovery
1	Preventing physical injury	Patients	Acute TBI
2	Missing changes in condition	Patients	Acute TBI
3	Causing harm	Patients	Acute TBI
4	Being harmed	Families Nurses	Acute TBI
5	Communicating	Patients Nurses	Acute TBI
6	Providing adequate education	Patients Families	Acute TBI Chronic TBI
7	Providing support	Patients Families	Acute TBI
8	Being respectful	Patients	Acute TBI
9	Promoting recovery	Patients	Acute TBI
10	Preparing for discharge	Patients Families	Acute TBI
11	Managing chronic TBI and comorbidities	Patients Families	Acute TBI Chronic TBI

Figure 1.
Nurses' Concerns about Caring for Patients with TBI.

Figure 2.
Nursing-Related Barriers to Providing Adequate Care to Patients with TBI.